

SABANCI UNIVERSITY

Faculty of Engineering and Natural Sciences

ANNUAL REPORT
2025-2026
ACADEMIC YEAR

Sabancı Üniversitesi
FACULTY OF ENGINEERING AND NATURAL SCIENCES

Dean's Message



Greetings,

We are pleased to share the FENS Annual Report for the 2025–2026 academic year. Once again, the pages that follow reflect the breadth and vitality of our Faculty: the accomplishments of our students and alumni, the dedication of our academic community, the strength of our research, and our growing engagement with industry and international partners.

During 2025–2026, 2,693 undergraduate students were enrolled at FENS, including 665 students who had not yet declared their programs, and 622 undergraduate students graduated. Computer Science and Engineering remained our largest undergraduate program with 1,116 students, followed by Industrial Engineering with 593 students (**pages 4–5**). At the graduate level, our programs enrolled 363 M.Sc. and 181 Ph.D. students, while 99 M.Sc. and 22 Ph.D. students completed their degrees during the year (**page 6**). Student mobility also remained an important part of the FENS experience, with substantial participation in Erasmus, global exchange, and short-term international mobility programs (**page 7**).

Our academic community continued to grow. Ten new colleagues are introduced in this year's report, including six faculty members, two instructors, and two researchers (**pages 10–14**). FENS had 115 academic staff members in total, comprising 52 professors, 19 associate professors, 33 assistant professors, 5 researchers, and 6 instructors (**page 15**). During the year, Güllü Kızıltaş Şendur and Semih Onur Sezer were promoted to full professor (**page 16**).

Research performance remained one of the defining strengths of FENS. In 2025, our faculty produced 411 scholarly outputs. 73% of our publications appeared in Q1 journals, while 34.9% were published in journals within the top 10% of their fields by CiteScore percentile (**page 17**). International collaboration remained exceptionally strong, with 223 papers published with international co-authors (**pages 18–19**). Our externally funded research portfolio also continued to expand. As of October 2026, FENS had 94 TÜBİTAK projects with a total budget of 317.8 million TL, 15 EU projects worth 281.2 million TL, 15 projects funded by non-governmental organizations, universities, and other sources totaling 194.9 million TL, and 31 business-enterprise projects totaling 380.4 million TL (**page 20**). Together, these represent 155 projects and approximately 1.174 billion TL in research funding. Particularly noteworthy was Sabancı University's performance in the second 2025 TÜBİTAK 1001 call, in which the University received support for 27 projects, 19 of them from FENS (**pages 74–75**). The report also lists 24 patent grants obtained during the academic year (**pages 21–22**).

We continued to strengthen the connection between education, research, and real-world challenges. In 2025–2026, our Industry-Focused Projects program involved 14 companies, 21 projects, and 70 students. The program has now reached a cumulative total of 134 successfully completed projects involving 453 senior students (**pages 40–41**). Graduation projects and internships likewise provided extensive professional experience: 671 students took part in ENS 491/492 graduation projects, and our students completed 460 internship projects, 132 of them abroad (**pages 42–43**). Our PURE undergraduate research program also maintained impressive participation across the Fall, Spring, and Summer terms, with 163 projects, 265 student participations, and 68 FENS supervisors represented across the three periods (**pages 44–45**). This year's PURE involved students from 71 Universities 41 of which were international institutions.

FENS faculty members received a remarkable range of prestigious national and international awards during the 2025–2026 academic year. Selmiye Alkan Gürsel received the Nejat Veziroğlu Special Award for her

contributions to hydrogen energy and technologies, Ali Koşar received three major distinctions during the year: the ITU Science Award in Engineering for his pioneering contributions to microfluidic systems and phase-change phenomena, the YÖK National Innovation Award for his work on microscale cavitation technology and its medical applications, and the 2025 Eczacıbaşı Medical Science Award for his "cavitation on chip" technology. Adnan Kefal, Duygu Kuzuoğlu Öztürk, Alhun Aydın, and Dimitrios Papathanasiou were selected for the 2026 Science Academy Young Scientists Awards (BAGEP) in recognition of their original research. Burcu Saner Okan and her collaborators won first place in the Innovation and Technology: Product Technology category at the PAGÇEV 2026 Plastic Recycling Conference and Awards, while Yusuf Ziya Menceloğlu received the Elginkan Foundation 2025 Technology Award for the development of the biodegradable superabsorbent polymer Nanotern™. Duygu Kuzuoğlu Öztürk was also awarded the 2025 TÜBA-GEBİP Outstanding Young Scientist Award for her molecular-level cancer research, and Burcu Saner Okan received second place in the pitching competition at the I2DM Summit 2025 for her work on sustainable advanced materials and circular composites. Umut Şahin was honored with the 2025 Eczacıbaşı Personalized Medicine Award in the Targeted Therapies category for his research on new therapeutic targets for ALS (**pages 48–53**). FENS faculty also secured significant new national and international research support, including Horizon Europe, QuantERA, M.ERA-NET, EUREKA, bilateral TÜBİTAK programs, COST Actions, and an EMBO Installation Grant (**pages 54–58**).

Our students similarly distinguished themselves. Among many achievements, our graduate students received awards at SIU 2026 and in other national and international competitions. In our own annual awards, Cemile Uslu won the 3MT competition, with Nihan Birgün receiving both runner-up and People's Choice honors (**page 79**). The Dr. Gürsel Sönmez Research Award was presented to Hamide Suluyer and Arash Ebrahimi Araghizad (**page 80**), while the second year of the Professor Durmuş Ali Demir Memorial Award recognized undergraduate students Can Çoruh and İdil Bayar and Ph.D. student Veysel Oğulcan Kaya (**page 81**). Sude Tıraş, a Computer Science and Engineering graduate, received the Sakıp Sabancı Award as the highest-ranking FENS undergraduate student (**page 82**).

FENS also remained a vibrant forum for scientific exchange. During the year, we hosted 81 graduate seminars, five special seminars, and three Dean's Speaker Series talks (**pages 84–86**), bringing our students and faculty into contact with distinguished researchers from Türkiye and abroad. Our 6th FENS Search Conference and the Koç University–Sabancı University Engineering Faculties Workshop provided further opportunities to discuss the future of research and education, particularly the opportunities and challenges presented by artificial intelligence (**pages 76–77**).

The accomplishments highlighted here represent only a portion of the activity documented in this report. They demonstrate not only the strength of our research and educational programs, but also the commitment of our students, faculty members, researchers, instructors, staff, alumni, and partners to a culture of curiosity, collaboration, and excellence.

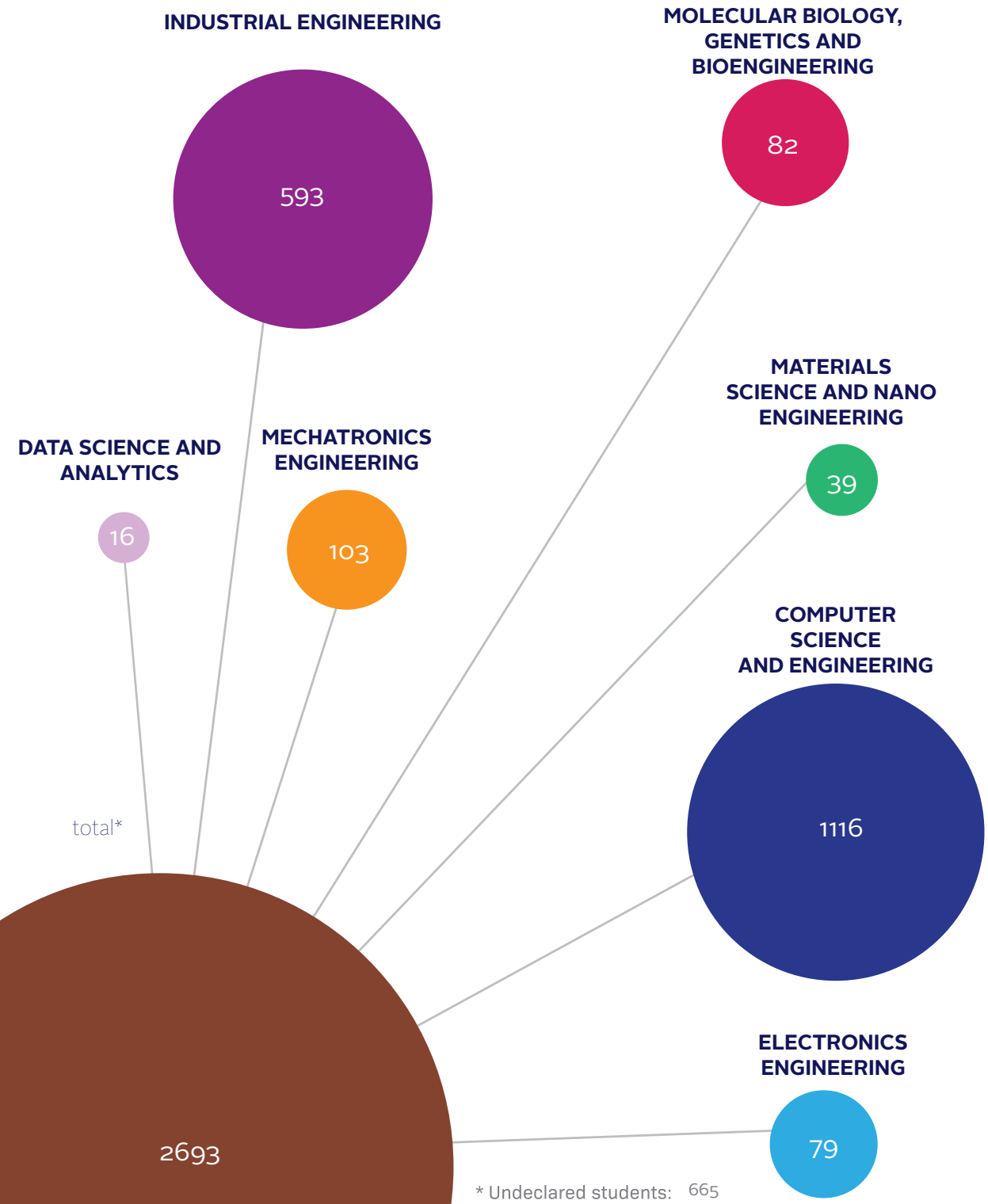
I would like to extend my sincere congratulations and gratitude to every member of the FENS community for their contributions throughout the year. It is a privilege to be part of a Faculty whose members continue to push scientific boundaries, educate the next generation, and create meaningful impact in Türkiye and around the world. As my term as Dean draws to a close, I am very pleased to entrust the leadership of FENS to Professor Emre Erdem, who assumed the role of Dean on September 1, 2026. I am confident that, under his leadership, the Faculty will continue to build on its strong foundations and advance with the same commitment to excellence in education, research, collaboration, and impact that has long distinguished FENS. I wish him every success in this new role and look forward with confidence to the new achievements and milestones the Faculty will reach in the years ahead.

Finally, I sincerely thank the dedicated team who prepared this report, as well as everyone who contributed information, stories, content and materials that made it possible.

Erkay Savaş
Dean
Faculty of Engineering and Natural Sciences

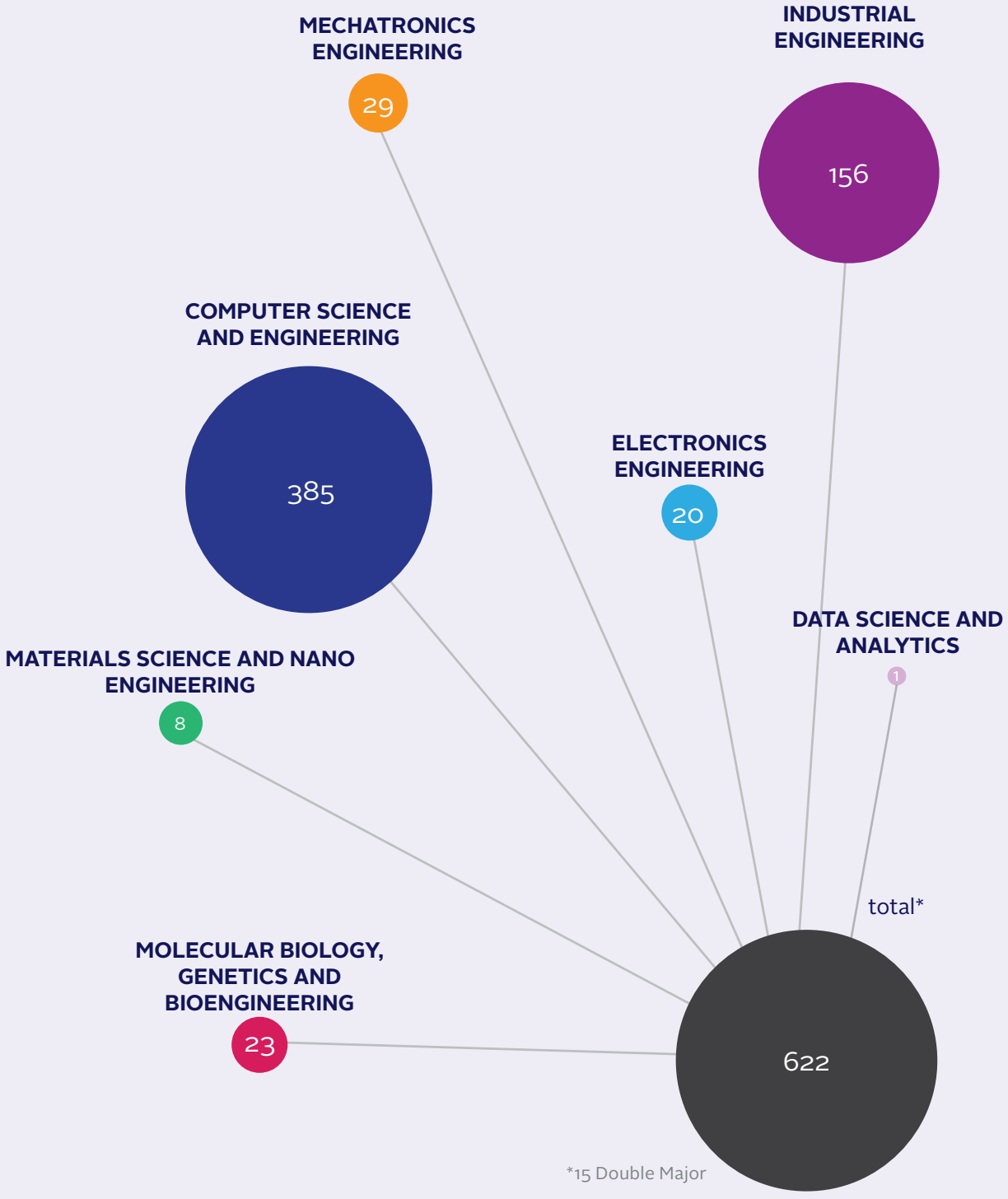
Student Numbers

Undergraduate Student Enrollment 2025-2026



* Undeclared students: 665

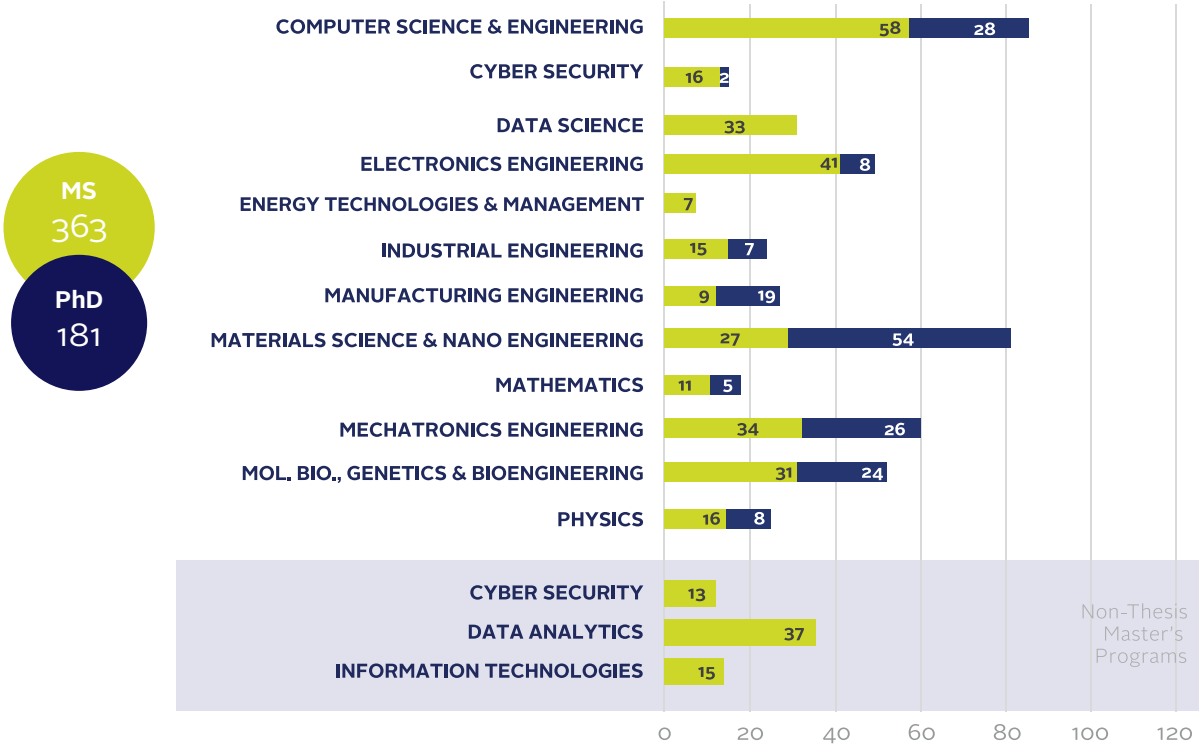
Undergraduate Student Alumni 2025-2026



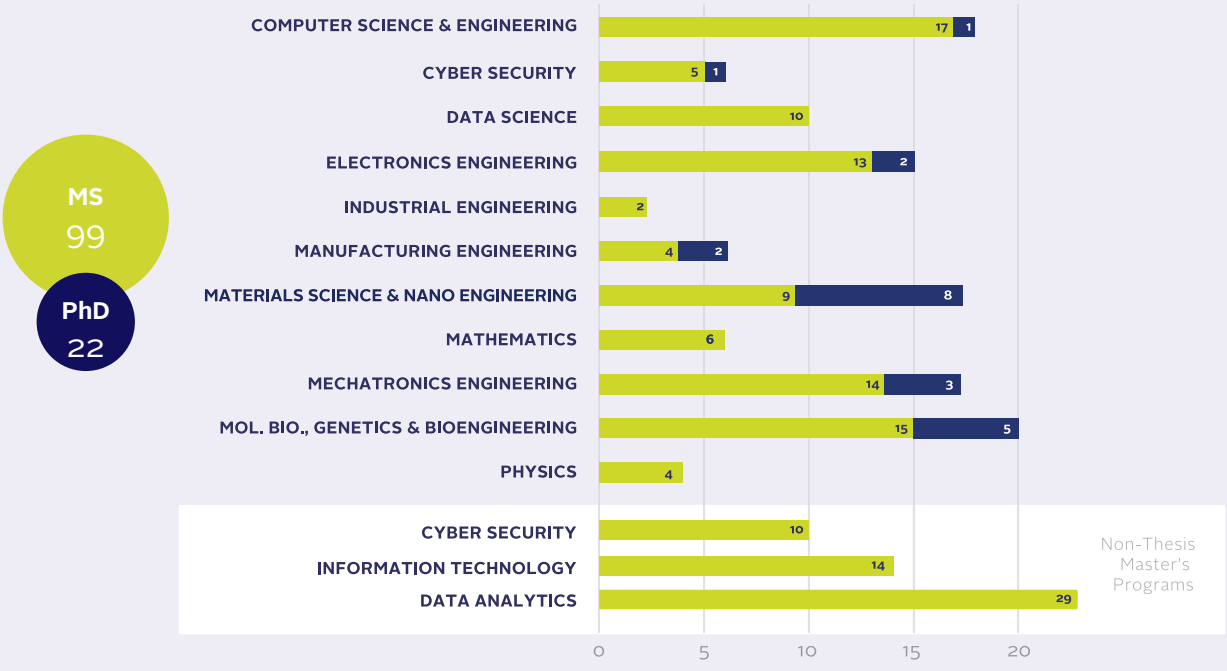
*15 Double Major

Student Numbers

Graduate Student Enrollment 2025–2026

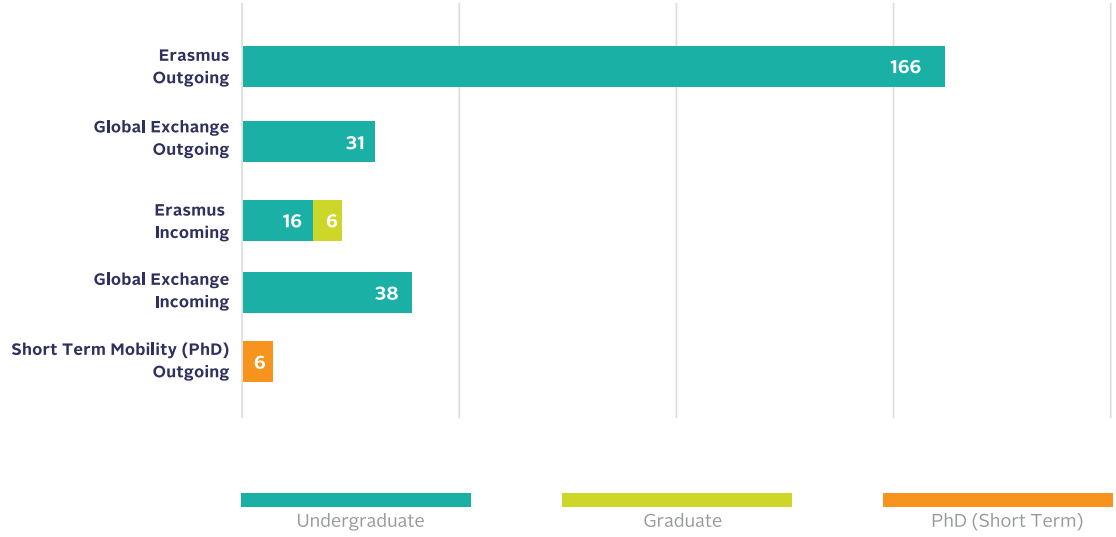


Graduate Student Alumni 2025–2026

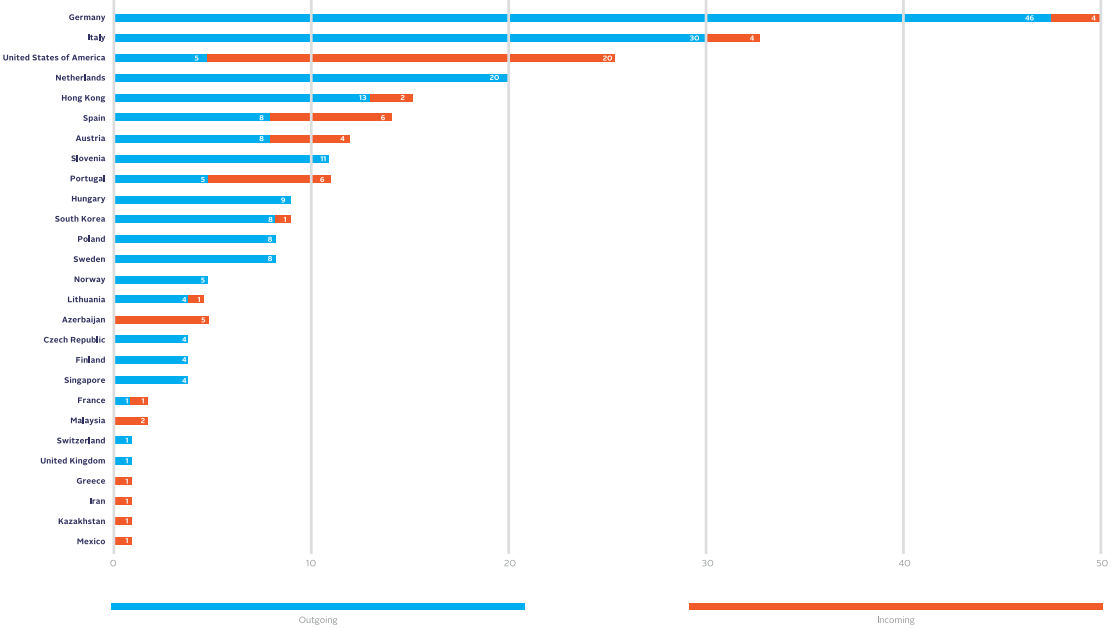


Exchange Student Numbers 2025-2026

Distribution by Mobility Type

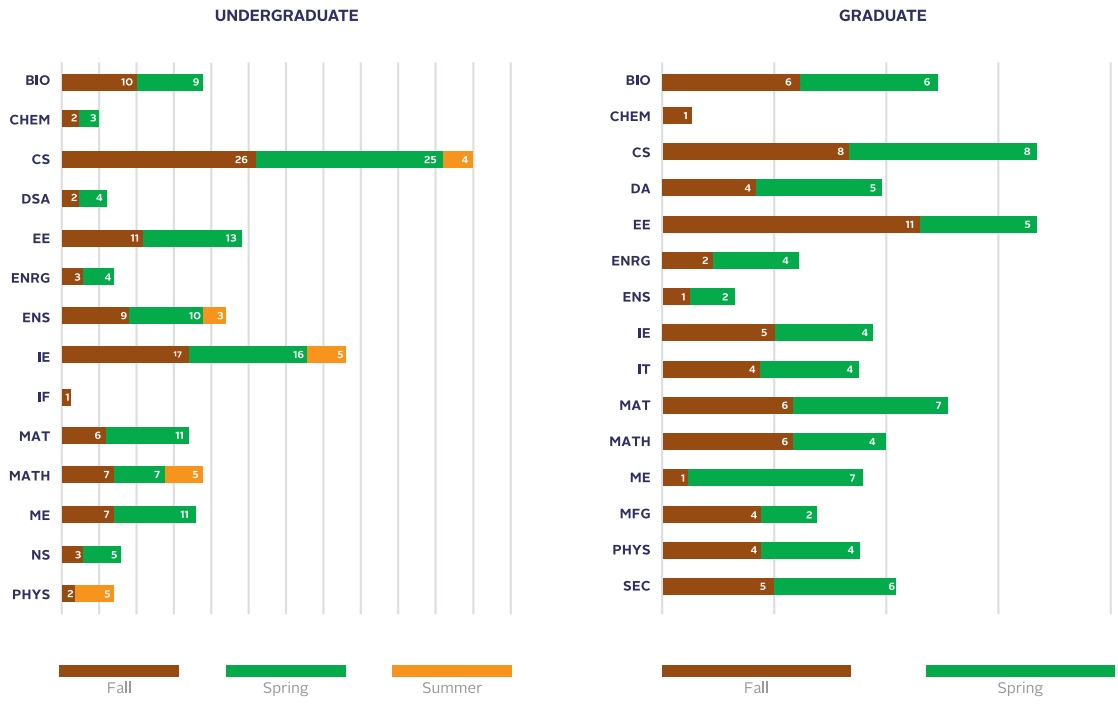


Outgoing vs Incoming Students by Country



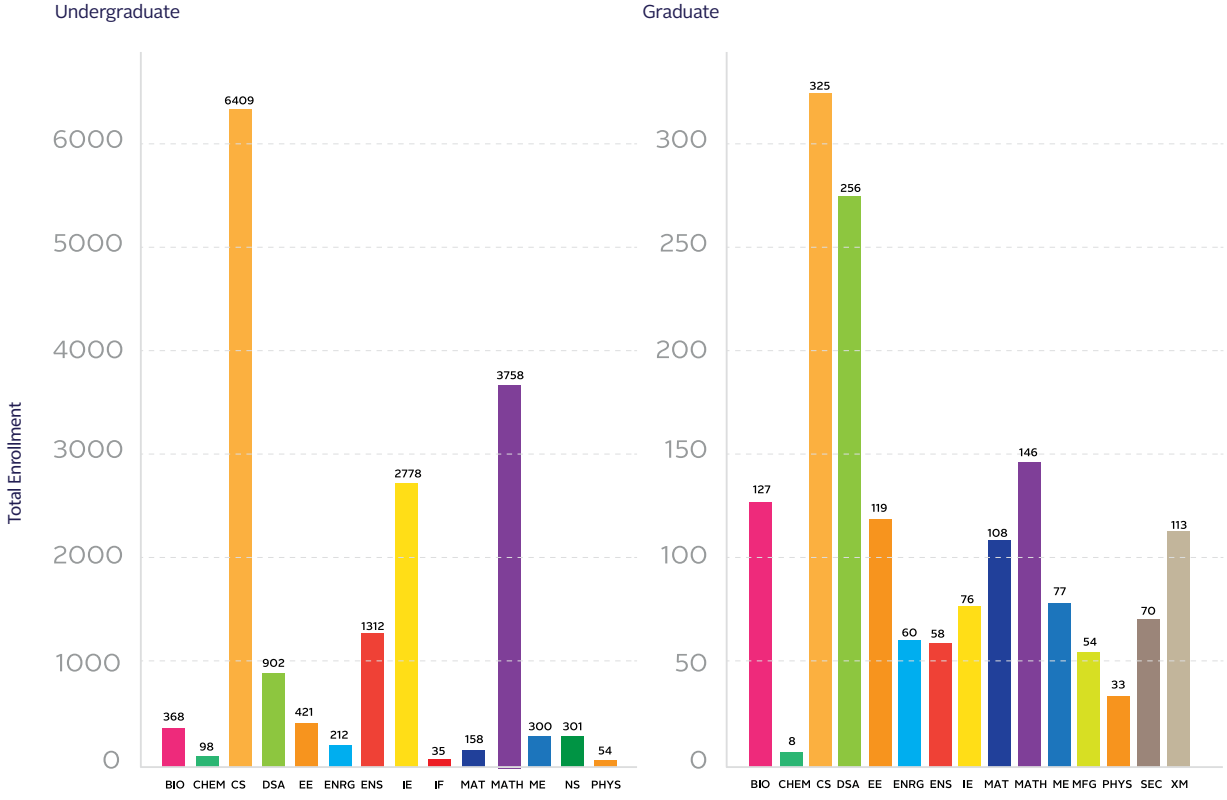
Offered Courses 2025-2026

Number of Courses by Subject Code



(*) Double-coded courses are counted separately, and multi-section courses are counted as a single course.

Total Enrollment to Courses by Subject Code



New Courses

Course Code	Course Name
CS 415	Introduction to Deep Learning
CS 435	Quantum Programming I
CS 48011/58011	Evolution and Biology for Artificial Intelligence
EE 48009/58009	Machine Learning for Communication Systems
ENRG 424/524	Cell Design, Modelling and Battery Pack Development
IE 435	Production Dynamics and Control
IF 402	Sustainability and Circularity in Materials
IF 405	Scientific Investigations into Artworks
MATH 484/584	Mathematical Introduction to Quantum Algorithms and Post-Quantum Cryptography
CS 455/555	Large Language Models: Theoretical Foundations and Practical Applications
PHYS 113	Basic Concepts of Physics for Scientists and Engineers
CHEM 212	General Chemistry for Engineers
BIO 460/560	Evolution
CS 440	Quantum Programming II
MATH 212*	Linear Algebra and Differential Equations
EE 48010/58010*	Special Topics in EE: Brain-Computer Interfaces
CS 48012/58012*	Special Topics in CS: Agentic AI Systems: Architecture and Deployment

** Will be offered for the first time in Fall 2026.*



Newcomers



Betül Uralcan Kılavuz

Betül Uralcan Kılavuz is a Faculty Member at the Faculty of Engineering and Natural Sciences, Materials Science and Nano Engineering Program. She received her Ph.D. in Chemical and Biological Engineering from Princeton University in 2019, following her B.S. in Chemical Engineering from Boğaziçi University in 2013. She joined the Department of Chemical Engineering at Boğaziçi University as a faculty member in 2019, where she worked until moving to Sabancı University in 2026. From 2023 to 2024, she was also an Anderson Fellow at Yale University's Department of Chemical and Environmental Engineering. Dr. Kılavuz's research focuses on molecular transport and rare events in confined and biomolecular systems. She combines molecular simulation, statistical mechanics, advanced sampling, and data-driven methods to understand how molecular-scale interactions govern transport, selectivity, and structural behavior in biological and engineered systems. Her work spans ion channels and synthetic nanopores, nanoporous materials for energy storage and separations, and protein conformational dynamics, alongside the development of computational methods for studying processes beyond the timescales accessible to conventional simulations. She has received prestigious honors, including the Science Academy Young Scientists Award (BAGEP) from the Science Academy, Türkiye in 2024, and the Anderson Postdoctoral Fellowship from Yale University.



Erhun Kundakcıoğlu

Erhun Kundakcıoğlu is a Faculty Member at the Faculty of Engineering and Natural Sciences, Industrial Engineering Program. He received his Ph.D. in Industrial and Systems Engineering with a minor in Computer and Information Science and Engineering from the University of Florida (2005–2009). He earned his M.S. in Industrial Engineering from Sabancı University (2002–2004) and B.S. from Bilkent University (1999–2002). Prior to his current appointment, he served as a Professor at Özyeğin University, Founder and Managing Director at Datart R&D Management Consulting, and Distinguished Operations Research Scientist at Optym. Dr. Kundakcıoğlu's research broadly focuses on operations research, mathematical optimization, and machine learning techniques. His work explores healthcare analytics, supply chain analytics, industrial optimization, and complex scheduling systems. He has earned distinguished recognitions, including serving as Advisor to the Finalist Team (Honorable Mention) in the INFORMS O.R. & Analytics Student Team Competition and receiving the NSF Fellowship for the Summer Institute on Nanomechanics and Micro/Nanomanufacturing.



Mehmet Emre Özfatura

Mehmet Emre Özfatura is a Faculty Member at the Faculty of Engineering and Natural Sciences, Electronics Engineering Program. He received his Ph.D. in Electrical and Electronic Engineering from Imperial College London (2016–2021). He also completed his M.S. in Electronics Engineering (2012–2015) and B.S. in Electronics Engineering with a Minor in Mathematics (2007–2012) at Sabancı University. Before his current role, he gained extensive industry and academic experience as an Experienced Researcher at Ericsson Research UK starting in April 2024, and as a Research Associate at Imperial College London. Dr. Özfatura's research broadly focuses on neural time series forecasting, cost-aware LLM deployment and routing frameworks, secure and robust AI, distributed learning frameworks and semantic communication. He has been recognized with notable awards, including winning the ITU Challenge on Federated Learning for Spatial Reuse in a multi-BSS scenario in 2022 and receiving the Marie Curie Early Stage Researcher Fellowship.



Mohammad Yusaf Azimi

Mohammad Yusaf Azimi is an Instructor at the Faculty of Engineering and Natural Sciences, Computer Science and Engineering Program. He received his Ph.D. in Computer Science & Engineering from Sabancı University, where he studied from February 2019 to July 2024. He also completed his B.A. in Computer Science & Engineering at Sakarya University between September 2014 and June 2018. Before assuming his teaching responsibilities, he worked continuously as a Researcher at the Software Engineering Lab at Sabancı University from February 2019 through July 2024. Mr. Azimi's research broadly focuses on software engineering and automated software testing methodologies. His specialized work actively explores model-based test adaptation techniques, with a strong focus on end-to-end user interface testing on Smart TV platforms, including icon recognition algorithms and automated test adaptation strategies. Throughout his academic career, he has consistently demonstrated a commitment to advancing practical software verification systems and robust quality assurance practices within modern multi-device environments.



Morteza Ghorbani

Morteza Ghorbani is a faculty member in the Mechatronics Engineering Program at the Faculty of Engineering and Natural Sciences, Sabancı University. He received his Ph.D. in Mechatronics Engineering from Sabancı University (2013–2017). Prior to his current position, he worked as a postdoctoral researcher and visiting researcher at KTH Royal Institute of Technology, where he also co-founded CAViTreat AB in Sweden. He was subsequently awarded the prestigious Royal Society Newton International Fellowship at Oxford Brookes University. He currently leads the CAVinTace Research Group at Sabancı University. His research broadly focuses on cavitation phenomena, microfluidics, wastewater treatment, ultrasound, organ-on-a-chip technologies, and 2D nanomaterials. He has authored more than 70 peer-reviewed journal publications, secured funding for more than 30 research projects, and contributed to more than 10 patent applications and granted patents. He has received several prestigious awards and recognitions, including the TÜBA-GEBİP Outstanding Young Scientist Award (2024), the BAGEP Award (2023), the Gürsel Sönmez Research Award with his Ph.D. students, the Editorial Contribution Awards from several scientific journals, the Water Council Tech Challenge Award, and recognition in IVA's Annual 100 List.



Omid Moradi

Omid Moradi is a Researcher at the Faculty of Engineering and Natural Sciences, Mechatronics Engineering Program. He received his Ph.D. (2017–2021) and M.Sc. (2014–2017) in Materials Science & Nanoengineering from Sabancı University, after earning his B.Sc. in Materials Science Engineering – Ceramic from Tabriz University (2006–2012). Before his current engagement, he worked as a Post-Doctoral Research Fellow at Sabancı University starting in September 2024, and served as an R&D Specialist and Scientist at TETACAM Technologies from November 2021 to September 2024. Dr. Moradi's research broadly focuses on the development and characterization of functional organic and inorganic materials, smart glass, and ferroelectric/PDLC liquid crystals. His work also explores advanced coating technologies via low-pressure vacuum deposition (iCVD, oCVD, PVD, thermal evaporation), microfluidics, thermal management systems, two-phase flow boiling heat transfer, mixed wettability surfaces, and 3D manufacturing of functional ceramics and polymers.



Polat Göktaş

Polat Göktaş is a Faculty Member in the Computer Science and Engineering Program within the Faculty of Engineering and Natural Sciences at Sabancı University. His transdisciplinary research focuses on responsible and trustworthy artificial intelligence (AI), AI governance, edge AI, and human-centered intelligent systems, with applications in healthcare, environmental sustainability, smart cities, and public decision-making. He received his Ph.D. in Electrical and Electronics Engineering from Bilkent University and conducted part of his doctoral research as a Fulbright Doctoral Research Fellow at Harvard University. Before joining Sabancı University, he was a Marie Skłodowska-Curie Career-FIT PLUS Fellow and AI Scientist at University College Dublin. Dr. Göktaş contributes to international research, policy, and professional communities through selected roles, including Area Editor of the ACM Journal on Computing and Sustainable Societies, Associate Editor of IEEE Climate Magazine and Fulbright Chronicles, Chair of the EU-MCAA Türkiye Chapter, and Chair of the IEEE Young Professionals Innovation Subcommittee. He also represents Türkiye in COST Action AI-GUIDE and contributes to global AI policy initiatives through CAIDP. His honours include the Young Scientist Award at the Lindau Nobel Laureate Meeting, the IEEE AP-S Doctoral Research Grant, Fulbright and Marie Skłodowska-Curie fellowships, and the METU Serhat Ozyar Young Scientist of the Year Award, among others.



Saima Gül

Saima Gül is an Instructor at the Faculty of Engineering and Natural Sciences, Sabancı University, Istanbul. She received her Ph.D. in Computer Science and Engineering from Sabancı University in 2022 and her M.S. in Computer Science from BUITEMS, Quetta, Pakistan, in 2010. Before joining Sabancı University, she served at BUITEMS as a Lecturer and later as an Assistant Professor in the Department of Computer Science. Her teaching experience includes programming, data structures, algorithms, artificial intelligence, machine learning, data science, and mobile application development. Her research interests include artificial intelligence, machine learning, natural language processing, data science, text mining, concept extraction, knowledge representation, and educational technologies. Her recent work focuses on AI-assisted learning, concept and curriculum modeling, large language models for educational resources, and predictive modeling for interdisciplinary applications. She is particularly interested in developing practical, data-driven methods that support intelligent decision-making and improve learning and knowledge organisation.



Serkan Ateş

Serkan Ateş is a Faculty Member at the Faculty of Engineering and Natural Sciences, Physics Program. He received his Ph.D. in Physics from the University of Stuttgart, Germany (2006–2011), where he also completed his M.Sc. in Physics (2003–2005). He earned his B.Sc. in Physics from İzmir Institute of Technology, Türkiye (1999–2003). Before his current appointment, he served as an Associate Professor in the Department of Physics at İzmir Institute of Technology starting in September 2015 and founded QLocked Quantum Technologies. Dr. Ateş's research broadly focuses on solid-state quantum optics, nanophotonics, quantum communication, quantum sensing, and hybrid quantum systems. His contributions to the field of physics have been recognized with prestigious honors, including the Young Scientist Award in Physics from The Science Academy (BAGEP) in 2019 and the Presidential Young Researcher Award from the Turkish Academy of Sciences (TÜBA-GEBİP) in 2017.



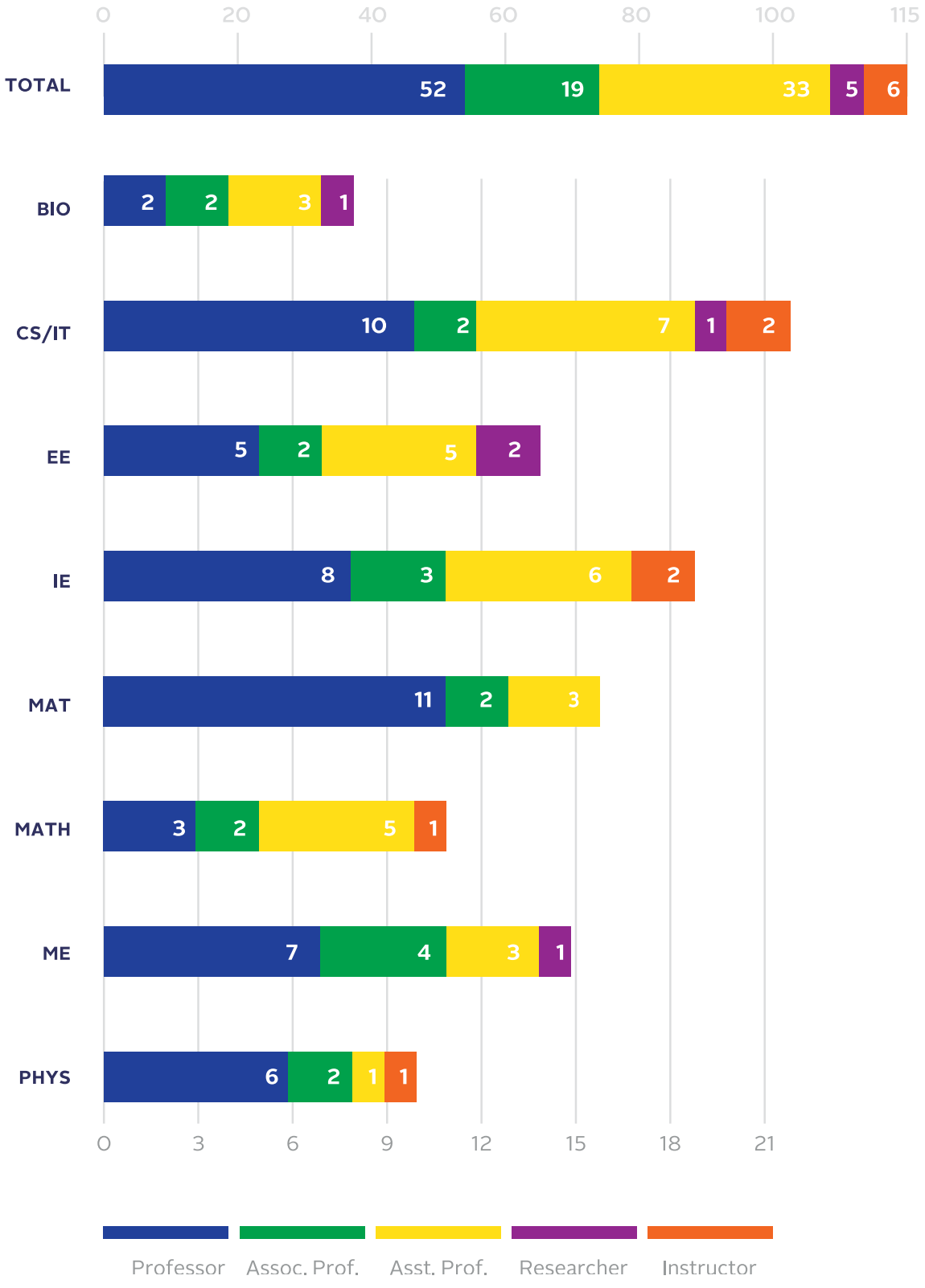
Zeki Doruk Erden

Zeki Doruk Erden is a Researcher at the Faculty of Engineering and Natural Sciences, Computer Science and Engineering Program. He received his Ph.D. in Robotics, Control, and Intelligent Systems from École Polytechnique Fédérale de Lausanne (EPFL), Switzerland (2020–2025). He earned his M.S. in Robotics with a Minor in Computational Neuroscience from EPFL (2018–2020) and his B.S. in Electrical and Electronics Engineering from Middle East Technical University (METU) in Türkiye (2014–2018). Prior to his current engagement, he worked as a PhD Researcher at the Artificial Intelligence Laboratory at EPFL from 2020 to 2025. Dr. Erden's research broadly focuses on artificial intelligence and evolutionary theory, with a particular emphasis on artificial learning paradigms that drive adaptive growth, structured representations, and recursive improvability. His continuous research trajectory seeks to combine foundational principles of autonomous learning with neuro-inspired computational methodologies for complex intelligent systems.

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Academic Staff 2025-2026

Number of Academic Staff by Program



Promotions



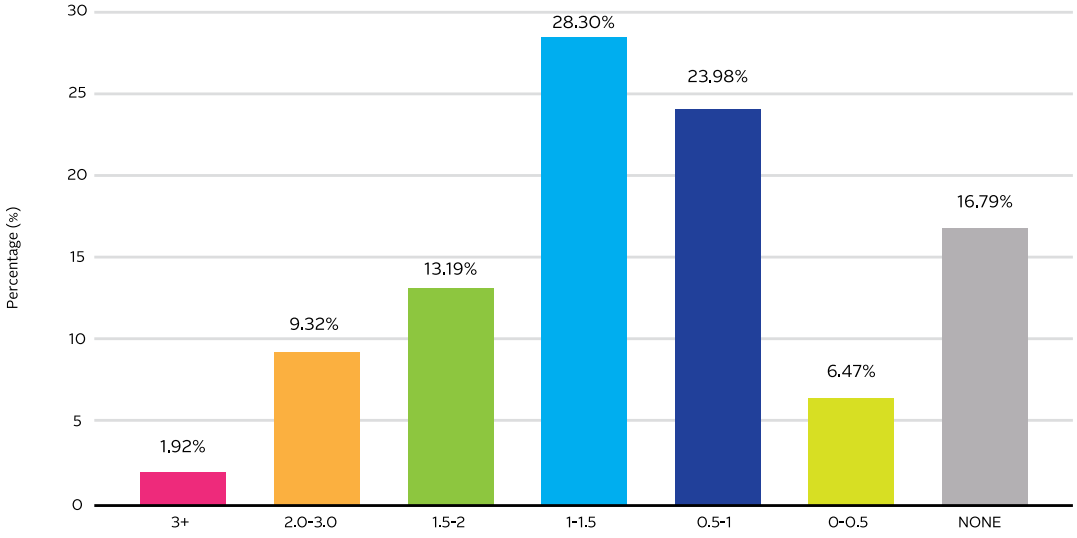
GÜLLÜ KIZILTAŞ ŞENDUR HAS BEEN PROMOTED TO FULL PROFESSOR EFFECTIVE NOVEMBER 1, 2025



SEMİH ONUR SEZER HAS BEEN PROMOTED TO FULL PROFESSOR EFFECTIVE NOVEMBER 1, 2025

Publications

SNIP Factor Distribution

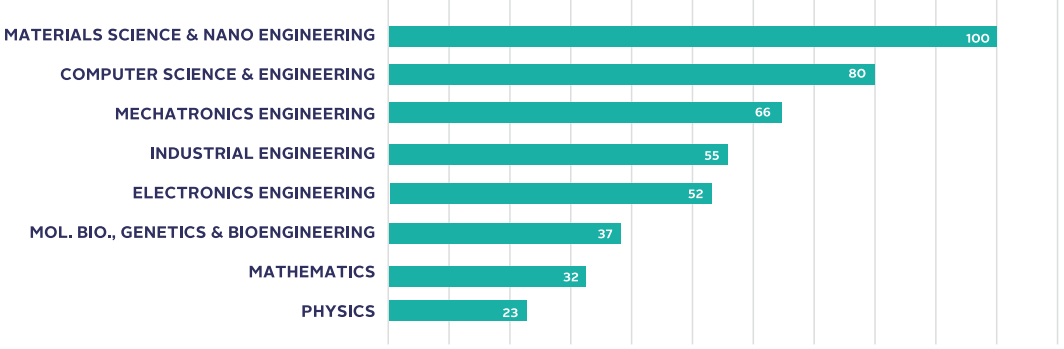


FENS 2025

Scholarly Output	411
Citation Count*	276,583
Field-Weighted Citation Impact	1.16
Publications in Q1 Journal Quartile by CiteScore (%)	73
Publications in Top 10% Journal Percentiles by CiteScore Percentile (%)	34.90

**The results are based on a Scopus query covering the period 1999–2025, in which "FENS" and "Sabancı University" were used as the affiliation identifiers.*

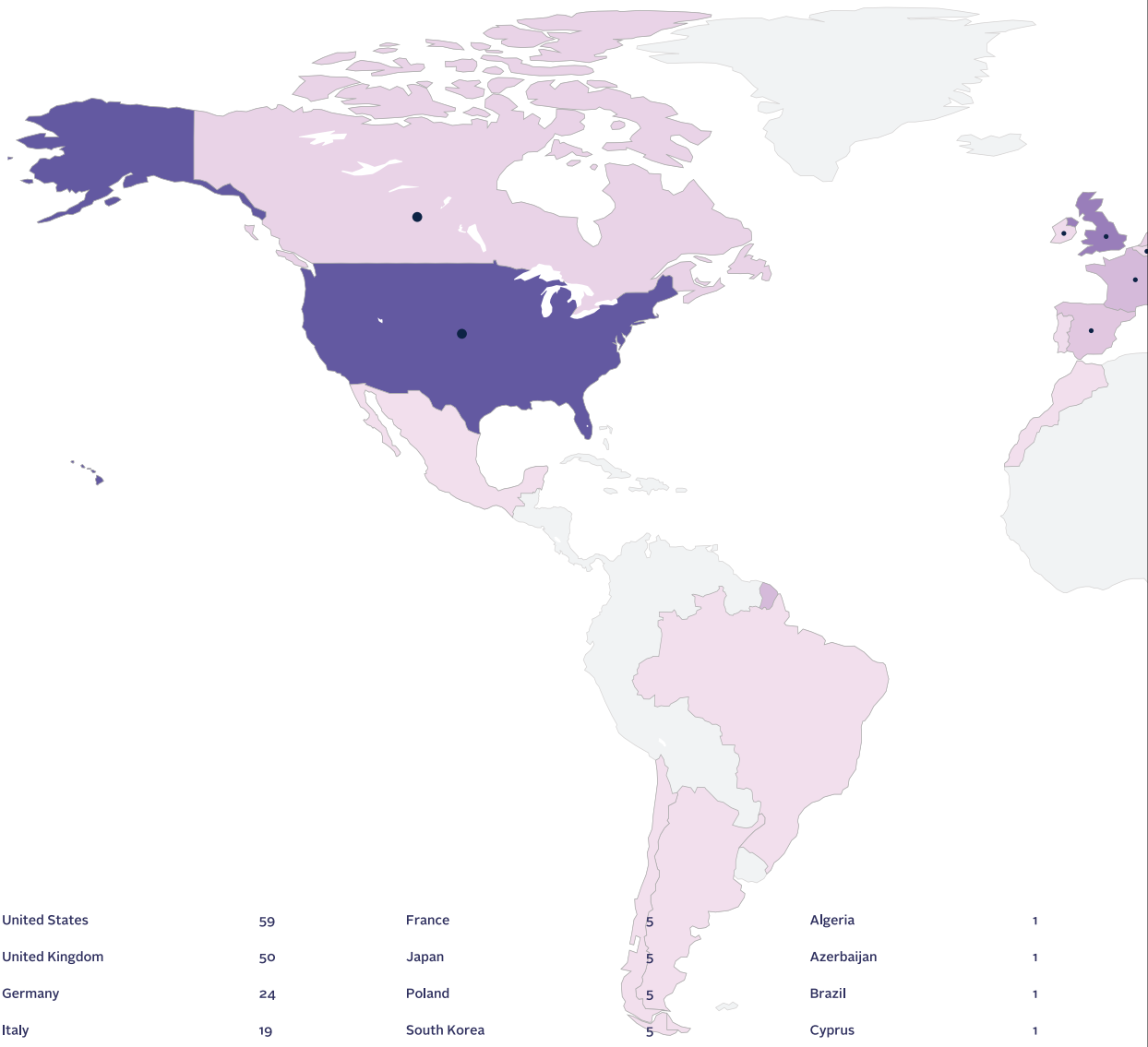
Web of Science Categories**



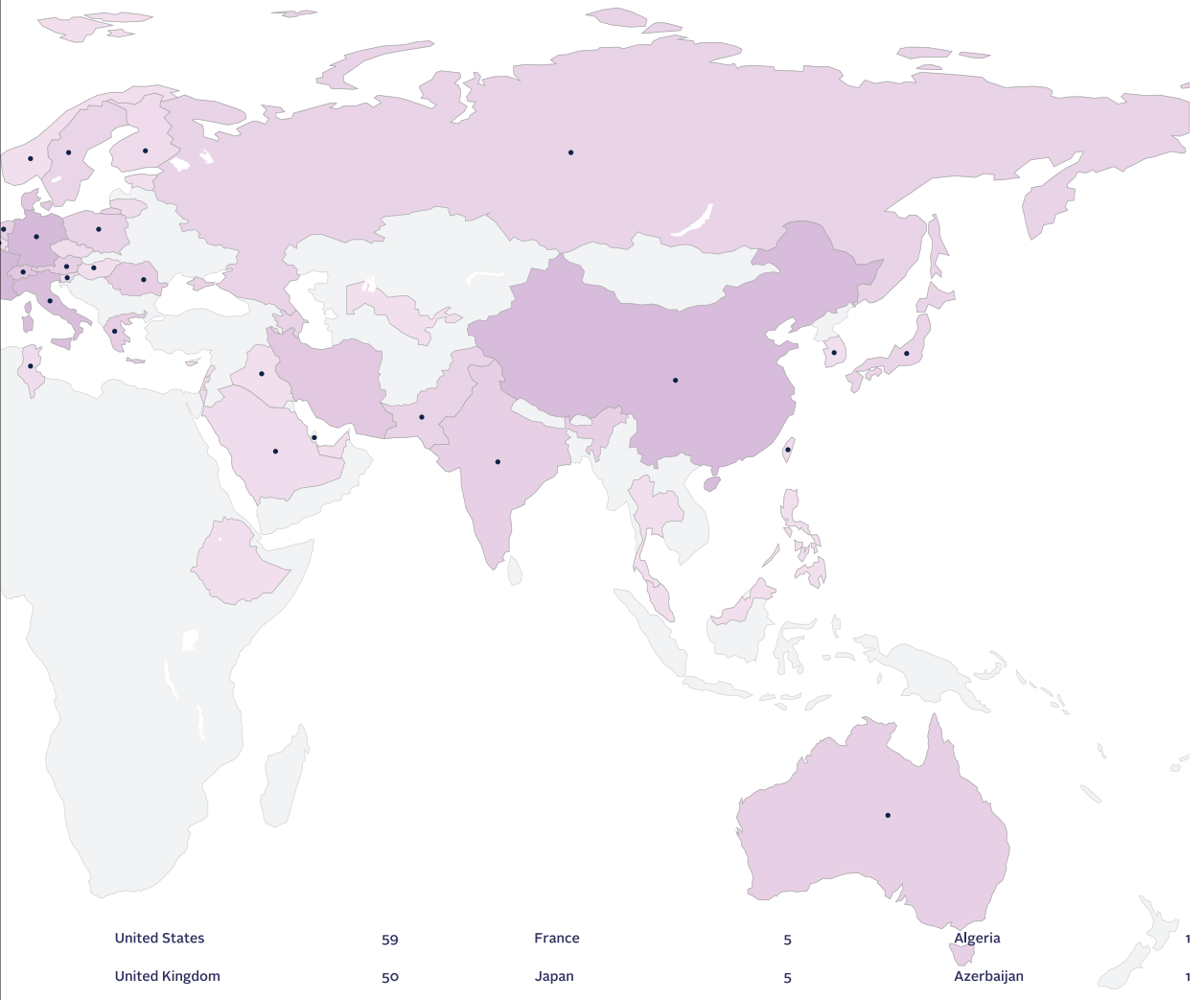
***The number of publications in the corresponding categories*

Publications

223 Papers Published in 2025 with International Collaboration



United States	59	France	5	Algeria	1
United Kingdom	50	Japan	5	Azerbaijan	1
Germany	24	Poland	5	Brazil	1
Italy	19	South Korea	5	Cyprus	1
Romania	14	Sweden	5	Denmark	1
Switzerland	14	Canada	4	Egypt	1
China	13	Greece	4	Hong Kong	1
India	12	Qatar	4	Israel	1
Spain	12	Taiwan	4	Luxembourg	1
Iran	11	Tunisia	4	Mexico	1
Netherlands	11	Finland	3	New Zealand	1
Ireland	10	Russian Federation	3	Portugal	1
Austria	8	Saudi Arabia	3	Singapore	1
Australia	7	Slovenia	3	United Arab Emirates	1
Belgium	7	Hungary	2		
Norway	6	Pakistan	2		



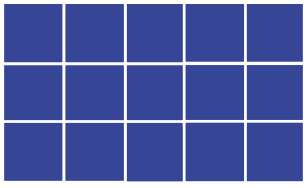
United States	59	France	5	Algeria	1
United Kingdom	50	Japan	5	Azerbaijan	1
Germany	24	Poland	5	Brazil	1
Italy	19	South Korea	5	Cyprus	1
Romania	14	Sweden	5	Denmark	1
Switzerland	14	Canada	4	Egypt	1
China	13	Greece	4	Hong Kong	1
India	12	Qatar	4	Israel	1
Spain	12	Taiwan	4	Luxembourg	1
Iran	11	Tunisia	4	Mexico	1
Netherlands	11	Finland	3	New Zealand	1
Ireland	10	Russian Federation	3	Portugal	1
Austria	8	Saudi Arabia	3	Singapore	1
Australia	7	Slovenia	3	United Arab Emirates	1
Belgium	7	Hungary	2		
Norway	6	Pakistan	2		

Projects*

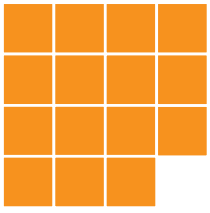
- EU
- Non-Governmental Organizations/University/Other
- TÜBİTAK
- Business Enterprises

FACULTY OF ENGINEERING AND NATURAL SCIENCES

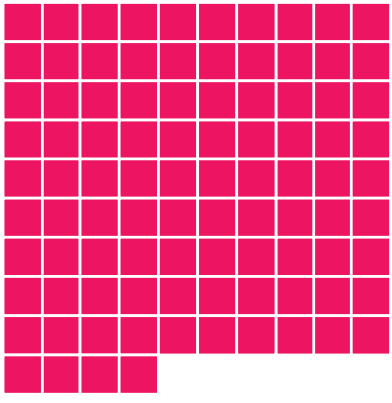
15 PROJECTS
₺ 281.2 M



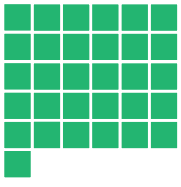
15 PROJECTS
₺ 194.9 M



94 PROJECTS
₺ 317.8 M



31 PROJECTS
₺ 380.4 M



*The budgets of Center of Excellence in Data Analytics (CEDA) Integrated Manufacturing Research and Application Center (SU IMC) are included. Founding Source as of October 2026

Patents

	INVENTORS	GRANT DATE	VALIDATION
A Low-Latency Redundant Multiplier And Method For The Same	Erdinç Öztürk	10/21/2025	TR
Alternating Current Magnet System For Magnet Assisted Transfection	Murat Kaya Yapıcı	10/21/2025	TR
An Admixture And ink Comprising Such Admixture	Özge Akbulut, Omid Akhlaghi, Amin Hodaei, Dilek Sezer	11/5/2025	EP
An Admixture And ink Comprising Such Admixture	Özge Akbulut, Omid Akhlaghi, Amin Hodaei, Dilek Sezer	11/5/2025	DE
An Admixture And ink Comprising Such Admixture	Özge Akbulut, Omid Akhlaghi, Amin Hodaei, Dilek Sezer	11/5/2025	GB
An Admixture And ink Comprising Such Admixture	Özge Akbulut, Omid Akhlaghi, Amin Hodaei, Dilek Sezer	11/5/2025	FR
A Hybrid Microfluidic Chip and Use Thereof in the Early Diagnosis of Cancer-Related Diseases	Ali Koşar, İsmail Bütün, Ghazaleh Gharib, İlayda Namlı, Morteza Ghorbani, Sibel Çetinel, Özlem Kutlu, Funda Havva Yağcı Acar	12/22/2025	TR
An Admixture And ink Comprising Such Admixture	Özge Akbulut, Omid Akhlaghi, Amin Hodaei, Dilek Sezer	12/22/2025	TR
A Stable Aqueous Formulation Containing Quaternary Ammonium Organosilane Hydrolysate And A Method For Preparing Same	Yusuf Menceloğlu	12/30/2025	US

	INVENTORS	GRANT DATE	VALIDATION
Suspended-Load Backpack Comprising Adjustable Impedance Suspension System	Volkan Patoğlu	1/13/2026	US
Zwitterionic Thin Film Composite Membranes with High Performance	Serkan Ünal, Yusuf Menceloğlu, Selda Erkoç İlter, İsmail Koyuncu, Jalal Aldin Sharabati, Serkan Güçlü, Derya Yüksel İmer, Farzin Saffarimiandoab	1/20/2026	US
A Suspended-Load Backpack Comprising An Adjustable Impedance Suspension System	Volkan Patoğlu	2/11/2026	EP
A Suspended-Load Backpack Comprising An Adjustable Impedance Suspension System	Volkan Patoğlu	2/11/2026	DE
A Suspended-Load Backpack Comprising An Adjustable Impedance Suspension System	Volkan Patoğlu	2/11/2026	GB
Zwitterionic Thin Film Composite Membranes with High Performance	Serkan Ünal, Yusuf Menceloğlu, Selda Erkoç İlter, İsmail Koyuncu, Jalal Aldin Sharabati, Serkan Güçlü, Derya Yüksel İmer, Farzin Saffarimiandoab	2/23/2026	TR
Kirlenme Önleyici Kaplama Bileşimi	Yusuf Menceloğlu, Hasan Barça Dönmez	3/23/2026	TR
Greenhouse Cover Loaded With Pesticide Providing Controlled Release	Yusuf Menceloğlu, Merve Senem Avaz	3/23/2026	TR
Stress-Regulated Mirnas As Novel Cancer Biomarkers	Devrim Gözüaçık, Deniz Gülfem Öztürk, Muhammed Koçak	4/1/2026	EP
Stress-Regulated Mirnas As Novel Cancer Biomarkers	Devrim Gözüaçık, Deniz Gülfem Öztürk, Muhammed Koç	4/1/2026	UP

	INVENTORS	GRANT DATE	VALIDATION
Stress-Regulated Mirnas As Novel Cancer Biomarkers	Devrim Gözüaçık, Deniz Gülfem Öztürk, Muhammed Koçak	4/1/2026	TR
A Suspended-Load Backpack Comprising An Adjustable Impedance Suspension System	Volkan Patoğlu	4/21/2026	TR
Multimedia Traffic Classification Method Using Markov Components and System Implementing The Same	Özgür Gürbüz, Hüseyin Özkan, Recep Temelli, Oğuz Kaan Köksal, Ahmet Kaan İpekören, Furkan Canbal, Baran Deniz Karahan, Mehmet Şükrü Kuran	4/21/2026	TR
Modified Halloysite Nanatubes for Deodorization	Yusuf Menceloğlu, Gizem Kurtulmuş	5/21/2026	TR
Stress-Regulated Mirnas As Novel Cancer Biomarkers	Devrim Gözüaçık, Deniz Gülfem Öztürk, Muhammed Koçak	6/1/2026	IL

Science Showcase

Decision Analytics: Teaching Computers to Help People Decide



Erhun Kundakcıoğlu

Industrial Engineering Program

A brief history of the research topic

When computers first entered companies in the 1950s, they were used to keep records: payroll, invoices, and reports on what had already happened. However, managers are not paid to document the past; they are paid to predict the future and prescribe what to do about it. This is where operations research stepped into business decision-making. By the 1960s, it had shown that complex business decisions could be formulated as mathematical problems and solved. In the early 1970s, researchers introduced the term "decision support system" for an interactive program that combines data and mathematical models to assist a human decision maker. Since then, analytics has evolved through the descriptive, predictive, and prescriptive stages.

How it has evolved to its current form

Modern decision analytics is where the prescriptive stage meets software engineering. Machine learning has become remarkably good at prediction. However, a prediction is not a decision: knowing that demand will likely rise does not tell a company how many units to stock. Optimization closes that gap by converting predictions and constraints into concrete actions, through engines embedded directly in live operations. The keyword has always been "support." Although computing power and AI continue to improve at a rapid pace, the human remains in the loop because accountability, context, and values cannot be delegated to an algorithm. That is why we design and develop systems in which decision makers can interact with models by questioning recommendations, adjusting constraints, and overriding the output.

How I became involved

I studied industrial engineering at Bilkent University (2002) and completed my MS at Sabancı University (2004). For my PhD at the University of Florida (2009), I worked on mathematical optimization problems at the heart of machine learning and took a minor in computer science, because I wanted to build the systems, not just formulate the models. My first faculty position was at the University of Houston, next door to the Texas Medical Center, and healthcare pulled my research toward decisions under uncertainty (perishable medical supplies, hospital pharmacies, and drug shortages). I then spent twelve years at Özyeğin University and, along the way, served as a director and distinguished scientist at Optym, building large-scale optimization engines for railways and airlines. In 2025, twenty-one years after my MS, I joined Sabancı University, where I direct Datart Lab, our research group on decision analytics and applied optimization.

Today, at Datart Lab, we take problems from mathematical formulation to production code, along two interconnected threads. The first thread is decision support where the stakes are measured in social good rather than in financial terms: stocking and transshipment policies that keep treatment going in hospitals during drug shortages, inventory management for refugee camps, and Markov decision processes to guide

post-disaster relief (a need made painfully concrete, especially by the 2023 earthquakes), all within the scope of TÜBİTAK-funded projects. The second thread builds decision engines with industry: systems that (i) assign aircraft to flights at the tail-number level, (ii) schedule TV commercials against ratings and contractual constraints, (iii) decide when autonomous mining trucks should refuel, and (iv) coordinate two overhead cranes sharing a single runway in flat-steel manufacturing. In each case, the deliverable is not a paper alone but a working system that planners use, question, and adjust every day.

Its significance

The practical significance is easy to state: these systems save money, time, and sometimes lives by reducing shortages in hospitals, accelerating relief after disasters, and recovering capacity that would otherwise sit idle. Aside from the applications, three conceptual points matter to us. First and foremost, a model matters only if it ships; bridging the gap between a theorem and a tool is itself a scientific problem. Second, values such as fairness should be written into the objective function itself, expressed mathematically, so that one can measure the price of fairness and guarantee it in a policy. Third, uncertainty in critical decisions should be modeled rather than averaged away.

Additional insights

Note that the same decision structures reappear in different settings: the logic that governs a refugee camp's stockroom echoes the logic inside a steel mill's crane schedule. Computers, and especially AI, will keep improving. However, the goal has never been machines that decide for us; the goal is systems that help people decide better. That partnership of a human in the loop, supported by models that are transparent, fast, and fair, has been the promise of decision support since the 1970s, and making it work in practice is still the frontier.

Beyond Smarter AI: The AGIS Lab Vision for Trustworthy Intelligent Systems



Imagine an artificial intelligence (AI) system supporting a physician in a critical clinical decision. The system may be highly accurate, but can it explain its recommendation? Does it perform equally well for different patient groups? How does it protect sensitive health data? What happens when information is incomplete or the physician disagrees with its conclusion?

Polat Göktaş

Computer Science and Engineering Program

Similar questions arise when AI is used to identify misinformation, manage natural resources, or support decisions within complex institutions. Predictive accuracy matters, but it is only one part of the problem. As AI becomes embedded in systems involving people, organizations, infrastructure, and public policy, we must also ask how it uses resources,

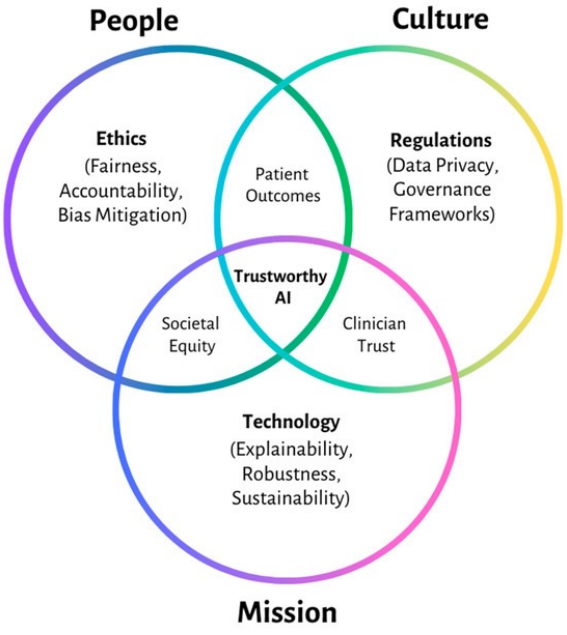
These questions form the foundation of my research at Sabancı University and of the AGIS Lab, which I (Dr. Polat Goktas, Faculty Member in the Computer Science and Engineering Program within the Faculty of Engineering and Natural Sciences at Sabancı University) will establish beginning in September 2026. Its full title, AGIS Lab: AI Governance and Intelligent Systems Research Laboratory, reflects its central ambition: to develop intelligent systems that are not only technically capable, but also adaptive, explainable, privacy-preserving, resource-aware, and aligned with human and institutional oversight.

From High-Performing Algorithms to Trustworthy Systems

For many years, progress in AI was primarily measured through accuracy, speed, and the ability to process large datasets. However, a model that performs successfully in a laboratory may behave differently when it encounters new populations, incomplete data, limited computational resources, or changing conditions. It may generate a correct answer without an understandable explanation, reproduce inequalities in its training data, consume disproportionate energy, or require institutions to centralize sensitive information.

My research on ethics, transparency, and explainability in generative AI decision-making demonstrated that explainability cannot be treated as an isolated technical feature. It is closely connected with accountability, fairness, human oversight, governance, and public trust [1].

My engagement with these questions developed through my earlier research in biomedical technologies, computer vision, and machine learning. During my doctoral research and my time as a Fulbright researcher at the Wellman Center for Photomedicine at Harvard Medical School, I worked with biomedical data and AI-supported health technologies. Healthcare made the importance of trust especially tangible: clinicians must understand a model's evidence and limitations, while patients must be confident that their data and autonomy remain protected.



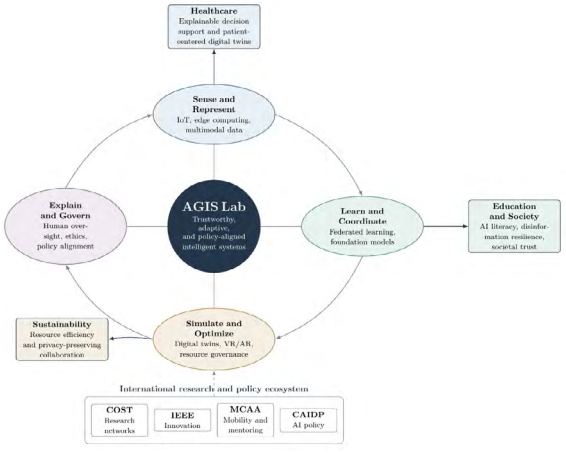
Our subsequent research proposed a multidisciplinary framework for trustworthy healthcare AI encompassing transparency, accountability, fairness, sustainability, regulation, and international collaboration [2]. As illustrated in Figure 1, trustworthy AI emerges through the interaction of people, culture, technology, and institutional mission. Related studies have investigated transparent human-AI interaction through visual chatbots [3] and the opportunities and limitations of vision and vision-language foundation models in ophthalmology [4].

Figure 1. A human-centered framework for trustworthy AI in healthcare. Trustworthy AI emerges through the interaction of ethical principles, regulatory and governance frameworks, and technically explainable, robust, and sustainable systems. Adapted from Goktas and Grzybowski [2].

These studies reinforce a central principle of my research: responsibility cannot simply be added after an AI system has been developed. Data governance, human oversight, resource use, uncertainty, and social impact must be considered from the beginning.

Establishing the AGIS Lab at Sabancı University

AGIS Lab will integrate AI with Internet of Things technologies, edge computing, digital twins, virtual and augmented reality, foundation models, federated learning, and human-in-the-loop evaluation as part of a five-year research vision.



Rather than studying an algorithm in isolation, the Lab will examine the wider intelligent infrastructure in which it operates, including sensors, data, computational resources, professional practices, regulatory requirements, institutional responsibilities, and the people affected by its decisions. As illustrated in Figure 2, the Lab connects a continuous cycle of sensing, distributed learning, digital-twin experimentation, and human-centered governance with applications in healthcare, education and society, and sustainability.

Figure 2. The AGIS Lab transdisciplinary research ecosystem. Source: Author's own illustration.

Four interconnected areas will form the Lab's research architecture.

First, AI-driven resource governance will examine how intelligent systems balance competing objectives such as accuracy, energy consumption, privacy, response time, fairness, and human attention. The Lab will develop multi-objective optimization methods that make these trade-offs visible and manageable.
Second, digital twin systems will provide dynamic virtual representations of physical or organizational environments. Supported by virtual and augmented reality, these environments will allow researchers to test how AI systems respond to missing data, unexpected events, limited resources, and different forms of human intervention before real-world deployment.

Third, distributed and privacy-preserving intelligence will explore federated learning and edge AI. These methods allow institutions to collaborate in developing shared models while retaining their raw data within their own environments. The Lab will study them as both privacy-enhancing technologies and mechanisms for coordinating resources across institutions.

Finally, human-centered AI governance will examine whether people can understand, question, and meaningfully intervene in AI-supported processes. Machine learning will therefore be combined with participatory design, interviews, surveys, usability studies, behavioral experiments, and policy analysis.
From Healthcare to Societal Resilience and Sustainability

Healthcare will be a principal application area. The Lab will investigate explainable and multimodal AI systems that integrate clinical records, medical images, wearable-sensor measurements, and patient-reported data while communicating uncertainty. An emerging direction involves cognitive and health-related digital twins that represent aspects of an individual's physiological, cognitive, or behavioral state. Such systems may support personalized monitoring, but they also raise questions about consent, data ownership, uncertainty, and the division of responsibility between AI systems, institutions, and healthcare professionals.

A second application area will be education and societal resilience. One of the principal projects connected with the AGIS Lab is DISCUSS-LAB: A Challenge-Based, AI-Assisted Learning Lab for Detecting and Disrupting Disinformation in Higher Education in Moldova and Türkiye, funded through the TÜBİTAK-NARD bilateral cooperation programme [5].

DISCUSS-LAB will investigate how university students evaluate digital information and how AI-assisted educational activities can strengthen resilience against misinformation. Rather than positioning AI as an authority that determines what is true, the project will explore how it can support source comparison, evidence evaluation, and critical reflection. This approach builds on our national mixed-methods research showing that AI literacy requires not only the ability to operate a digital tool, but also the capacity to question its outputs, recognize bias and uncertainty, and understand its ethical implications [6].
The third application area will be sustainability. Organizations such as hotels generate data on energy, water, waste, emissions, and operational processes, but these data may be commercially sensitive. Federated learning could enable organizations to develop shared sustainability models while retaining their raw data locally. This research will also ask whether the computational cost of an AI system is proportionate to the environmental benefit it produces. It connects with my work on AI-supported social vulnerability assessment, which emphasizes the need for interpretable and socially contextualized models in disaster management and risk reduction [7].

Connecting AGIS Lab with International Research and Policy Networks

AGIS Lab will connect research, innovation, researcher development, and public policy through an international network of collaborators. I am one of the secondary proposers of the COST Action AI-GUIDE-AI Governance, Use, and Impact for a Dynamic European Research and Innovation Ecosystem (CA25157) and serve on its Management Committee representing Türkiye [8]. AI-GUIDE and other COST networks will connect the Lab with European collaborators through joint projects, training schools, researcher mobility, and scientific exchange.

Within IEEE Young Professionals, I serve as Chair of the Innovation Hub Subcommittee [9], contributing to programmes that bring together researchers, young professionals, entrepreneurs, and technology communities. As Chair of the Marie Curie Alumni Association Türkiye Chapter, I support international mobility, mentoring, sustainability, proposal development, and access to European research opportunities [10].

My work with the Center for AI and Digital Policy provides a complementary policy perspective. I have contributed to the Artificial Intelligence and Democratic Values Index, which evaluates national AI policies in relation to human rights, democratic values, and the rule of law [11]. Beginning in Fall 2026, I will also serve as a Team Leader in CAIDP's Advanced AI Policy Clinic.

Together, these roles foster a reciprocal exchange: international scientific and policy developments inform the AGIS Lab's research and teaching, while evidence generated by the Lab contributes to broader debates on transparency, accountability, sustainability, and human oversight.

Sabancı University's interdisciplinary environment will enable the AGIS Lab to connect engineering with health, education, social sciences, management, and public policy. The Lab will provide students with opportunities to develop AI models and digital twins while also questioning their assumptions, testing their limitations, and examining their societal consequences.

The future of AI will not be determined solely by our ability to build larger models. It will also depend on whether we can create systems that use resources responsibly, acknowledge uncertainty, protect human agency, and produce demonstrable public value. Through the AGIS Lab, I aim to build an internationally connected research hub dedicated to advancing trustworthy, adaptive, and policy-aligned intelligent systems.

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Decision Making Under Uncertainty: Mathematical Optimization for Real-World Applications



Duygu Taş Küten

Industrial Engineering Program

From routing vehicles and planning production to scheduling operating rooms, my research develops mathematical optimization methods that help organizations make better decisions when uncertainty is unavoidable.

One lesson that has become increasingly clear to me over the years is that uncertainty is not an obstacle to optimization; rather, it is the environment in which most important decisions are made. Every day, delivery routes are planned before traffic conditions are fully known, manufacturers prepare production schedules before disruptions occur on the shop floor, and hospitals allocate operating rooms before the duration of surgical procedures can be predicted accurately. Although these examples come from different sectors, they all share a common challenge: important decisions must be made before the underlying uncertainty is resolved. Figure 1 illustrates this shared structure: a first-stage decision precedes the resolution of uncertainty, after which a recourse action adapts to what has occurred.

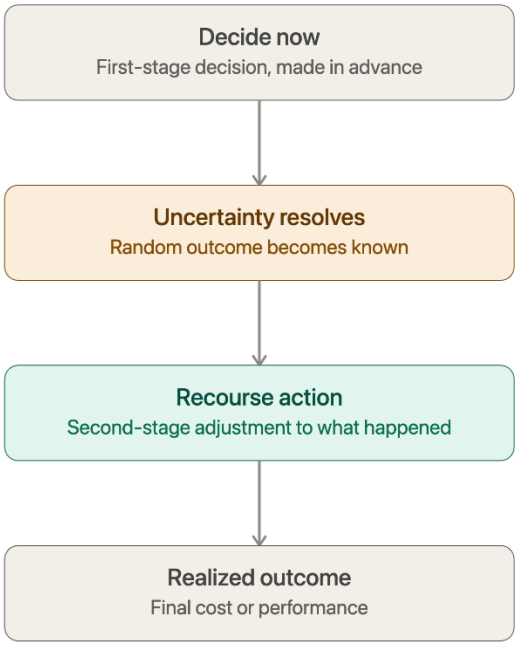


Figure 1. Two-stage decision-making under uncertainty

Understanding how optimization can support decision-making under uncertainty has been a central theme of my research. Rather than simplifying uncertainty away, I incorporate it directly into optimization models to develop solutions that remain effective in practice. Although my application areas have expanded over time, from transportation and logistics to manufacturing and healthcare, the underlying research question has remained remarkably consistent: how can mathematical optimization support better decisions in an uncertain world?

A research journey

My interest in optimization under uncertainty began during my Master's studies in Industrial Engineering at Sabancı University, where my thesis focused on the Robust Airline Crew Pairing Problem. The challenge was to design crew pairings that could accommodate potential extra flights added at short notice while minimizing disruptions to the original schedule. Addressing this challenge shaped my interest in optimization under uncertainty and influenced the direction of my subsequent research.

During my doctoral studies at Eindhoven University of Technology, my research shifted towards stochastic optimization. Working with Professor Tom Van Woensel, I focused on vehicle routing problems in which travel times are uncertain. A central question was how to design routes that are not only cost-efficient, but also reliable in terms of customer service. I developed mathematical models and solution methods that explicitly account for stochastic travel times, using both metaheuristic and exact optimization approaches. Over time, this research evolved towards increasingly realistic routing settings, including stochastic and time-dependent travel times.

After completing my Ph.D., I joined CIRRELT and HEC Montréal as a postdoctoral researcher, where I worked with Professors Michel Gendreau and Gilbert Laporte. During this period, I continued my research in transportation, focusing on routing problems with time-dependent service times. I also started working on production planning, which extended my research on uncertainty to a new application area. In particular, I studied lot-sizing problems with uncertain setup times and investigated how stochastic programming could be used to account for their impact on production capacity and overtime, following the same decide-resolve-adapt pattern shown in Figure 1. Working in a leading research environment in vehicle routing and combinatorial optimization broadened my methodological perspective and strengthened my interest in connecting mathematical theory with practical decision-making.

Returning to Sabancı University as a faculty member has allowed me to broaden my research agenda and expand its range of applications. I am currently affiliated with two research labs at Sabancı University, the Smart Mobility and Logistics Lab and the Systems Modelling and Decision Analytics Lab, where I engage in interdisciplinary research spanning optimization, transportation systems, data-driven decision-making, and systems modelling. My research has continued to address vehicle routing and logistics, particularly stochastic and electric vehicle routing, while also expanding into healthcare operations, urban logistics, and sustainable mobility. With support from TÜBİTAK and the European Commission, I have carried out several research projects on topics ranging from operating room allocation under uncertain surgery durations to smart parcel locker systems and stochastic vehicle routing with flexible deliveries. More recently, as the Principal Investigator at Sabancı University for the STEP-15 project, I have been working on data-driven tools and participatory approaches to support urban mobility planning and the transition towards more accessible, inclusive, and sustainable 15-minute cities. Across these different applications, my research continues to focus on developing optimization approaches that support effective decision-making in complex and uncertain environments.

Another rewarding aspect of academic life has been working with graduate students. Their questions often challenge assumptions I have taken for granted, and our research discussions frequently lead to new ideas and perspectives. I have had the privilege of supervising both M.Sc. and Ph.D. students, and seeing them grow into independent researchers has been one of the most fulfilling parts of my academic career.

From applications to methodological development

Although uncertainty provides a common thread across much of my research, the methodological questions have evolved considerably from one problem to another. Each application brings its own challenges in representing uncertainty, formulating the problem, and designing appropriate solution strategies. My research has therefore involved not only adapting optimization models to new settings, but also developing methods that address the specific mathematical and computational challenges of each problem.

Over the years, I have addressed these research questions using a broad range of methodologies, including mathematical programming, exact algorithms, branch-and-price methods, metaheuristics, sample average approximation, and hybrid solution approaches. In some problems, the main challenge has been how to represent uncertainty and incorporate it into the decision process. In others, it has been deriving structural properties, designing efficient algorithms, or finding ways to solve computationally difficult models at practically relevant scales.

This methodological diversity has allowed me to approach transportation, production planning, healthcare, and urban mobility from different perspectives. What connects these areas is therefore not a single model or solution method, but a broader research objective: developing appropriate optimization approaches for complex decisions when the information available at the planning stage is incomplete.

Looking ahead

Uncertainty will continue to be an important part of many real-world decisions. As the problems faced by organizations become more complex, there is a growing need for optimization methods that can account for uncertainty while also reflecting the practical realities of decision-making.

Mathematical optimization provides a powerful framework for addressing these challenges. New methodological and computational developments offer opportunities to tackle increasingly complex problems and to bring optimization models closer to real-world practice.

The application areas of my research have changed considerably over the years, but the motivation behind my work has remained the same. Whether the problem involves routing vehicles, planning production, scheduling operating rooms, or designing urban mobility systems, I continue to be guided by the same question: how can mathematical optimization help people and organizations make better decisions when certainty is not an option?

How Cells Tag, Organize and Dispose of Proteins



Every cell contains tens of thousands of proteins that perform the functions required for life. They interact, move between cellular compartments, respond to their environment and, when necessary, are eliminated. Genes provide the instructions for making proteins, but production is only the beginning of a protein's life. How proteins are controlled after they are made is a central question biology. My research focuses on one particularly versatile mechanism: SUMOylation (Figure 1).

Umut Şahin

Molecular Biology, Genetics and Bioengineering Program

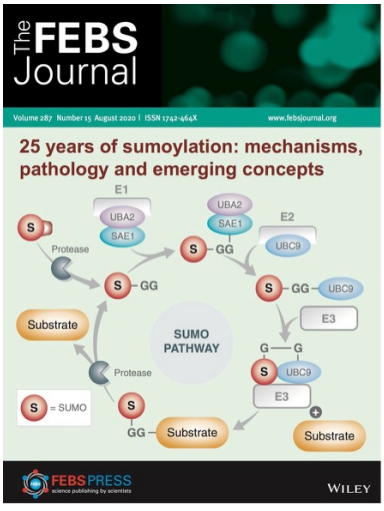


Figure 1: The cover illustration from a review by Arda B. Celen and Umut Sahin (2020) depicts the cellular SUMOylation system, highlighting the sophisticated enzymatic machinery that conjugates SUMO to target proteins (substrates).

During SUMOylation, a small protein called SUMO, short for Small Ubiquitin-like Modifier, is attached to target proteins (Figures 1 & 2). This can change where a protein goes in the cell, what it interacts with, how active or soluble it is, and sometimes whether it is destroyed. SUMO can therefore act both as a molecular switch and as an instruction label whose meaning depends on the protein being modified, the cellular context and the circumstances in which the modification occurs (Figure 3).



Figure 2: Atomic-resolution 3D structure of the SUMO protein (adapted from Sahin U, FEBS J, 2026).

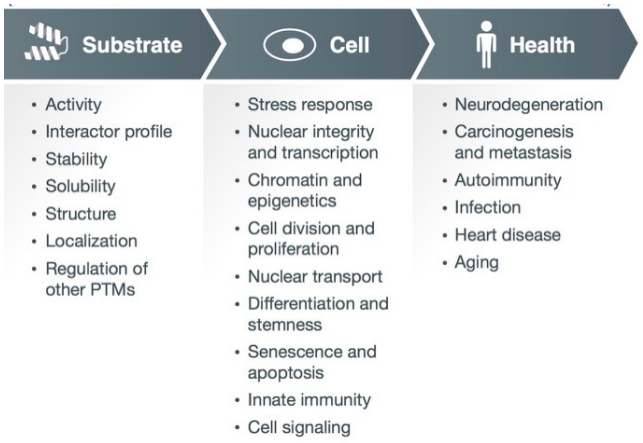


Figure 3: SUMOylation induces significant alterations in its target proteins, which can influence cellular and physiological processes and ultimately contribute to both health and disease states (adapted from Celen and Sahin, FEBS J, 2020).

This modification influences a remarkable range of processes, from immunity to cancer, ageing and neurodegenerative disease. SUMOylation is essential for complex life, and disruption of the system can contribute to disease (Figure 3). Much of my laboratory's work asks how cells use SUMOylation to maintain order and whether these natural mechanisms can be harnessed therapeutically.

From a mysterious small protein to a major cellular regulatory system

SUMO is a relatively young field, dating to the mid-1990s. A SUMO-related gene was identified in yeast in 1995, and soon afterwards several laboratories independently found related proteins in other organisms, including humans. Researchers soon showed that SUMO is covalently attached to other proteins, establishing SUMOylation as a previously unknown form of post-translational regulation. This was conceptually important. Genes encode proteins, but the genome alone does not determine everything a protein will do. After synthesis (translation), proteins are chemically modified in many ways. These post-translational modifications expand the functional complexity of the proteome. SUMOylation is one such mechanism affecting thousands of proteins and altering their stability, localization, solubility, activity and interactions.

An important clinical connection emerged between SUMO and structures in the nucleus known as PML nuclear bodies. First seen by electron microscopy (Figure 4), their significance became clearer through studies of an agggressive type of cancer, acute promyelocytic leukemia (APL). In APL, a chromosomal mutation produces the cancer-causing PML/RARA oncoprotein, which disrupts PML nuclear bodies.

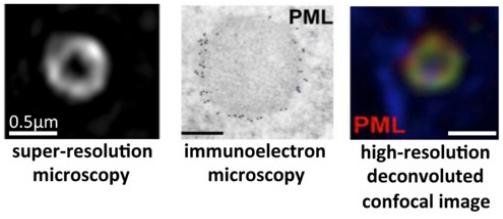


Figure 4: A PML nuclear body, one of many present within the cell, visualized using three distinct advanced imaging technologies (adapted from Sahin et al., J Cell Biol, 2014).

One of the most effective APL treatments today, arsenic trioxide, promotes destruction of PML/RARA. PML nuclear bodies are then restored, forming part of the molecular basis for the remarkable curability of APL. SUMO is central both to normal PML nuclear-body biology and to this therapeutic response.

My route into the field

My route to these questions was fairly direct. As a graduate student, I was fascinated by protein biochemistry, folding, post-translational modifications, proteolysis and degradation. During my PhD in Carl Blobel's laboratory at Memorial Sloan Kettering Cancer Center in New York, I studied another form of protein regulation: the controlled cleavage and release of growth factors from the cell surface. We identified enzymes that release ligands activating the epidermal growth factor receptor (EGFR), an important cancer signaling pathway.

The decisive turn toward SUMOylation came during my postdoctoral years in Paris, first in Anne Dejean's laboratory at the Pasteur Institute and later with Hugues de Thé at the Collège de France. Their work connected fundamental cell biology with an unusual medical problem: the molecular basis of APL and the exceptional effectiveness of its treatments. This environment shaped my interest in SUMOylation as both a basic biological mechanism and a process relevant to human disease.

A central question was: what do PML nuclear bodies actually do? These structures are unusual because they lack a surrounding membrane (Figure 4). Instead, they assemble dynamically from proteins in the nucleus, a property shared by structures now often called membraneless organelles or biomolecular condensates. My work in Hugues de Thé's laboratory dissected how PML nuclear bodies assemble and showed that they bring the SUMO machinery and numerous client proteins into the same confined space. Rather than passive storage sites, they can act as biochemical reactors that promote SUMOylation. For some proteins, this is followed by destruction through the proteasome, the cell's protein-degradation machinery. PML nuclear bodies therefore emerged as platforms, where SUMOylation could quickly alter protein function, localization and stability as cells adapt to stress and disease.

From cellular stress to infection and biotechnology

Once the link between PML nuclear bodies, SUMO and cellular stress became clear, our work naturally expanded into other settings. One was infection. During my postdoctoral work, we found that interferons, immune signaling molecules produced during infection, dramatically increase SUMO availability and PML nuclear-body formation. Together, these responses create a coordinated PML/SUMO defense system that helps restrict the replication of viruses including herpes simplex virus and HIV, linking this basic protein-modification pathway directly to immune defense.

The relationship between pathogens and SUMOylation is an evolutionary arms race: if SUMOylation restricts infection, successful pathogens should then disable or manipulate it. Indeed, years later in my independent laboratory, we found evidence for this in HIV infection: HIV suppressed cellular SUMOylation by causing the loss of a component of the enzyme that initiates SUMO attachment. Our work also suggested that disruption of this protective mechanism may contribute to progressive immune dysfunction in HIV disease.

Another unexpected direction came from CRISPR/Cas9 genome editing. Cas9 is a bacterial protein, but genome editing places it inside a very different environment: human cells ! We asked a simple question: what does the human cell do to Cas9, the key enzyme of the CRISPR techonology? We discovered that human cells actually SUMOylate Cas9, the first post-translational modification reported for this enzyme and the first link between SUMOylation and CRISPR (Figure 5).

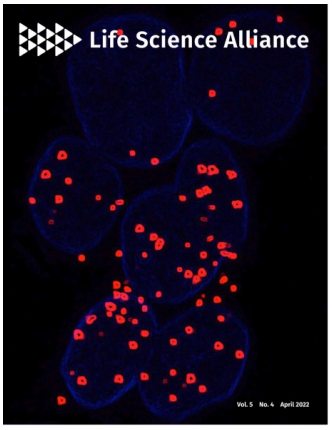


Figure 5: The cover illustration shows a confocal microscopy image of proximity ligation signals (red), representing SUMO-modified forms of Cas9, the key CRISPR enzyme, introduced into human cells (blue, adapted from Ergünay et al., Life Science Alliance, 2022).

The major SUMO modification lies in a region essential for DNA binding and cleavage (Figure 6), and altering SUMOylation changes both Cas9 stability and DNA binding.

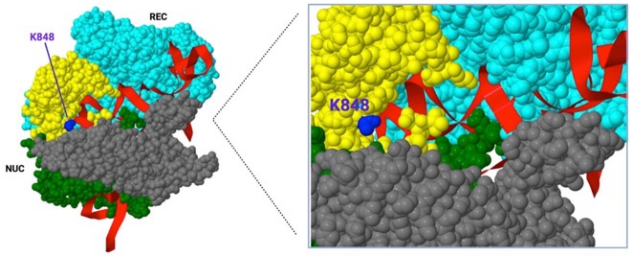


Figure 6: The image shows structural features of Cas9, highlighting lysine 848 (K848, blue), the primary SUMO modification site, located within the nuclease (NUC) lobe and in direct contact with the target DNA (red) to be edited via CRISPR (adapted from Sahin, FEBS J, 2026).

This raised practical questions about CRISPR precision and safety, but also a more fundamental evolutionary one: could Cas9 SUMOylation matter during natural bacterial infections? Our ongoing work, supported by three complementary TÜBİTAK-funded projects, a TÜBİTAK 1001, a TÜBİTAK COST 2515 and a TÜBİTAK-France 2509 bilateral Project, addresses both sides of this question. We are examining how SUMOylation affects CRISPR/Cas9 precision while asking whether Cas9 may have previously unrecognized functions inside host cells beyond bacterial immunity.

A cellular quality-control system and a possible therapeutic opportunity in neurodegeneration

More recently, my research has converged on protein quality control in neurodegenerative diseases. Disorders such as amyotrophic lateral sclerosis (ALS) are associated with proteins that misfold, accumulate or form abnormal aggregates. This led us to ask whether PML nuclear bodies, which can recruit proteins, modify them with SUMO and promote their destruction, might help eliminate toxic proteins before they cause disease. Recent work supported by an EMBO Installation Grant and another TÜBİTAK-France 2509 bilateral project provided strong evidence that they can. We studied a disease-associated mutation in NEK1, a major genetic risk factor for ALS. It produces a shortened, aggregation-prone NEK1 protein. We generated the world's first genetically relevant NEK1-driven mouse model of ALS and found that the mutant protein accumulates in spinal cord motor neurons, the cells progressively lost in patients (Figure 7).

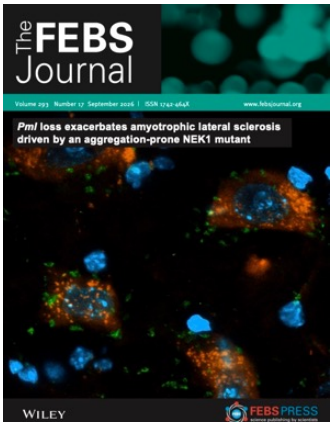


Figure 7: The confocal microscopy image shows mutant NEK1 protein (orange) accumulating in motor neurons of the mouse spinal cord, a pathological feature associated with ALS (image courtesy of Umut Sahin and colleagues; from Georgiadou et al., FEBS J, 2026).

Removing PML, the protein that organizes PML nuclear bodies, made the disease substantially worse. This provided the first evidence that PML can modify susceptibility to ALS. The reverse experiment was even more striking. We stimulated the interferon pathway pharmacologically, increasing PML nuclear bodies in spinal cord motor neurons and promoting SUMO-dependent elimination of mutant NEK1. Protein deposits diminished, disease onset was markedly delayed and survival increased by about five months, the longest survival benefit reported in an ALS preclinical study.

The significance, we believe, extends beyond a single mutation, gene or even disease and suggests a more general principle for handling proteins that become harmful when they accumulate. The study, featured as a journal cover story and accompanied by a dedicated commentary, supports the idea that PML nuclear bodies can function as a cellular quality-control system that recognizes problematic proteins and facilitates their removal. If this capacity can be activated pharmacologically, cells' own machinery might be harnessed against disorders characterized by toxic protein accumulation, including ALS and other neurodegenerative diseases.

This work has also opened a broader direction for us in neurodegeneration. With Elif Nur Fırat-Karalar at Koç University, we are investigating how protein quality control intersects with the centrosome-cilium-centriolar satellite axis, a network increasingly linked to neuronal health. In parallel, with Alain Prochiantz at the Collège de France, we are testing whether homeobox proteins, best known for roles in development and cell identity, also have underappreciated neuroprotective functions in the adult nervous system. Our NEK1 mouse model is particularly useful because it allows us to follow disease and therapeutic responses in a genetically defined setting. A further collaboration with Olivier Hermine at the Collège de France focuses on neuroinflammation. Inflammation is prominent in neurodegeneration, but whether it mainly follows neuronal damage or actively drives progression, and whether it can be therapeutically manipulated, remain open questions. We are using our unique NEK1-driven ALS mouse model to address them.

The broader goal

What began for me as an interest in how proteins are processed and modified has evolved into a broader question: how do cells control protein fate under stress, particularly during disease? That question connects areas that can seem far apart, from cancer and infection to biotechnology and neurodegeneration. SUMOylation offers a powerful window into this problem because it sits at the intersection of many cellular processes. It influences protein activity, interactions and localization; operates in dynamic membraneless organelles such as PML nuclear bodies; contributes to antiviral defense and host-pathogen competition; affects tools such as CRISPR; and can help determine whether disease-causing proteins persist or are destroyed.

Understanding this system matters as fundamental biology, but it also offers attractive therapeutic possibilities. Our current research asks when this is possible, which diseases may be most amenable to such an approach, how selectively these pathways can be manipulated without disrupting their normal functions, and where this fundamental biology may ultimately lead, and how far these mechanisms can be therapeutically pushed.

Industry-Focused Projects



WHAT IS THE INDUSTRY-FOCUSED PROJECT PROGRAM ?

"The Industry - Focused Project" is a program that enables companies to attack R&D challenges together with Sabancı University Engineering and Natural Sciences undergraduates. The program is carried out by senior undergraduate students of Sabancı University as part of their compulsory “Graduation Project” with the participating company representative and Sabancı University faculty member acting as advisors. The owner of the project is the commissioning company. Sabancı University and the companies are coimplementers of the project.

- This program enables industrial companies to engage in research projects that require considerable time, human resources and technical ability by cooperating with Sabancı University.
- This program provide new project ventures and collaboration opportunity both for faculty members and for companies/institutions.
- Senior students involved in the project comprise a useful talent pool for prospective employers who find an opportunity to know and train their potential colleagues.



INDUSTRY FOCUSED PROJECT FACTS & FIGURES

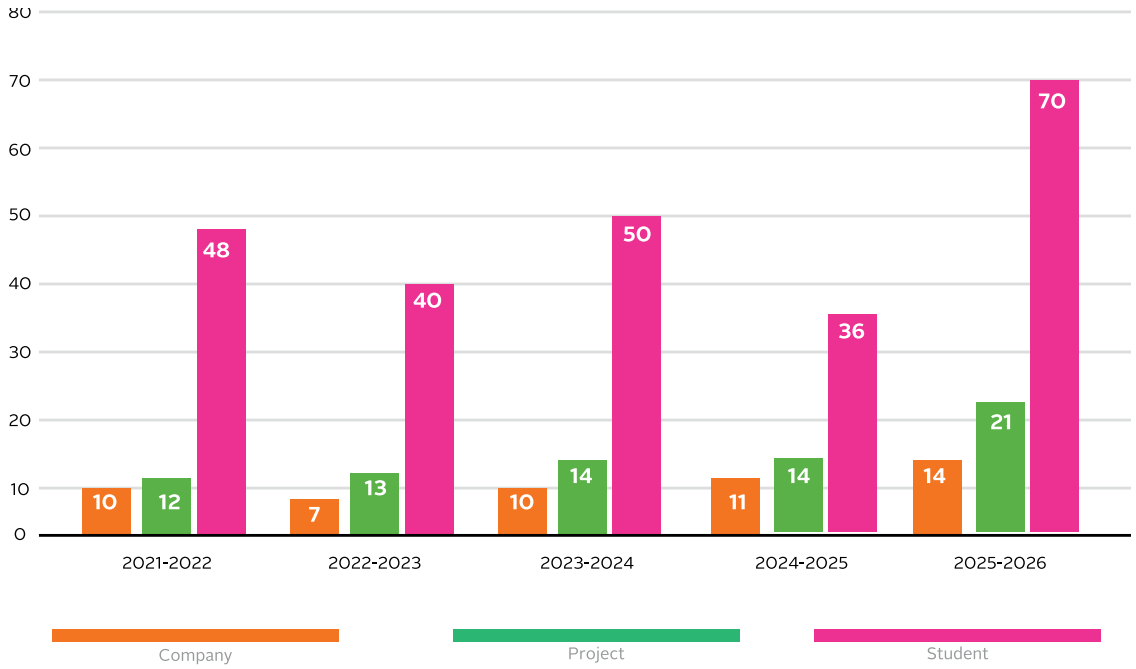
During the past ten years since the beginning of the program, 92 companies participated in the program as project stakeholders. A total of 134 projects were completed successfully. 453 senior students from various undergraduate programs were assigned as members of project working teams.

	COMPANY	PROJECT	STUDENT
2021/22	10	12	48
2022/23	7	13	40
2023/24	10	14	50
2024/25	11	14	36
2025/26	14	21	70
GRAND TOTAL	52	74	244

THE NUMBER OF STUDENTS BY PROGRAM

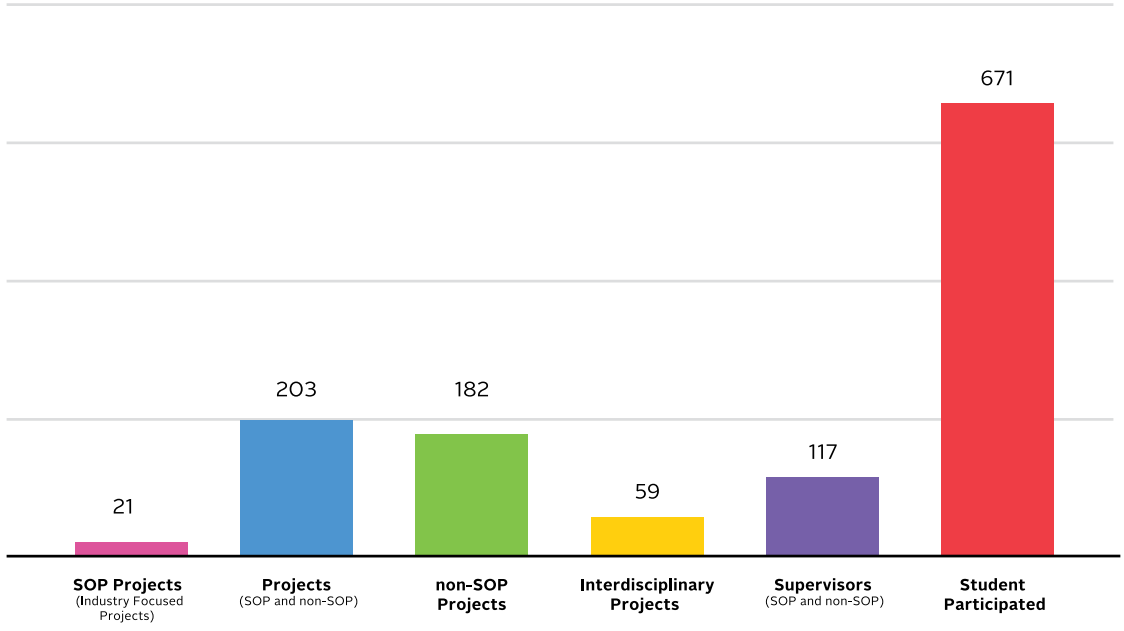
	2022	2023	2024	2025	2026
BIO	0	0	2	0	0
CS	14	9	24	20	46
EE	0	5	0	2	0
IE	28	24	22	11	24
MAT	1	3	3	3	3
ME	5	1	5	1	2
GRAND TOTAL	48	42	56	37	75

INDUSTRY FOCUSED PROJECT DISTRIBUTIONS

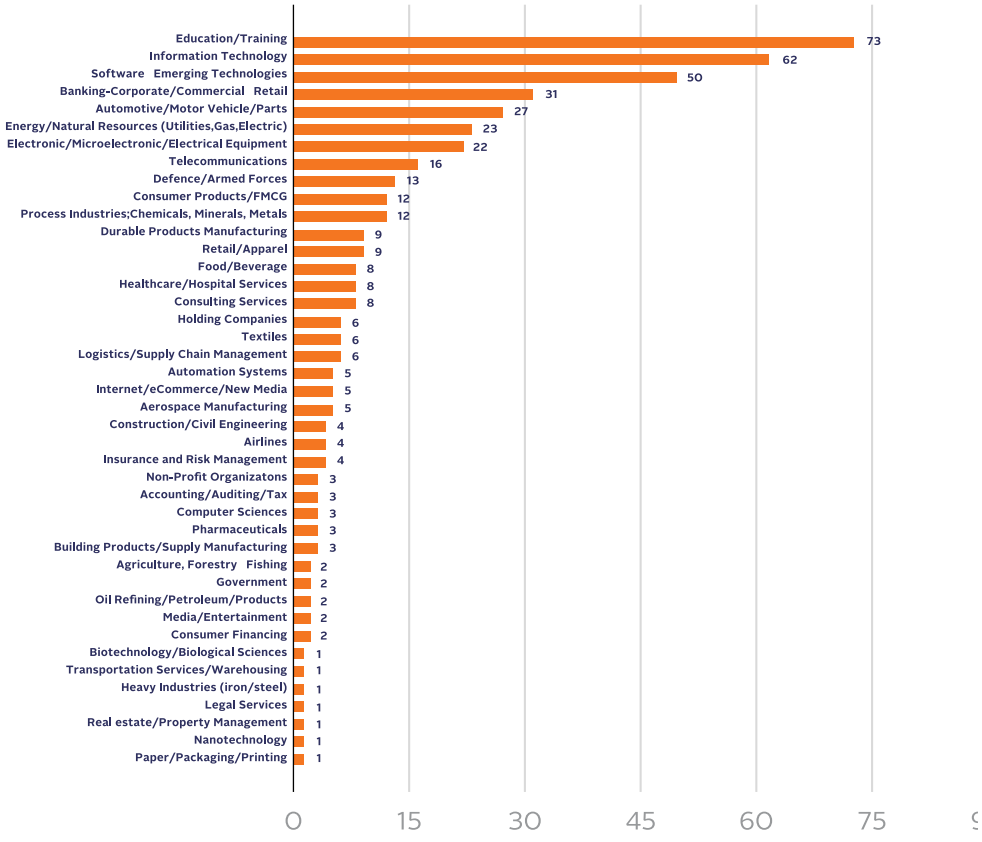


Graduation Projects & Internship

ENS 491/492 Graduation Projects

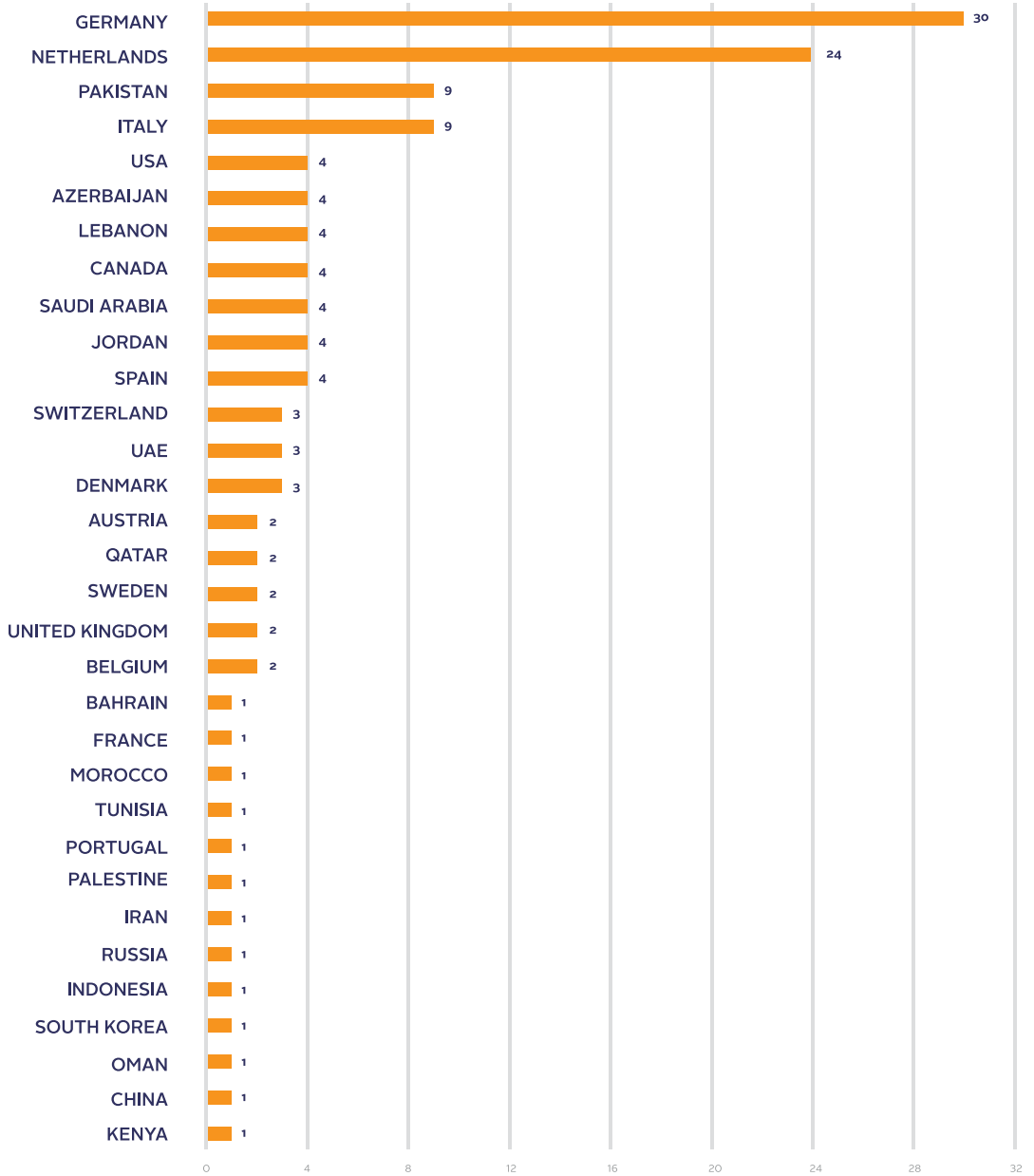


Number of Internship Projects by Sector



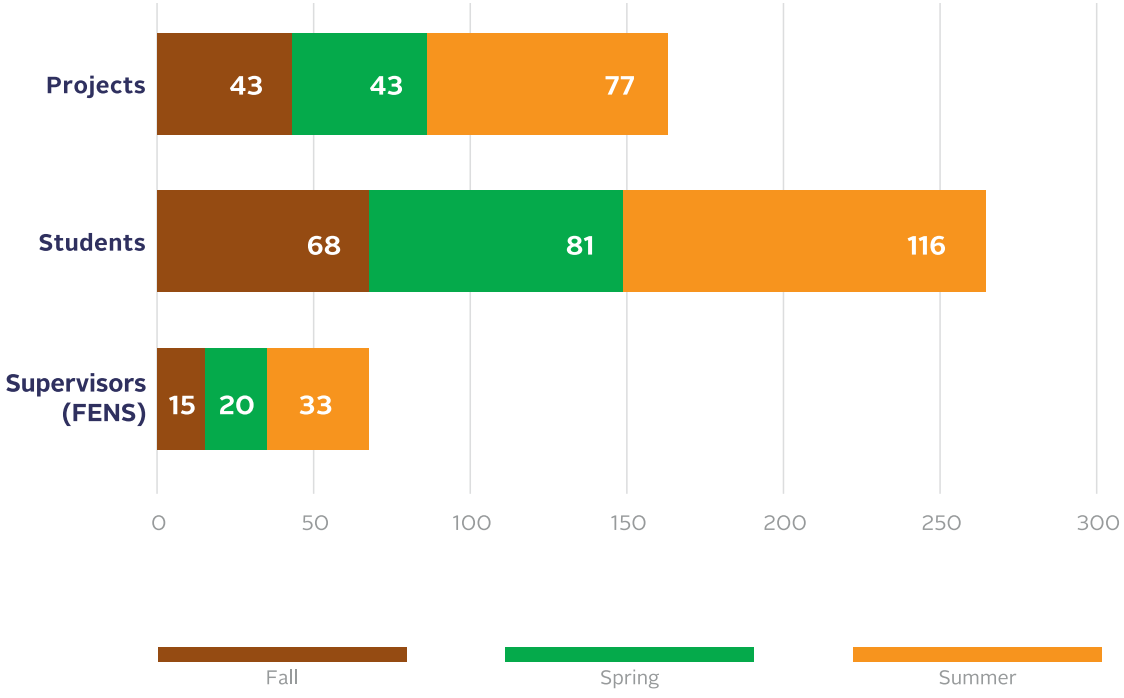


Number of International Internship Projects by Country

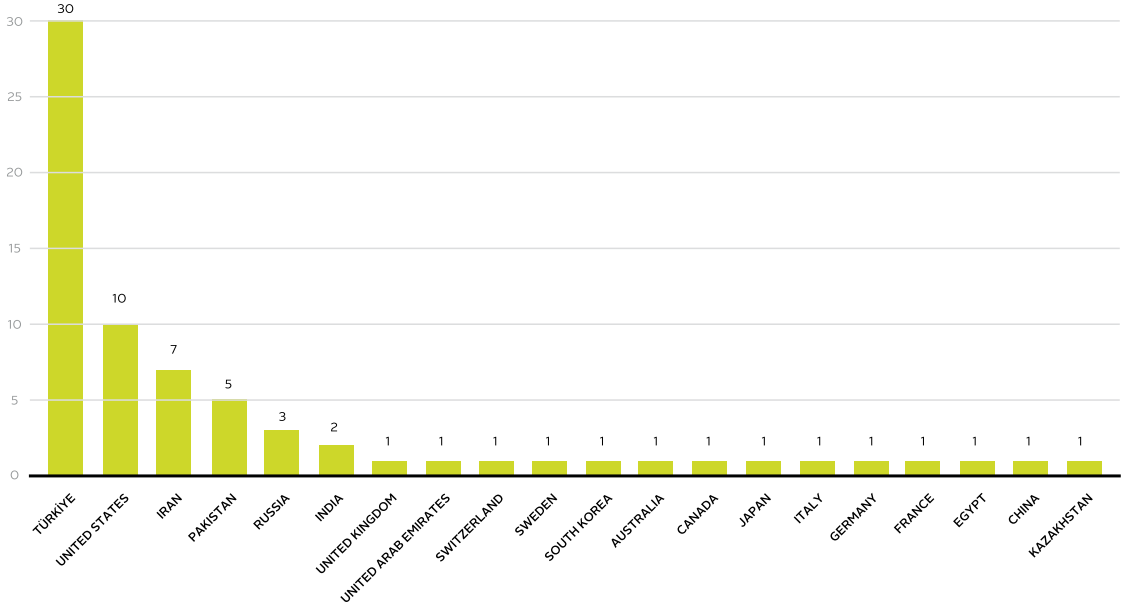


PURE Projects

PURE Projects, Students, and Supervisors Overview



University Participation by Country



Universities of International PURE Participants

AUSTRALIA	University of New South Wales (UNSW), Sydney
CANADA	McMaster University
CHINA	Beijing University Of Posts and Telecommunications
EGYPT	Zewail City of Science and Technology
FRANCE	Grenoble INP
GERMANY	University of Europe for Applied Sciences
INDIA	Jamia Hamdard, New Delhi
IRAN	Jamia Millia Islamia, New Delhi Amirkabir University of Technology (Tehran Polytechnic) Amol University of Special Modern Technologies Bahá'í Institute for Higher Education (BIHE) Islamic Azad University Kharazmi University, Tehran Sharif University of Technology, Tehran University of Tehran
ITALY	LUISS Guido Carli
JAPAN	Ritsumeikan Asia Pacific University
KAZAKHSTAN	Nazarbayev University
PAKISTAN	Bahria University Institute of Business Administration (IBA), Karachi NED University of Engineering and Technology, Karachi Shaheed Benazir Bhutto University, Shaheed Benazirabad University of Engineering and Technology (UET), Lahore
RUSSIA	Gubkin Russian State University of Oil and Gas Lobachevsky State University of Nizhni Novgorod Moscow Institute of Physics and Technology (MIPT)
SOUTH KOREA	Ulsan National Institute of Science and Technology (UNIST)
SWEDEN	Karolinska Institutet
SWITZERLAND	University of Lausanne
UNITED ARAB EMIRATES	American University of Sharjah
UNITED KINGDOM	University of Edinburgh
UNITED STATES	Columbia University Michigan State University New York University Northwestern University St. Edward's University St. John's College Trinity College Connecticut University at Buffalo University of California, Los Angeles (UCLA) University of Florida

Alumni in Academy*

Abdullah Kendibilir (PHDMFE-UG, 2024) was promoted to Assistant Professor in Piri Reis University.

Akhtar Saeed (PHDEE, 2021) was promoted to Assistant Professor in Kadir Has University.

Ali Demir (MSEE, 2010) was promoted to Assistant Professor in Istanbul Medipol University.

Aykut Cihan Satıcı (BSME, 2008) was promoted to Associate Professor in The University of Texas at Dallas.

Dilay Hazal Ayhan (BSBIO, 2014) was promoted to Assistant Professor in Acibadem University.

Emir Yılmaz (BSME, 2014) was promoted to Associate Professor in Sophia University.

Emre Yılmaz (BSCS, 2008) was promoted to Associate Professor in University of Houston-Downtown.

Erhun Kundakcıoğlu (MSIE, 2004) was promoted to Full Professor in SabancI University.

Hakan Osman Çaldağ (BSME, 2014) was promoted to Assistant Professor in Medipol University.

Hasan Kurt (BSMAT, 2006) was promoted to Assistant Professor in Medipol University.

İpek Koçoğlu (BSMS, 2008) was promoted to Associate Professor in Kean University.

Kaan Yılancıoğlu (MSBIO, 2008) was promoted to Full Professor in Uskudar University.

** Appointed/promoted in the 2025-2026 Academic Year.*

Mehmet Emre Özfatura (BSEE, 2012) was promoted to Assistant Professor in Sabancı University.

Mervenaz Şahin (PHDMAT, 2025) was promoted to Assistant Professor in TOBB ETU Biomedical Engineering.

Mostafa Safdari Shadloo (PHDME, 2013) was promoted to Full Professor in INSA Rouen Normandie.

Ömer Karakoç (BSMS, 2016) was promoted to Assistant Professor in Altinbas University.

Pelin Gülşah Canbolat (BSMS, 2004) was promoted to Associate Professor in Yeditepe University.

Rizwan Jahangir (PHDMATH, 2024) was promoted to Assistant Professor in NUST Business School.

Rıza Alp Güler (BSEE, 2012) was promoted to Assistant Professor in Imperial College London.

Selçuk Sümengen (BSCS, 2004) was promoted to Assistant Professor in MEF University.

Tandaç Fürkan Güçlü (PHDBIO, 2021) was promoted to Assistant Professor in Istinye University.

Tuna Çakar (BSBIO, 2004) was promoted to Associate Professor in MEF University.

Yasemin Vardar (BSME, 2010) was promoted to Associate Professor in Delft University of Technology.

Highlights & Achievements

Faculty Awards





Selmiye Alkan Gürsel Receives the "Nejat Veziroğlu Special Award" in Hydrogen Technologies

Selmiye Alkan Gürsel has been awarded the "Nejat Veziroğlu Special Award". Considered one of the most prestigious awards in the field of hydrogen energy and technologies in Türkiye, the award is presented to researchers who have made nationally and internationally recognized scientific contributions to hydrogen energy and technologies. Selmiye Alkan Gürsel conducts research in the fields of hydrogen technologies, electrolyzers, fuel cells, electrocatalysts, and advanced membrane technologies. She has taken part in numerous national and international research projects in these areas and also plays an active role in HYSouthMarmara Hydrogen Valley, Türkiye's first Hydrogen Valley initiative. The project focuses on green hydrogen production, the hydrogen value chain, and contributions to the development of the hydrogen ecosystem in Türkiye.

Ali Koşar Receives the ITU Science Award in the Field of Engineering

The 2025 Awards of Istanbul Technical University (ITU) were presented by Rector Prof. Hasan Mandal during the award ceremony held on May 12, 2026, on the ITU Ayazağa Campus. Ali Koşar received the ITU Science Award in the Field of Engineering. This award is presented to living scientists who have made internationally significant contributions to science through their work conducted in Türkiye. Ali Koşar was deemed worthy of this award for his pioneering studies and contributions in next-generation microfluidic systems, phase-change phenomena on functional surfaces, and micro heat sinks.



ALI KOŞAR RECEIVES THE ECZACIBAŞI MEDICAL SCIENCE AWARD

Ali Koşar has been awarded the 2025 Eczacıbaşı Medical Science Award. Koşar was recognized for his "cavitation on chip" technology, which he developed using liquid flows at the micro and nanoscale. Ali Koşar was awarded the 2025 Eczacıbaşı Medical Science Award for his work paving the way for next-generation biomedical devices that can be used in the early diagnosis and treatment of diseases such as cancer, prostate, and kidney stones, with his “cavitation on chip” technology, which he developed using liquid flows at the micro and nanoscale.

The Dr. Nejat F. Eczacıbaşı Medical Awards, initiated in 1959 to contribute to the development of medical and pharmaceutical sciences, were given 66th time this year. A ceremony was held to present the Eczacıbaşı Medical Awards, considered one of the most prestigious awards in Türkiye in their field.



Four Academics Received BAGEP Awards

The Academy of Sciences Young Scientists Award Program (BAGEP), given annually by the Academy of Sciences to support outstanding young scientists, awarded its 2026 prizes. Four faculty members were awarded for their innovative ideas. Adnan Kefal, Duygu Kuzuoğlu Öztürk, Alhun Aydın, and Dimitrios Papathanasiou were awarded the BAGEP prize for their original work in various disciplines.

BAGEP has been supporting the work of young academics since 2013. To date, a total of 513 awards have been given under the program, and with this year's results, 37 new researchers have been deemed eligible for support. The BAGEP awards, which the Academy of Sciences conducts based on the principles of scientific merit, freedom, and honesty, contribute to strengthening academic production in Türkiye by supporting scientists from different disciplines. Researchers who receive the award are provided with support for two years.





Burcu Saner Okan's Study Wins First Place at PAGÇEV 2026

Sabancı University continues to attract international attention with its work in the field of sustainable materials technologies. Burcu Saner Okan was awarded for her work, conducted in collaboration with Sefa Mandal, R&D Lead Engineer at Beko, and Dr. Leila Haghighi Poudeh, Senior R&D Chief Engineer. The study won first place in the "Innovation and Technology: Product Technology" category at the 3rd PAGÇEV Plastic Recycling Conference and Awards. Within the scope of the project, waste tires were transformed into graphene nanoplates using advanced recycling technology, and these nanomaterials were combined with recycled engineering plastics. The developed product is defined as a washing machine pulley part based on recycled polyamide reinforced with graphene obtained from waste tires. This product, used in the pulley part of the Arçelik Neo washing machine, has entered mass production. The composite structure, produced using recycled polyamide obtained from industrial textile waste, long glass fiber, and graphene nanoplates derived from waste tires, was integrated into production without requiring changes to existing production lines.

Yusuf Ziya Menceloğlu Receives Elginkan Foundation 2025 Technology Award

Yusuf Ziya Menceloğlu won the Elginkan Foundation 2025 Technology Award for his work titled "Development of Biodegradable Superabsorbent Polymers and Their Transformation into Nanotern™ Product." Nanotern™ is a biodegradable and environmentally friendly superabsorbent polymer (SAP) developed to ensure efficient water use in agriculture under drought and excessive rainfall conditions. This innovative material, adaptable to different and saline soil systems, absorbs up to approximately 1800 times its weight in water and gradually releases it back to plants in a controlled manner for 30-40 days. Developed as an alternative to petroleum-derived SAPs, Nanotern™ stands out as an advanced material technology originating from Türkiye with its structure that does not pose a microplastic risk and its commercial-scale producibility. Nanotern™ enables optimal water use in agriculture.





Duygu Kuzuoğlu Öztürk Receives TÜBA-GEBİP Award

The 2025 Outstanding Young Scientist Awards (TÜBA-GEBİP), given by the Turkish Academy of Sciences (TÜBA) to support young scientists, were presented at the Presidential Complex. Duygu Kuzuoğlu Öztürk has been awarded for her studies on cancer research at the molecular level. Duygu Kuzuoğlu Öztürk investigates how the WNT pathway, which plays a significant role in the spread of prostate cancer, is controlled at the post-transcriptional level in her project that was found deserving of the TÜBA-GEBİP Award. The goal is to develop new treatment methods for cancer by understanding these mechanisms at the molecular level. Duygu Kuzuoğlu Öztürk had previously received the L'Oréal Türkiye–UNESCO Young Woman Scientist Award for her study entitled "Investigation of Protein Production Control Mechanism in Prostate Cancer and Its Translation into Therapy".

The TÜBA-GEBİP Awards, given since 2001, encourage outstanding young scientists working in the fields of natural sciences, engineering, health sciences, and social sciences to continue their scientific studies in Türkiye, to establish their own research groups, and to produce internationally qualified projects originating from Türkiye.

Burcu Saner Okan Receives International Award

Burcu Saner Okan, a faculty member at the Faculty of Engineering and Natural Sciences and co-founder and CTO of Euronova, won the Second Place Certificate of Achievement in the pitching competition held as part of the I2DM Summit 2025, hosted by Khalifa University in Abu Dhabi.

This achievement demonstrates that Burcu Saner Okan's and Euronova's innovative approaches to sustainable advanced materials, nanoengineering, and circular thermoplastic composites are recognized internationally.

The extensive collaboration with Khalifa University's Research & Innovation Center for Graphene and 2D Materials (RIC2D) made a significant impact on this success. Collaboration with the RIC2D team has both strengthened scientific output and increased the practical impact of innovations in the field of sustainable materials.





Ali Koşar Receives National Innovation Award as Part of the YÖK Outstanding Achievement Awards

Ali Koşar was awarded the National Innovation Award in the "Special Awards" category of the YÖK (Council of Higher Education) Outstanding Achievement Awards. Koşar earned this prestigious award for his work on microscale cavitation technology and its medical applications.

Given by YÖK, this award aims to reward efforts aimed at increasing Türkiye's international social and economic competitiveness, developing economic, social, and cultural innovation capacity, establishing an industrial infrastructure compatible with global developments, enabling international institutions and organizations to develop new technologies in Türkiye by structuring their R&D units, and promoting R&D and innovation culture, as well as enhancing communication and collaboration among stakeholders in the R&D and innovation ecosystem.

Umut Şahin Awarded the 2025 Eczacıbaşı Personalized Medicine Award

Umut Şahin was honored with an award in the "Targeted Therapies" category of the 2025 Eczacıbaşı Medical Awards for his work entitled "Discovery of New Therapeutic Targets for the Treatment of Amyotrophic Lateral Sclerosis (ALS)". Umut Şahin and his team are conducting multidisciplinary research in their project, supported in Türkiye and Europe, combining cell biology, biochemistry, proteomics, genetics, and experimental animal models to unravel how mutations in the NEK1 gene lead to ALS pathogenesis. The team has developed an innovative therapeutic strategy that targets toxic proteins resulting from NEK1 mutations and clears these proteins from motor neurons with interferon (IFN) therapy. This treatment approach is notable for its potential to slow the progression of ALS and alleviate its clinical manifestations.

The awards, presented regularly by the Eczacıbaşı Group since 1959, aim to support innovative research conducted in Türkiye in the fields of medicine and biomedical sciences. This year's award in the "Targeted Therapies" category honors Umut Şahin's pioneering work in elucidating the function of the NEK1 gene, which plays a role in ALS, and the toxic effects caused by its mutations, leading to targeted treatment approaches.

Project Funding/Support





Morteza Ghorbani's Zinc Recovery Project Receives EUREKA Support

The international project titled "Zinc Recovery from Industrial Acid Streams via Cavitation," to be conducted in partnership with BORÇELİK and IVL Swedish Environmental Research Institute, and featuring Morteza Ghorbani has been awarded funding under the EUREKA Circular Value Chains call. Fevzi Çakmak Cebeci is a researcher in this project.

The system to be developed envisages increasing in-flow activation and mass transfer through hydrodynamic cavitation, providing selective ion transport with assisted liquid membrane technology, and achieving metal recovery through electrorecovery. With this approach, it is planned to provide a circular solution that reduces sludge formation and provides reusable acid and recovered zinc, replacing conventional treatment processes based on neutralization and sedimentation.

Two Significant Achievements in COST Actions

Two different COST Actions, proposed by our faculty members Ogün Adebali and Polat Göktaş, have been approved by the COST Committee of Senior Officials. Our faculty members, who are involved in projects that will make significant contributions to research collaborations, will also serve on the Management Committees of the respective actions.

The COST Action "European Research Network on the Dynamic Modulation of Membrane Protein Function (DYNAMO)" (CA25160), co-proposed by Ogün Adebali, has been approved by the COST Committee of Senior Officials.

The COST Action "AI-Governance, Use, and Impact for a Dynamic European R&I Ecosystem (AI-GUIDE)" (CA25157), co-proposed by Polat Göktaş, has been approved by the COST Committee of Senior Officials.



TÜBİTAK-NARD Bilateral Cooperation Grant Awarded to Our Faculty Member Polat Göktaş's Project

The project entitled "A Challenge-Based, AI-Assisted Learning Lab for Detecting and Disrupting Disinformation in Higher Education in Moldova and Türkiye (DISCUSS-LAB)", led in Türkiye by Polat Göktaş, has been selected for funding under the 2530 TÜBİTAK-NARD Bilateral Cooperation Program, jointly supported by the Scientific and Technological Research Council of Türkiye (TÜBİTAK) and the National Agency for Research and Development of Moldova (NARD). The project, which will be carried out in collaboration between Sabancı University and Moldova State University, aims to investigate the impact of digital disinformation on university students and develop resilience against misinformation through innovative artificial intelligence (AI)-assisted educational approaches.



Sabanci University Becomes the Only Partner from Türkiye in the QuantERA 2025 Call

Sabancı University Quantum Photonics Systems Laboratory (QPSLab) has been awarded funding under QuantERA 2025 for its project "AL FreSQO: Atom-Light Free-Space Quantum Optics Networking". With this achievement, Sabancı University became the only institution from Türkiye to receive support under the QuantERA 2025 call.





Horizon Europe Funding for the QuantumShield Project

The results of the calls under the "Increased Cybersecurity" destination of Cluster 3: Civil Security for Society within the Horizon Europe Programme have been announced. The QuantumShield project, coordinated by Ekinops France and involving Sabancı University as one of the consortium partners, has been selected for funding under the HORIZON-CL3-2025-02-CS-ECCC-06 call.

The QuantumShield project, officially titled "Post-Quantum-Safe Management, Authentication, and Routing for Telecom and Cloud Networks," will be carried out at Sabancı University under the leadership of Erkay Savaş, Dean of the Faculty of Engineering and Natural Sciences, with the participation and contributions of Post-Doctoral Researcher Dr. Tolun Tosun. The project will be supported for EU funding under the call HORIZON-CL3-2025-02-CS-ECCC-06: Integration of Post-Quantum Cryptography (PQC) algorithms into high-level protocols.

M.ERA-NET Support for Our Faculty Member Gözde İnce's Project

The "SMARTSENS - Advanced Materials for Sustainable Nucleic Acid Biosensor" project, led by Gözde İnce, has been awarded funding under the M.ERA-NET 2025 call for proposals. The project aims to develop innovative and sustainable biosensor technologies for cancer diagnosis.

The SmartSens project, which will be conducted at the Faculty of Engineering and Natural Sciences for 36 months, aims to develop an innovative screen-printed biosensor system capable of detecting cancer-related genetic changes in blood samples within the scope of liquid biopsy, using innovative materials with reduced environmental impact. To this end, the project aims to validate innovative materials at the TRL 2 level for printed electronics and biosensor applications by upgrading them to the TRL 4 level.



Horizon Europe Programme Marie Sklodowska-Curie Action Postdoctoral Fellowship Support

The results of the 2025 call for proposals for the Marie Sklodowska-Curie Action Postdoctoral Fellowships (MSCA PF) Programme under the Horizon Europe Programme have been announced. The project 'AIMLA', to be coordinated by Sabancı University, has been awarded funding by the European Commission for 24 months. Furthermore, 12 projects submitted under the coordination of Sabancı University were found deserving of the Seal of Excellence Certificate.

Researcher Dr. Muhammad Rehan is the principal investigator and our faculty member Erhan Budak is the advisor of the project titled "High-Fidelity Fabrication of HAR Microlens Arrays via Adaptive Toolpaths, Intelligent Feedback, and Elliptical Vibration Cutting (AIMLA)", which will be conducted for 24 months at the Faculty of Engineering and Natural Sciences.



Umut Şahin's Project Receives Support from TÜBİTAK-France Bilateral Cooperation Program

Umut Şahin has been awarded funding for his project under the TÜBİTAK 2509 Bilateral Cooperation Program (Bosphorus) with the French Ministry of Foreign Affairs, 2025 call for proposals. The research, titled " From Defense to Offense: Exploring Cas9's Host-Mediated SUMOylation and Bacterial Effector-Like Functions During Infection," of which our faculty member Umut Şahin is the principal investigator in Türkiye, will be conducted in France under the leadership of Dr. David Ribet from INSERM. Within the scope of the project, Şahin and Ribet will investigate the role of post-translational modifications of CRISPR/Cas9 in the context of host-pathogen interactions.





INNO4GRID Project Receives Horizon Europe Funding

The INNO4GRID project, coordinated by the National and Kapodistrian University of Athens and involving Sabancı University as one of its 37 partners, has been selected for funding under the HORIZON-CL5-2025-02-D3-17 call. Among 37 partners, Sabancı University will take part in the INNO4GRID (Innovative Technologies for Massive Renewables Integration into the Grid) project, which will be carried out under the leadership of Nikolaos Koltsaklis, a faculty member of the Faculty of Engineering and Natural Sciences. The project has been awarded EU funding under the HORIZON-CL5-2025-02-D3-17: Control and Operation Tools for a RES-based Energy System call.

The INNO4GRID project aims to develop holistic and innovative solutions by bringing together both hardware and software approaches for Grid-Enhancing Technologies, addressing the challenges of renewable energy penetration in Europe's electricity system. The project will be implemented under the coordination of the National and Kapodistrian University of Athens, with contributions from international institutions such as the Norwegian University of Science and Technology, SINTEF Energy Research, RISE, CIRCE Foundation – Centre for Research in Energy Resources and Consumption, and Cardiff University.

The TechxUM project has been awarded under the EIT Urban Mobility Explained Call

TechxUM directly contributes to EIT Urban Mobility's vision of creating more liveable urban spaces by addressing a critical skills and knowledge gap in the digitalisation of urban mobility systems. The project is internationally led by UPC-Carnet Barcelona (Spain) and nationally coordinated by Bülent Çatay, Director of the Smart Mobility and Logistics Lab at Sabancı University.

The programme aims to strengthen the capacity of municipal professionals and young talent to effectively apply advanced digital tools—most notably Digital Twins—for more inclusive, sustainable, and resilient mobility governance. In doing so, TechxUM supports the creation of liveable urban spaces through improved planning and management of public areas, accelerates the deployment of cleaner and safer mobility solutions, enhances Europe's workforce competitiveness through future-oriented skills, and fosters evidence-based policymaking and behavioural change.

Student Awards



M. Çiğdem Uçar Receives "First Poster Award"

M. Çiğdem Uçar, a PhD student in the Materials Science and Nano Engineering program, presented a poster prepared as part of her doctoral research under the supervision of Serkan Ünal at The Polymer Processing Society 41st International Conference (PPS-41), held in Paestum, Italy, from May 31 to June 4, 2026.

The poster, titled "Structure–Property Correlations in Waterborne Polyurethanes Containing PDMS Segments of Varied Topologies," which examined the effects of different PDMS topologies on the structural and performance properties of water-based polyurethanes, was selected from among 280 papers presented at the conference and won the "First Poster Award."



Seyedreza Tebyani Received the Best Paper Award in V-ICEHT 2026

Sabancı University Mechatronics Engineering Ph.D. student Seyedreza Tebyani received the "Best Paper Award" in the Virtual International Conference on Energy and Heat Transfer (V-ICEHT 2026) with his proceeding titled "Thermal Characterization and Energy Harvesting of Microscale Hydrodynamic Cavitation via Thermelectric Conversion" co-authored by Ali Koşar and Morteza Ghorbani.



Sabanci University Students Win Two Awards at SIU 2026

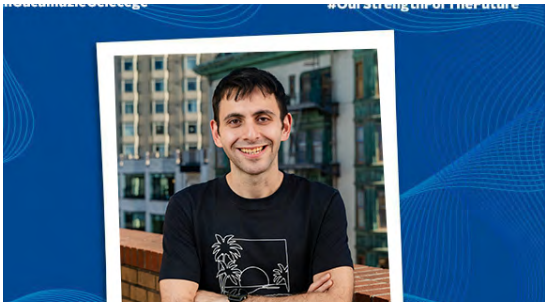
Sabancı University students achieved significant success at the 34th IEEE Signal Processing and Communications Applications Conference (SIU 2026). At the conference, where researchers from various universities across Türkiye presented their work, two of our graduate students won first and second place awards in different categories.

Amirreza Khoshbakht, a graduate student in the Data Science Program, was awarded the First Place Award in the Image Processing and Computer Vision category for his work titled "Spectral-Spatial Open-Set Recognition with Adaptive Contrastive Semantic Reconstruction for Hyperspectral Image Classification". The co-author of the work was Erchan Aptoula.

Samuel Sani, a graduate student in the Electronic Engineering Program, won the Second Place Award in the Communications and Networks category with his study titled "OFDM vs. SC-FDMA for Monostatic THz ISAC UAV Sensing Under Beam Misalignment". The study was co-authored by Halenur Polat, a TÜBİTAK project intern undergraduate student from Gebze Technical University, Özgür Gürbüz, a faculty member at the Faculty of Engineering and Natural Sciences, and Dr. Mikail Erdem, a PhD graduate of our Electronics Engineering program.

Alumni Achievements





Dr. Aydin Aysu Receives International Innovation Award

Dr. Aydın Aysu, an alumnus of our Electronics Engineering master's program, has been awarded the 2026 DAC Under-40 Innovators Award by the Design Automation Conference (DAC), one of the most established international events in the field of electronic design and design automation.

Dr. Aydın Aysu was found deserving of the award particularly for his work on hardware security of artificial intelligence accelerators and secure hardware applications of post-quantum cryptography, and the contributions of these studies to standardization, industry collaborations, and technology transfer. The award honors researchers and technology leaders under the age of 40 who have made significant technical and applied contributions to the design and automation of electronic systems and who are shaping the future of the field.

Vatan Aksoy Tezer Has His Startup Accepted into Silicon Valley's Most Prestigious Acceleration Program

Neuromorphic, an artificial intelligence and robotics startup co-founded by Vatan Aksoy Tezer, a 2021 graduate of our Computer Science and Engineering master's program, has been accepted into the S26 batch of Y Combinator, one of the world's most prestigious startup acceleration programs, and has received investment within the program.

Neuromorphic aims to delegate dangerous and challenging tasks in physical sectors such as energy infrastructure, construction, manufacturing, and security to autonomous robots. Developing general intelligence and autonomy solutions that can operate in different robotic systems with a "hardware-independent intelligence" approach, the startup aims to make robot technologies more widespread and accessible by focusing on model development, human-robot interaction, and real-world field applications.





Ayşe Kıvılcım Coşkun's Start-Up Enters the TIME100 Most Influential Companies 2026 List

Emerald AI, the start-up company that was founded on the research of Ayşe Kıvılcım Coşkun, has joined the highly prestigious TIME100 Most Influential Companies 2026 list. Coşkun, who is a professor of Electrical and Computer Engineering at Boston University, also serves as the Associate Dean of Research and Faculty Development at the College of Engineering. She is the Director of Boston University's Center for Information and Systems Engineering, has pioneered the field of flexible AI and high-performance computing to bolster the power grid.

Emerald AI has been built on the groundbreaking research of Coşkun to transform energy-intensive data centers into AI-powered grid allies. The Emerald AI Conductor platform enables AI data centers to flexibly adjust their power consumption from the electricity grid on demand, orchestrating the computing loads of inference, training, and fine-tuning AI models across a network of data centers to bolster the power grid's reliability while meeting strict compute performance standards.

Efe Öztaban was accepted for a PhD at the Max Planck Institute

Sabancı University Physics master's program graduate Efe Öztaban was accepted for a PhD in Computational Astrophysics at the Max Planck Institute for Extraterrestrial Physics in Germany, one of the world's leading research institutions. Öztaban will continue his studies on galaxy clusters and cosmology in Munich.

Öztaban, who worked on the X-ray detector of the SharjahSat-1 satellite at Sabancı University High Energy Astrophysics Laboratory during his undergraduate education, completed an internship at DTU Space in Denmark in 2021, within the scope of the ATHENA mission carried out by the European Space Agency.



Melike Nur Önder's 'VANDAI' Project Receives MSCA Postdoctoral Fellowship Support

Sabancı University Materials Science and Nano Engineering Program PhD graduate, Melike Nur Önder, has been awarded support for her project titled 'VANDAI' under the Marie Sklodowska-Curie Actions Postdoctoral Fellowship Program.

Melike Nur Önder's project, "VANDAI: Van der Waals Architectures for Next-Generation AI Electronics," which was accepted with a score of 99.6, will be supervised by Prof. Sir Colin Humphreys from Queen Mary University of London and Prof. Caterina Ducati, Director of the Wolfson Electron Microscope Suite at Cambridge University.

The VANDAI project aims to create scalable pathways for low-energy semiconductor devices for next-generation artificial intelligence hardware and sustainable computing infrastructure.

Student Achievements



Sabancı University Students Achieve Great Success in International Publications

Sabancı University Computer Science and Engineering undergraduate students Mehmet Altunören and Deniz Elbek have achieved significant success with their academic work being published in internationally respected publication platforms.

Mehmet Altunören's single-authored article was published in the journal Transactions on Machine Learning Research. Titled "Combinatorial Capacity of modReLU Complex Networks: VC-Dimension Bounds and Lower Limits," the study examines the statistical capacity of complex-valued neural networks (CVNNs) in the context of VC-dimension. Specifically, it investigates deep networks with modReLU activation, used in applications where both amplitude and phase information are important, and reveals new limits on the combinatorial capacity of these networks.

Deniz Elbek's article, "BLEST: Blazingly Efficient BFS using Tensor Cores," was also accepted for the ACM International Conference on Supercomputing 2026. This study introduces the BLEST library, developed to run the Breadth First Search (BFS) algorithm on modern GPUs. Distinguished by its unique data structure and high-throughput computation approach, this method offers high performance on large-scale real-world graphs, making it one of the most competitive BFS solutions in the field.



Deniz Elbek's Article Published in Computer Physics Communications Journal

The article entitled "SUperman: Efficient Permanent Computation on GPUs," co-authored by Deniz Elbek, an undergraduate student in the Computer Science and Engineering program, has been published in the journal Computer Physics Communications (Q1).

The article, co-authored by our faculty member Kamer Kaya, describes algorithms that can perform permanent computation of matrices much more efficiently on GPUs (graphics processing units) and the SUperman software. The software, developed for the extremely difficult-to-compute permanent function, makes it possible to solve large-scale problems much faster through distributed computing and GPU usage.



Nil Nida Yaman Qualified to Participate in KAUST Microelectronics Winter Camp

Nil Nida Yaman, a 3rd-year Electronic Engineering student, has been accepted to the KAUST Microelectronics Winter Camp. Achieving great success by being selected from among thousands of applicants from world-renowned universities, our student participated in the 6-week camp, which took place at King Abdullah University of Science and Technology (KAUST) from January 12th to February 19th, 2026.

The KAUST Microelectronics Winter Camp, organized annually by King Abdullah University of Science and Technology, one of the world's leading research universities, provides opportunities for final-year undergraduate students, recent graduates, and graduate students, selected from among thousands of applicants, to advance their studies in the field of microelectronics.

News & Recognitions



Sabancı University Shared Its Experience at the Horizon Europe Coordinators' Day

Sabancı University participated in the Coordinators' Day event for Horizon 2020 and Horizon Europe, organized by TÜBİTAK, sharing its experience in project coordination and management with participants.

During the experience-sharing session, Erkay Savaş presented the coordination experience gained within the enCRYPTON project, which is coordinated by Sabancı University. He also shared insights and experiences from the PHASE IV AI and PRIVIDEMA projects, in which the university participates as a partner.



Sabancı University Stands Out at ECCM22 with its Studies in the Field of Composite Materials

Sabancı University made a strong representation at the 22nd European Conference on Composite Materials (ECCM22), held in Oslo, Norway, with its studies covering nanomaterial integration, advanced composite materials, manufacturing processes, structural performance, damage analysis, and repair technologies.

The research groups of Mehmet Yıldız and Burcu Saner Okan from Sabancı University presented a strong research portfolio covering the entire value chain of composite technologies with their studies presented in different sessions at the conference. The presentations covered topics such as nanomaterial integration, advanced composite materials, carbon fiber reinforced composites, thermoplastic laminates, interface and interphase engineering, electrical conductivity, damage and fracture analysis, characterization of production processes, evaluation of automated production waste, and repair technologies for composite structures.



Sabancı University to Shape Türkiye's Quantum Ecosystem

Sabancı University will make strong contributions to Türkiye's strategic breakthrough in quantum technologies within the scope of the SSB Quantum Program, implemented in cooperation with the Council of Higher Education (YÖK) and the Presidency of Defense Industries (SSB).

At the ceremony held in Ankara with the participation of YÖK President Prof. Dr. Erol Özvar and the President of the Defense Industries Prof. Dr. Haluk Görgün, Sabancı University President Yusuf Leblebici signed the Defense Industry Quantum Technologies Strategic Competence Development Cooperation Protocol and the Superconducting Quantum Processor Unit (QPU) Development Project on behalf of the university.



A Memorandum of Understanding Aimed at Developing Joint Education and Research Activities

A Memorandum of Understanding aimed at developing joint education and research activities between Sabancı University and the National Institute for Research and Development of Isotopic and Molecular Technologies of Romania (INCDTIM) was signed on June 8th at a ceremony.

The signing ceremony, attended by Sabancı University President Yusuf Leblebici and INCDTIM Director Dr. Claudiu Filip, aimed to strengthen cooperation between the two institutions in the fields of education and research. The agreement is expected to contribute to the development of joint academic studies, the increase of research projects, and the strengthening of international scientific collaborations.



Gülin Baran Receives the MPS World Summit 2026 Travel Award

Gülin Baran, a postdoctoral researcher at Sabancı University's Faculty of Engineering and Natural Sciences, was awarded the Travel Award at the MPS World Summit held in Washington DC from May 26-29, 2026.

The Travel Award is given by IMPSS to honor researchers who have won support for participation and involvement in the MPS World Summit 2026.



The Information Technology Non-Thesis Master's Program Renewed

The Information Technology non-thesis master's program offered under the Graduate School of Engineering and Natural Sciences at Sabancı University has been renewed in line with the vision of "Interdisciplinary Minds, AI-Focused Secure Technologies".



Mass Production Begins for Nanotechnology Product Developed with Sabancı University Support

ANT Systems, developed in the Materials Science and Nano Engineering laboratories of the Faculty of Engineering and Natural Sciences at Sabancı University and the product of approximately 15 years of scientific studies, has brought nanomaterial technology to industrial production. The product, called NANOTERN, is a biodegradable nanomaterial that allows the soil to retain water for longer and release it back to the plant in a controlled manner when needed. The technology can absorb up to 1,800 times its own weight in water, reducing irrigation water consumption by up to 50% and increasing agricultural productivity by up to 25%.

This initiative, cited as a concrete example of the success of Sabancı University's entrepreneurship and technology ecosystem, has begun mass production at its 3,000-ton annual capacity production facility established in the Tuzla Chemical Specialized Organized Industrial Zone (KOSB) in Istanbul. The opening ceremony, held on May 16th, was attended by the Chair of the Turkish Grand National Assembly's Agriculture, Forestry and Rural Affairs Committee, Prof. Dr. Vahit Kirişci, the Founding Chair of the Board of Trustees Güler Sabancı, the President of the Agricultural and Rural Development Support Institution (TKDK), Dr. Ahmet Abdullah Antalyalı, the President of Sabancı University, Yusuf Leblebici, as well as numerous representatives from public institutions, academics, industry stakeholders, and international guests.



Sabanci University Signs Joint Projects with IMEC, World Leader in Semiconductor Technologies

CMOS technology has revolutionized the electronics industry by balancing performance, energy efficiency, and affordability for semiconductor chip fabrication. However, many agree that CMOS technology is now approaching its physical limits. At this point, CMOS 2.0 aims to design functions in multiple 3D stacked layers using specialized chips, representing a new paradigm. Utilizing 3D integration technologies, the CMOS 2.0 approach can overcome the limitations of traditional CMOS thanks to high communication sensitivity and high-tech heterogeneity within the package.

Recently, Sabancı University and IMEC, the leading Belgian international research and development organization in nanoelectronics and digital technologies, signed two new project agreements with a total budget of EUR 384.000 to conduct joint research on CMOS 2.0 technology. These agreements aim to facilitate joint research on two interrelated themes, involving doctoral and master's students.



Öznur Taştan Elected to the FEBS Advanced Courses Committee

Öznur Taştan, a faculty member at Sabancı University's Faculty of Engineering and Natural Sciences, has been elected to the Advanced Courses Committee of the Federation of European Biochemical Societies (FEBS).

The election was held during the 66th FEBS Council Meeting on July 8, 2026. Öznur Taştan will begin her four-year term on January 1, 2027. The FEBS Advanced Courses Committee is responsible for supporting and coordinating advanced scientific courses, workshops, and educational activities in biochemistry and the molecular life sciences. Drawing on her expertise in artificial intelligence and computational biology, Taştan will contribute to the committee's activities in biocomputation.



Polat Göktaş Elected Chair of the MCAA Türkiye Chapter

Polat Göktaş, a faculty member at Sabancı University's Faculty of Engineering and Natural Sciences, has been elected Chair of the MCAA Türkiye Chapter for the 2026-2028 term within the Marie Curie Alumni Association (MCAA), the global alumni network of researchers funded through the European Union's Marie Skłodowska-Curie Actions (MSCA).



Nur Mustafaoğlu Selected for European Network of Excellence in Neuroscience

Nur Mustafaoğlu, a faculty member at Sabancı University's Faculty of Engineering and Natural Sciences, has been selected as a member of the 2026 term of the FENS-Kavli Network of Excellence (FKNE) program, run by the Federation of European Neuroscience Societies (FENS), Europe's largest neuroscience organization, and the Kavli Foundation.

Mustafaoğlu, selected based on criteria such as scientific excellence, original research approach, and leadership potential, will be among the new members of FKNE along with 15 researchers selected from different European countries. Mustafaoğlu will contribute to the network's scientific activities for two consecutive two-year terms; she will play an active role in developing international collaborations, promoting interdisciplinary research, and strengthening the European neuroscience ecosystem.

Nur Mustafaoğlu has achieved a significant milestone as the first scientist from Türkiye to be selected for the FKNE program. This achievement will both strengthen Sabancı University's visibility in the international research arena and support Türkiye's scientific representation in neuroscience at a high level within one of Europe's most prestigious research networks.



Ali Koşar has been elected as a Full Member of TÜBA

Sabancı University Faculty of Engineering and Natural Sciences faculty member Ali Koşar has been elected as a Full Member of the Turkish Academy of Sciences (TÜBA).

The Academy has three categories of membership: Full Members, Associate Members, and Honorary Members. Election to Full or Associate Membership is carried out through a nomination submitted to the Presidency of the Academy by existing Full Members or by the Council of Higher Education (YÖK) or the Executive Board of TÜBİTAK with a written official support letter. Candidates are then evaluated and accepted by the Academy Council, followed by the approval of the members of the General Assembly representing the relevant scientific field.

Full Members are selected from among distinguished Turkish scientists, who have received awards or medals from nationally or internationally recognized organizations, have discoveries, inventions, theories, or models named after them, whose names appear in classic textbooks or review articles, and who have received a high number of citations in widely recognized international scientific citation indexes.



TÜBİTAK 3501 Support for Tandaç Fürkan Güçlü's Project

A project led by Tandaç Fürkan Güçlü, a researcher at Sabancı University's Faculty of Engineering and Natural Sciences, has been awarded funding under the TÜBİTAK 3501 Career Development Program.

The project will examine the KRAS protein and its mutations, which play a critical role in cancer formation, in detail using computational physics and chemistry methods. The research will use advanced simulation techniques such as molecular dynamics simulations and free energy calculations to elucidate the relationship between the KRAS protein and its binding partners, and its connection to cancer. This study aims to achieve significant scientific results at the intersection of life sciences, physics, and chemistry.





ANT Systems has been awarded support under the TÜBİTAK 1507 program!

Sabancı University initiative and Inovent affiliate ANT Systems has been awarded support under the TÜBİTAK 1507 program.

As part of the evaluation results of the 1507 - TÜBİTAK SME R&D Start-Up Support Program call, ANT Systems, a Sabancı University initiative and an Inovent affiliate, has been selected for funding. Under the project titled "Development of Superabsorbent Polymers as Micro Fertilizer Carriers and Their Application in Agricultural Fields," a total budget of 2,138,119 TL has been allocated. This significant achievement will provide strong momentum for ANT Systems to realize its innovative R&D projects and advance its technology-driven growth goals.

Duygu Kuzuoğlu Öztürk Receives Prestigious Scientific Support from Europe: EMBO Installation Grant

Duygu Kuzuoğlu Öztürk, a faculty member at Sabancı University's Faculty of Engineering and Natural Sciences, has been awarded the prestigious Installation Grant by the European Molecular Biology Organization (EMBO). Duygu Kuzuoğlu Öztürk was among the 10 scientists deemed worthy of the EMBO Installation Grant as a result of a rigorous international evaluation process, and she is the owner of the only project from Türkiye supported under the program. Under the program, Öztürk will receive a grant of €50,000 annually for 5 years to contribute to the long-term and sustainable development of her independent research program. The project aims to investigate a previously unknown function of a protein (oncogene) that plays a crucial role in the development of prostate cancer and to develop new therapeutic methods.



2026 Optimization Challenge

The final round of the Optimization Challenge, sponsored by Köpüklü and Datart Lab, took place at Sabancı University Tuzla campus on May 2-3.

The final round included participants from TOBB University of Economics and Technology, Bilkent University, İstanbul Bilgi University, TED University, Yıldız Technical University, and Abdullah Gül University.

The winning teams were:

1st Place:
Kerem Bişici
Yunus Emre Özçelik

2nd Place:
Bahadır Maral
Berke Kemahlı
Osmantan Beşikçi

3rd Place:
Ammar Hayek
Morhaf Rabe
Abdulmuhemen Hakmi



AWARD-WINNING ACADEMICS CONVENED AT "FRONTIERS AND IMPACT TALKS"

The “Frontiers and Impact Talks” series, organized as part of the Sabancı University Awards in Arts and Sciences launched in 2025, was held on May 13 at SUNUM. During the event, the recipients of the 2025 Sabancı University Awards in Arts and Sciences shared with participants the scientific background of their research, its societal impact, and their production process. Bringing together invited participants from academia and private sectors, as well as Sabancı University students and its academic and administrative staff, the event served as a meaningful platform highlighting the transformative power of research.

The event opened with remarks by Sabancı University President Yusuf Leblebici. Among the speakers were Nur Mustafaoğlu, recipient of the Lightning Scholar Award; Ayşe Betül Çelik and Özge Akbulut, recipients of the Societal Impact Award; and Erhan Budak, recipient of the Outstanding Scholar Award. Participants had the opportunity to hear firsthand about the academic and societal impact of the researchers’ work. Throughout the sessions, strong emphasis was placed on the growing importance of interdisciplinary approaches and the role of art in making science more accessible to broader audiences.

Sabancı University is the Leader in New TÜBİTAK 1001 Projects

The results of the second term of the TÜBİTAK-ARDEB 1001 Program for 2025 once again revealed the universities with the top research performance in Türkiye. Sabancı University became the university receiving the most support within the scope of the program, with 27 new projects approved in this call and a budget of approximately 62 million TL. It also stood out with highest project productivity per faculty member, when considering the number of its academic staff.

According to the evaluation results of the 2025 - second term of the 1001-Scientific and Technological Research Projects Support Program, 19 projects from the Faculty of Engineering and Natural Sciences were found deserving of support.

	PI/Researcher/Advisor
A Fully Decentralized and Scalable Federated Learning Infrastructure with Fair Participation that Protects Data Privacy and Model Integrity for Health and Finance Applications	Albert Levi
High Accuracy Modeling of Machining Processes with Physics-Based Machine Learning	Arash Ebrahimi Araghizad
Determination of Trajectory Parameters of X-ray Binaries and Temporal and Spectral Analysis of Their Long-Term Variations	Ersin Göğüş
Dynamics of Weighted Shifts on Directed Graphs	Dimitrios Papathanasiou
Understanding the Physics of Jet Formation and Disappearance in Black Hole Binary Systems by Studying Flare Emissions and Decays with Multiband Observations and the Most Advanced General Relativistic Magnetohydrodynamic Simulations	Emrah Kalemci
Non-Equilibrium Dynamics of Open Quantum Systems	Göktuğ Karpat
Diffusion-Assisted Nucleated Ray Tracing for New Appearance Synthesis with Gaussian Interdivision	Hüseyin Özkan Erchan Aptoula

Innovative Soft-Legged Mobile Robot Design and Development	Melih Türkseven Ezgi Karabulut Türkseven Kemalettin Erbatur Bahattin Koç
FlexiCampus: Integration of Behavior, Prediction and Optimization for Sector-Integrated Smart Campuses	Nikolaos Koltsaklis Erdal Aydın
Decomposition and Combination of Twisted Functions	Nurdagül Anbar Meidl
Development of LLM-Supported Dynamic Web Honeypots and Analysis of Aggressive Behaviors	Orçun Çetin
Time-Dependent Transportation Durations and Double-Visit Service Logistics	Erhun Kundakcıoğlu
Heterogeneous Convolutional Neural Network Accelerator Design for Resource-Constrained Edge-Based Computing Applications	Özcan Öztürk
New Synthesis Strategies, Microstructural Design, and Capacitive Energy Storage Performances of Chromium, Nickel, and Molybdenum-Containing Borocarbide and Borosilisite-Based Advanced Functional Materials	Emre Erdem
MSN-BRAIN: Biocompatible Mesoporous Silica Nanoparticles for Precise Drug Delivery in Breast Cancer Brain Metastases	Sahar Porrang Nur Mustafaoğlu
Broadband Front-End Circuit Design for Dual-Band 60/77 GHz FMCW Automotive Radars	Samira Firouz Yaşar Gürbüz
Computational Cognitive Mediation Model (HCM) for Adaptive Interaction in Augmented Reality	Selim Balcısoy
Development of Phononic Sandwich Composite Structures with Adaptive Band Gap Behavior through Innovative Integrated Design and 4D Printing	Bekir Bediz Bahattin Koç Kamer Kaya
Effect of Electrode Thickness on Electric Vehicle Battery Performance: Model-Based Evaluation and Long-Term Simulation	Tuğçe Yüksel

Sabancı University Faculty of Engineering and Natural Sciences Held its 6th Search Conference



The Faculty of Engineering and Natural Sciences brought its academic staff together on February 3, 2026, for its 6th Faculty Search Conference, designed as a follow-up and action-oriented continuation of the 5th Search Conference held on June 3, 2025.

The conference took place at the Sabancı University Tuzla Campus under the leadership of our Dean, Erkay Savaş, with moderation by Mete Yurtsever. The event was attended by President Yusuf Leblebici, Vice President for Education Cem Güneri, Vice President for Research Mehmet Yıldız, Secretary General Ali Çalışkan, along with faculty members, lecturers, research assistants, administrative staff, and experts and researchers from SUATT and SUNUM.

Building on previously identified priorities, the conference focused on translating strategic themes into concrete actions. Participants worked collaboratively on defining next steps, responsibilities, and implementation pathways aimed at strengthening the faculty's long-term growth, excellence, and impact.



Key discussions addressed current challenges in higher education and scientific research, while also actively exploring practical opportunities presented by artificial intelligence, including ethical, technological, and pedagogical considerations, with a clear emphasis on how these insights can be integrated into education, research, and faculty operations.



Through this collective and action-driven process, the Faculty of Engineering and Natural Sciences continues to shape its future strategies by leveraging the experience, expertise, and shared commitment of its academic community.

Engineering Faculties of Koç University and Sabancı University Came Together



At the workshop hosted by the Sabancı University Faculty of Engineering and Natural Sciences on 13 February 2026 at Karaköy Minerva Han, the Engineering Faculties of Koç University and Sabancı University came together to discuss contemporary approaches in education and applications of artificial intelligence. In the first part of the workshop, the structure of introductory programming and laboratory courses, as well as project-based and theory-based courses, was evaluated, and ideas were exchanged on how these courses could be restructured in the age of artificial intelligence.

In the afternoon sessions, the use of AI tools in teaching, approaches to ensuring students use AI ethically and responsibly, and methods of benefiting from AI in research processes were discussed in depth. Participants also shared their experiences and examples of best practices, creating a collaborative learning environment.



Thanks to the mutual exchange of ideas and interdisciplinary interaction, the meeting proved to be productive and inspiring.

Our Awards

Three Minute Thesis (3MT)





Held for the 9th time on Wednesday, June 12, 2026, the Three Minute Thesis (3MT®) competition was hosted by Sabancı University. Developed by the Queensland University of Australia for doctoral students to develop and showcase their research communication skills in 2008, the FENS 3MT competition was organized by the Sabancı University Faculty of Engineering and Natural Sciences Research Awards Committee.

Molecular Biology, Genetics, and Bioengineering Program Ph.D. student Cemile Uslu won first place in the Three Minute Thesis competition. Nihan Birgün, Ph.D. student in the Materials Science and Nano Engineering Program, both qualified as the runner-up among the competitors evaluated by the jury members and was awarded the “People’s Choice” prize, in which the winners are determined by the votes of the audience.

Winner: Cemile Uslu (PhD-BIO)
Runner-up: Nihan Birgün (PhD-MAT)
People’s Choice: Nihan Birgün (PhD-MAT)

Dr. Gürsel Sönmez Research Award





Dr. Gürsel Sönmez Research Award Committee has carefully evaluated the applications of candidates, considering their research outcomes and references, as well as the nature of each discipline and the degree awarded at the Institute of Engineering and Natural Sciences at Sabancı University. Based on their achievements and contributions to their fields, this year's award is granted to two alumni: Hamide Suluyer, a 2025 graduate of our Mathematics PhD program, and Arash Ebrahimi Araghizad, a 2024 graduate of our Manufacturing Engineering PhD program.

2025-2026 Dr. Gürsel Sönmez Research Award Committee members are Burç Mısırlıoğlu, Vice Dean of the Faculty of Engineering and Natural Sciences; and faculty members Duygu Kuzuoğlu Öztürk, Esra Koca, Ferruh Özbudak, Melih Türkseven, Özgür Gürbüz, and Selmiye Alkan Gürsel.

Professor Durmuş Ali Demir Memorial Award



FENS has established a special award in 2025 (Professor Durmuş Ali Demir Memorial Award | Faculty of Engineering and Natural Sciences) in memory of Professor Durmuş Ali Demir—an outstanding teacher and researcher . Professor Demir passed away suddenly on February 24, 2024, leaving us with heavy hearts. This award aims to honour his legacy at SU FENS by recognizing undergraduate and graduate students who demonstrate strong dedication to their studies and achieve outstanding scientific results and insights.

After a thorough review of the input from the panel, the committee has selected the following recipients for the award:

Undergraduate Category:
Can Çoruh, Materials Science and Nano Engineering program
İdil Bayar, Computer Science and Engineering program

Graduate Category:
Veysel Oğulcan Kaya, Molecular Biology, Genetics and Bioengineering PhD program

The award evaluations were carried out by a jury consisting of Burç Mısırlıoğlu, Vice Dean of the Faculty of Engineering and Natural Sciences; Ersin Göğüş, Member of the Faculty of Engineering and Natural Sciences; Ferruh Özbudak, Member of the Faculty of Engineering and Natural Sciences; Mehmet Özgür Oktel, Faculty Member of the Physics Department at Bilkent University; Oğun Adebali, Member of the Faculty of Engineering and Natural Sciences; Tuğrul Senger, Faculty Member of Izmir Institute of Technology; and Zafer Gedik, Member of the Faculty of Engineering and Natural Sciences.

We extend our heartfelt congratulations to the award recipients and all applicants. Their dedication and achievements contribute to making FENS a world-class institution for teaching and research in science and engineering.

We hope this award will continue to inspire current and future students to pursue knowledge with the same passion and integrity that defined Professor Demir's life and work.

Sakıp Sabancı Award For The Highest Ranking Undergraduate Student



Highest-Ranking Undergraduate Students Honored at the Ceremony

At the ceremony, awards were presented to the highest-ranking undergraduate students of Sabancı University's three faculties. The awards, established through a fund created in accordance with the will of the late Sakıp Sabancı, Honorary Chair of the Sabancı University Board of Trustees, were presented by Melisa Sabancı Tapan, Member of the Sabancı University Board of Trustees.

Sude Tıraş, the highest-ranking undergraduate student of the Faculty of Engineering and Natural Sciences. She graduated from the Computer Science & Engineering Program.

2025 Teaching Awards

First Year University Courses Award 2 (Auditorium Courses)

İnanç Arın (CS Program)

Yuki Kaneko Göğüş (PHYS Program)

Mohammad Sadek (MATH Program)

Graduating Class Award

Hüsnü Yenigün (CS Program)

Dilara Keküllüoğlu (CS Program)

İhsan Sadati (IE Program)

Yücel Saygın (CS Program)

Teaching Assistant Award

Elif Ecem Şamlıoğlu (CS Program)

Ata Marangoz (MATH Program)

First Year Teaching Assistant Award

Ndiogou Niang (PHYS Program)

Student Feedback on Teaching & Learning

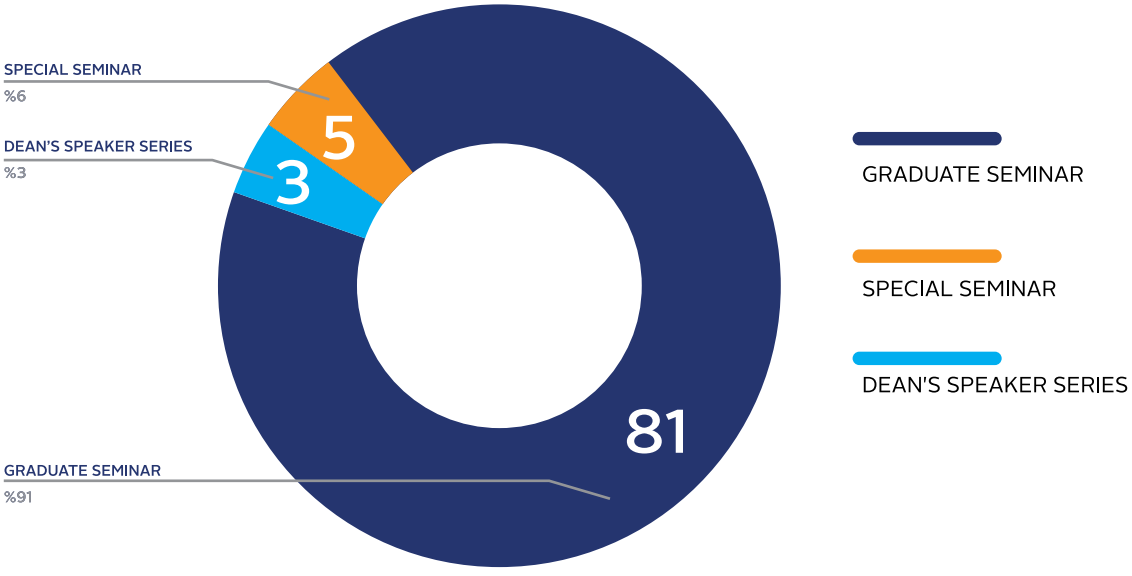
Emre Erdem (MAT Program)



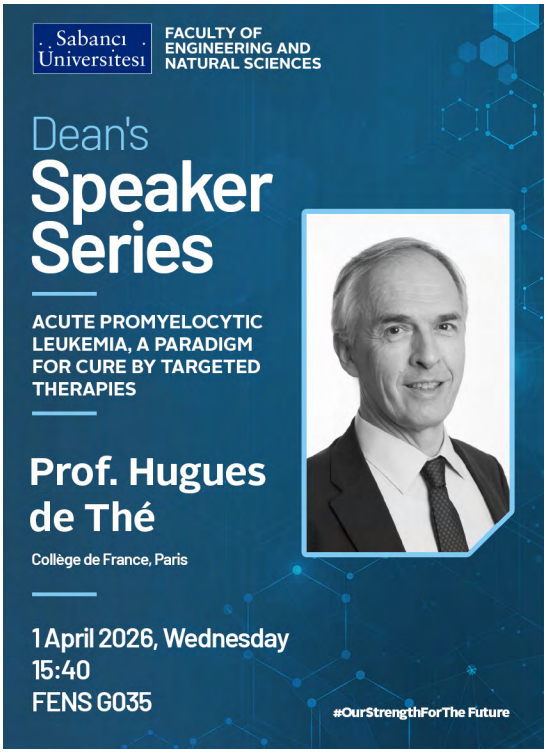
Seminars

Seminars

2025-2026 Academic Year








Dean's
Speaker Series
How Cells Build Dynamic Organizers: Centriolar Satellites in Health and Disease
Dr. Elif Nur Fırat Karalar
22 April 2026, Wednesday


Sep 18, 2025
11:00 | FENS G035
Dr. Gain Kim
ASSOCIATE PROFESSOR, DAEGU GYEONGBUK INSTITUTE OF SCIENCE AND TECHNOLOGY (DGIST)
DAC/ADC-DSP-BASED WIRELINE TRANSCEIVERS FOR ULTRA HIGH-SPEED CHIP-TO-CHIP INTERCONNECTS
Abstract
Biography


Oct 13, 2025
11:00 | FENS G035
Prof. Ahmet Yıldız
PROFESSOR OF PHYSICS, AND MOLECULAR AND CELL BIOLOGY CHAIR, BIOPHYSICS GRADUATE GROUP UNIVERSITY OF CALIFORNIA BERKELEY
THE MECHANISM AND REGULATION OF MICROTUBULE MOTORS
Abstract
Biography


Oct 24, 2025
11:00 | FENS G032
Dr. Koray Aydın
PROFESSOR IN THE DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING NORTHWESTERN UNIVERSITY
ENGINEERING NANOPHOTONIC MATERIALS FOR IMAGING, OPTICAL COMPUTING, AND QUANTUM TECHNOLOGIES
Abstract
Biography


March 24, 2026
17:00 | FENS G032
Prof. Behzad Razavi
PROFESSOR OF ELECTRICAL ENGINEERING UNIVERSITY OF CALIFORNIA, LOS ANGELES
A 140GHz 40-mW BEAMFORMING RECEIVER WITH LO GENERATION
Abstract
Biography


ARNAUD FONTANET
LESSONS LEARNED FROM COMPARING COVID-19 CONTROL STRATEGIES ACROSS COUNTRIES WORLDWIDE
ON THURSDAY, 21 MAY 2026
SABANCI UNIVERSITY TUZLA CAMPUS, UC G030 (CINEMA HALL)
START AT 15.40 PM
TO REGISTER

PhD Dissertations

NAME / SURNAME	PROGRAM	THESIS TITLE	THESIS ADVISOR
ABDULKADİR UZUN	ELECTRONICS ENGINEERING	DESIGN AND ANALYSIS OF MULTI-MODE ORBITAL ANGULAR MOMENTUM ANTENNAS FOR WIRELESS COMMUNICATIONS	İBRAHİM TEKIN
AHMMAD O.M. SALEH	COMPUTER SCIENCE AND ENGINEERING	MULTI-HOP QUESTION ANSWERING WITH LARGE LANGUAGE MODELS THROUGH KNOWLEDGE GRAPHS	YÜCEL SAYGIN
ASENA GÜLENAY TATAR KIRTAY	MATERIALS SCIENCE AND NANO ENGINEERING	NOVEL CROSSLINKING APPROACH FOR 3D EMBEDDED HYBRID BIOPRINTING OF VASCULAR STRUCTURES AND ITS APPLICABILITY WITH DIFFERENT MATERIAL AND CELLS	BAHATTİN KOÇ
ASMAA LOULOU	MECHATRONICS ENGINEERING	LOCALIZATION, TRAJECTORY PREDICTION AND PLANNING FOR AUTONOMOUS VEHICLES USING HYBRID ATTENTION MECHANISMS AND TRANSFORMER NEURAL NETWORKS	MUSTAFA ÜNEL
ATA ALIPOUR GHASSABI	MECHATRONICS ENGINEERING	AN IN SILICO STUDY OF SCAFFOLD ARCHITECTURE EFFECTS ON BONE REGENERATION AND SCAFFOLD DEGRADATION	GÜLLÜ KIZILTAŞ ŞENDUR
BÜŞRA ÇETINER	MATERIALS SCIENCE AND NANO ENGINEERING	EFFICIENT CATALYTIC CONVERSION OF POLYSULFIDES BY MXENE-BASED HETEROSTRUCTURES TOWARDS LONG-LIFE LI-S BATTERIES	SELMİYE ALKAN GÜRSEL
CEM AZGARI	MOLECULAR BIOLOGY, GENETICS AND BIOENGINEERING	GENOME-WIDE ASSOCIATION OF NUCLEOTIDE EXCISION REPAIR MECHANISM WITH G-QUADRUPLEXES	OGÜN ADEBALİ
GİZEM DEMİR TUNÇBAŞ	MATERIALS SCIENCE AND NANO ENGINEERING	TOWARD CIRCULAR AND NEAR-NET-SHAPE MANUFACTURING OF ADVANCED CERAMICS: A DOUGH-BASED APPROACH FOR GREEN MACHINING, RECYCLING , AND LASER PROCESSING	ÖZGE AKBULUT
GÜLİN BARAN	MOLECULAR BIOLOGY, GENETICS AND BIOENGINEERING	DECIPHERING GLIOBLASTOMA–BLOOD–BRAIN BARRIER INTERACTIONS THROUGH HUMANIZED IN VITRO SYSTEMS: FROM MECHANISTIC UNDERSTANDING TO THERAPEUTIC INSIGHT	NUR MUSTAFAOĞLU VAROL
MARIAM KASSEM OMAR	MATERIALS SCIENCE AND NANO ENGINEERING	DAMAGE-TOLERANT CF/EP COMPOSITES ENABLED BY SYNERGISTIC POLYMER TOUGHENING AND CARBON NANOSTRUCTURE REINFORCEMENT	MEHMET YILDIZ

NAME / SURNAME	PROGRAM	THESIS TITLE	THESIS ADVISOR
MEHMET SİNAN TÜBCIL	MOLECULAR BIOLOGY, GENETICS AND BIOENGINEERING	POLYOXAZOLINE-BASED FUNCTIONAL MODIFICATION OF NONWOVEN DIAPER TOPSHEETS FOR THE PREVENTION OF IRRITANT DIAPER DERMATITIS IN INFANTS	BEKİR DIZMAN
NARGIZ ALIYEVA	MATERIALS SCIENCE AND NANO ENGINEERING	DEVELOPMENT AND OPTIMIZATION OF NATURAL FIBER–REINFORCED THERMOPLASTIC COMPOUNDS FOR SUSTAINABLE LIGHTWEIGHT AUTOMOTIVE COMPONENTS	BURCU SANER OKAN
NASIM TAVAKKOLI	CYBER SECURITY	EVALUATING THE IMPACT AND STRATEGIC ROLE OF CYBERWARFARE IN THE RUSSIA–UKRAINE WAR	ERKAY SAVAŞ
OĞUZ ALP KURUCU	MATERIALS SCIENCE AND NANO ENGINEERING	REVALORIZATION OF LLDPE/PP WASTE MIXTURES BY USING ORGANOMETALLIC COMPLEXES	YUSUF ZİYA MENCELOĞLU
RAGIP ORKUN SEÇER	MANUFACTURING ENGINEERING	PHASE-FIELD SIMULATION OF GRAIN EVOLUTION AS A COMPONENT OF DIGITAL TWIN FOR 3D METAL PRINTING	MEHMET YILDIZ
ROKHSAREH BAKHTIARI	MATERIALS SCIENCE AND NANO ENGINEERING	HARNESSING ELECTROSPUN NANOFIBERS AND HYDRODYNAMIC CAVITATION FOR ENHANCED CO_2 SEQUESTRATION	FEVZİ ÇAKMAK CEBECİ
SAYGUN GÜLER	ELECTRONICS ENGINEERING	WEARABLE ELECTROCARDIOGRAPHY WITH FULL CLINICAL TRACE	MURAT KAYA YAPICI
SERCAN AKGÜN	MATERIALS SCIENCE AND NANO ENGINEERING	ADVANCED STRUCTURAL HEALTH MONITORING TECHNIQUES FOR FAILURE INVESTIGATION AND DAMAGE ACCUMULATION ANALYSIS IN AEROSPACE COMPOSITE STRUCTURES UNDER COMPLEX LOADING CONDITIONS	MEHMET YILDIZ
SINA KHALILVANDI BEHROUZYAR	MANUFACTURING ENGINEERING	DEVELOPMENT AND VALIDATION OF AN INTEGRATED THERMOMECHANICAL PROCESS SIMULATION FRAMEWORK FORR LASER BEAM POWDER BED FUSION ADDITIVE MANUFACTURING	BAHATTİN KOÇ
SÜMEYRA VURAL KAYMAZ	MOLECULAR BIOLOGY, GENETICS AND BIOENGINEERING	FIELD DEPLOYABLE RAMAN SPECTROSCOPY-BASED PESTICIDE DETECTION FROM AGRICULTURAL PRODUCE	MERAL YÜCE

NAME / SURNAME	PROGRAM	THESIS TITLE	THESIS ADVISOR
VAHID MOUSAVI	MECHATRONICS ENGINEERING	DEVELOPMENT OF HIGH PERFORMANCE TEXTURED GRINDING WHEELS BY LASER PROCESSING	ERHAN BUDAK
VEYSEL OĞULCAN KAYA	MOLECULAR BIOLOGY, GENETICS AND BIOENGINEERING	RELATIONSHIP BETWEEN UV-INDUCED DNA DAMAGE RESPONSE AND THE THREE-DIMENSIONAL STRUCTURE OF THE GENOME	OGÜN ADEBALİ

Master's Theses

NAME/ SURNAME	PROGRAM	THESIS TITLE	THESIS ADVISOR
ABDUL MOATI DIAB	MECHATRONICS ENGINEERING	A COMPUTATIONALLY EFFICIENT REAL-TIME VISION-BASED HUMAN TRACKING FRAMEWORK FOR OVERHEAD UAVS	MUSTAFA ÜNEL
ABDULRAHMAN MURAD	MOLECULAR BIOLOGY, GENETICS AND BIOENGINEERING	A PHYLOGENETICALLY-STRUCTURED FRAMEWORK FOR IDENTIFYING RECEPTOR-SPECIFIC EVOLUTIONARY SIGNATURES: APPLICATION TO CLASS B GPCRS AND THE CELSR ADHESION GPCR FAMILY	OGÜN ADEBALİ
AHMET BAKİ ŞAHİN	MOLECULAR BIOLOGY, GENETICS AND BIOENGINEERING	ENHANCING THE PARACELLULAR PERMEABILITY OF DOXORUBICIN-LOADED NIOSOMES VIA MELITTIN-INDUCED BLOOD-BRAIN BARRIER DISRUPTION	NUR MUSTAFAOĞLU VAROL
AKSEL AKMERCAN	INDUSTRIAL ENGINEERING	SAMPLE AVERAGE APPROXIMATION AND LARGE NEIGHBORHOOD SEARCH METHODS FOR THE STOCHASTIC VEHICLE ROUTING PROBLEM WITH FLEXIBLE DELIVERIES	DUYGU TAŞ KÜTEN
ALAA ALMOURADI	COMPUTER SCIENCE AND ENGINEERING	MULTI-LABEL DOMAIN-GENERALIZATION FRAMEWORK FOR REMOTE SENSING	ERCHAN APTOULA
ALI EBRAZEH	MECHATRONICS ENGINEERING	SIMULATION OF RECONFIGURABLE SOFT ROBOTS TOWARDS SHAPE-CONTROL USING UNDER-ACTUATED SYSTEMS	MELİH TÜRKSEVEN
ALİ KAĞAN AKBAŞ	COMPUTER SCIENCE AND ENGINEERING	HEURISTIC APPROACHES FOR EFFICIENT COMPUTATION OF SYNCHRONIZING SEQUENCES IN DETERMINISTIC FINITE AUTOMATA	HÜSNÜ YENİGÜN
ALIZE SEVGİ YALÇINKAYA	COMPUTER SCIENCE AND ENGINEERING	POST-OCR TEXT CORRECTION FOR OTTOMAN TURKISH TRANSCRIPTION	AYŞE BERRİN YANIKOĞLU

NAME / SURNAME	PROGRAM	THESIS TITLE	THESIS ADVISOR
ALP BİLGİN	ELECTRONICS ENGINEERING	DESIGN OF HIGH-PERFORMANCE WIDEBAND VARIABLE GAIN AMPLIFIER FOR SATELLITE COMMUNICATION APPLICATIONS AND J-BAND RECEIVER AND TRANSMITTER FRONT-ENDS FOR RADAR AND IMAGING APPLICATIONS	YAŞAR GÜRBÜZ
AMIRREZA KHOSHBAKHT	DATA SCIENCE	UNCERTAINTY-AWARE OPEN-SET RECOGNITION UNDER DOMAIN, CATEGORY, AND MODALITY SHIFTS	ERCHAN APTOULA
AMNA AMIR BUTT	COMPUTER SCIENCE AND ENGINEERING	MULTI-LABEL CONTENT-BASED REMOTE SENSING IMAGE RETRIEVAL	ERCHAN APTOULA
ARAZ HAGHNAZARI ESFAHLAN	MECHATRONICS ENGINEERING	DESIGN AND CONTROL OF A SOFT ROBOTIC EXOSKELETON FOR PHYSICAL ASSISTANCE	MELİH TÜRKSEVEN
ARMITA SAFARI	MATERIALS SCIENCE AND NANO ENGINEERING	LACTIDE GRAFTING ONTO ALKALI-ACTIVATED CELLULOSE VIA RING-OPENING POLYMERIZATION: EFFECTS OF REACTION CONDITIONS ON MATERIAL PROPERTIES	YUSUF ZIYA MENCELOĞLU
ATA GÖKTUĞ ÇIM	MATERIALS SCIENCE AND NANO ENGINEERING	INVESTIGATION OF DYNAMICS OF ADEABC EFFLUX PUMP	CANAN ATILGAN
ATA MARANGOZ	MATHEMATICS	STARTER POLYNOMIALS FOR FINDING RATIONAL CYCLES, AND ZSIGMONDY SETS OF CRITICAL ORBITS OF A FAMILY OF POLYNOMIALS	MOHAMMAD SADEK
ATAKAN SARAÇYAKUPOĞLU	COMPUTER SCIENCE AND ENGINEERING	GENERATING DUST SCATTERING HALO IMAGES WITH CONDITIONAL DENOISING DIFFUSION PROBABILISTIC MODELS USING PHYSICS-INFORMED AUXILIARY LOSS	EMRAH KALEMCİ
AYÇA AYDURMUŞ	MATERIALS SCIENCE AND NANO ENGINEERING	NOVEL MATERIALS DESIGN FOR FLEXIBLE SENSOR APPLICATIONS	GÖZDE İNCE
AYŞE CEREN ŞAHIN	DATA SCIENCE	A SYSTEMATIC APPROACH TO HANDLE MISSING PIXEL DATA IN DATA ANALYTICS PROCESSES	KEMAL KILIÇ
AYŞE NİLAY SEYHAN	MOLECULAR BIOLOGY, GENETICS AND BIOENGINEERING	INVESTIGATING THE TRANSLATIONAL MECHANISM OF ANDROGEN RECEPTOR IN PROSTATE CANCER	DUYGU KUZUOĞLU ÖZTÜRK

NAME / SURNAME	PROGRAM	THESIS TITLE	THESIS ADVISOR
AYŞENUR SÖZERI	MOLECULAR BIOLOGY, GENETICS AND BIOENGINEERING	EFFECT OF DELFTIA TSURUHATENSIS ISOLATED FROM YAZLIK ILICASI-GÖLCÜK HOT SPRINGS AND A PLANT COMPOST-DERIVED MICROBIAL CONSORTIUM ON IRON AND SULFUR NUTRITION IN DURUM WHEAT (TRITICUM DURUM CV. DURUSA)	LEVENT ÖZTÜRK
BARIŞ ALMAÇ	MECHATRONICS ENGINEERING	DEEP REINFORCEMENT LEARNING BASED HYBRID GOAL ASSIGNED MULTI AGENT PATH PLANNING IN DYNAMIC ENVIRONMENTS	MUSTAFA ÜNEL
BAŞAK ÇARHACIOĞLU	DATA SCIENCE	A MACHINE LEARNING-ENHANCED TABU SEARCH APPROACH FOR THE STOCHASTIC VEHICLE ROUTING PROBLEM WITH FLEXIBLE DELIVERIES AND SOFT TIME WINDOWS	DUYGU TAŞ KÜTEN
BATUHAN KERTMEN	CYBER SECURITY	EXPLORATION AND EXPLANATION OF MIDDLEBOXES IN DNS REQUESTS	FEYZULLAH ORÇUN ÇETİN
BATURAY BIRINCI	CYBER SECURITY	COMPARATIVE EVALUATION OF FINE-TUNING AND MACHINE UNLEARNING METHODS ON LLM SAFETY, PRIVACY, AND VULNERABILITY EXPOSURE	FEYZULLAH ORÇUN ÇETİN
BUĞRA GÜLTEKIN	PHYSICS	ALGEBRAIC AND GENERALIZED NUMERICAL CONSTRUCTIONS OF MUBS: TOWARDS AN EXPLORATION IN NON-PRIME DIMENSIONS	MEHMET ZAFER GEDİK
BURAK KARDAŞ	MATHEMATICS	CAUCHY PROBLEM FOR A HIGHLY NONLINEAR CAMASSA-HOLM TYPE EQUATION	NİLAY DURUK MUTLUBAŞ
BÜŞRA KULOĞLU	MOLECULAR BIOLOGY, GENETICS AND BIOENGINEERING	CHARACTERIZING THE NON-CANONICAL ACTIVITY OF ANDROGEN RECEPTOR	DUYGU KUZUOĞLU ÖZTÜRK
CEREN YILDIRIM	MOLECULAR BIOLOGY, GENETICS AND BIOENGINEERING	PHYLOGENY-AWARE INFERENCE OF NUCLEOTIDE VARIANT TOLERANCE ACROSS THE GENOME	OGÜN ADEBALİ
DAMLA ERDEN	DATA SCIENCE	A REAL-WORLD DATA-BASED BENCHMARK AND FINE-TUNING APPROACH FOR TURKISH SPELL CHECKING	DİLARA KEKÜLLÜOĞLU
DEMET EDA AKAR	ELECTRONICS ENGINEERING	DESIGN AND SIMULATION OF A PIEZORESISTIVE GRAPHENE PRESSURE SENSOR WITH ENHANCED SENSITIVITY AND LINEARITY	MURAT KAYA YAPICI
DORUK BENLI	COMPUTER SCIENCE AND ENGINEERING	PROMPT-TO-POPULATION: CONTROLLABLE PIPELINE FOR COHERENT AND DIVERSE TEXT TO 3D ASSETS	SELİM SAFFET BALCISOY

NAME / SURNAME	PROGRAM	THESIS TITLE	THESIS ADVISOR
DUYGU TÜMER	CYBER SECURITY	AUTOMATED GENERATION OF EDUCATIONAL WEB APPLICATION CYBERSECURITY CHALLENGES USING LARGE LANGUAGE MODELS	FEYZULLAH ORÇUN ÇETİN
EFE KURUOĞLU	MECHATRONICS ENGINEERING	OPTICAL PERFORMANCE ENHANCEMENT OF COTTON FIBERS VIA NANOPARTICLE INTEGRATION: A COMPUTATIONAL STUDY USING FDTD METHOD	İBRAHIM KÜRŞAT ŞENDUR
EFE ÖZTABAN	PHYSICS	MACHINE LEARNING DRIVEN DETERMINATION OF THREE-DIMENSIONAL STRUCTURES OF MOLECULAR CLOUDS IN HIGH-RESOLUTION MILLIMETER IMAGES	EMRAH KALEMCİ
EGE SELVİ	PHYSICS	FABRICATION AND CHARACTERIZATION OF SUPERCONDUCTING COPLANAR WAVEGUIDE RESONATORS	İSMET İNÖNÜ KAYA
EGECAN ÖZÇAKAR	MECHATRONICS ENGINEERING	HOMOGENIZATION AND TOPOLOGY OPTIMIZATION BASED ON ISOGEOMETRIC ANALYSIS USING OPEN-SOURCE C++ SOFTWARE FRAMEWORK	GÜLLÜ KIZILTAŞ ŞENDUR
EKİN BAŞAR GÖKÇE	DATA SCIENCE	GENERATING SYNERGISTIC DRUG PARTNERS USING CHEMICAL LANGUAGE MODELS	ÖZNUR TAŞTAN OKAN
ELAHEH YOUSEFIMIAB	MATERIALS SCIENCE AND NANO ENGINEERING	DESIGN AND FABRICATION OF LIGNIN BASE IMPLANTABLE PATCH	GÖZDE İNCE
ELHAM BANAEPOUR GHAFFARI	MECHATRONICS ENGINEERING	USING SOFT STRAIN SENSOR NETWORKS FOR HIGH-SPEED ONLINE DEFORMATION ESTIMATION OF SOFT ROBOTS	MELİH TÜRKSEVEN
ELMAN GHAZAEI	COMPUTER SCIENCE AND ENGINEERING	TOWARDS EFFICIENT AND DOMAIN-GENERALIZED MODELS FOR REMOTE SENSING	ERCHAN APTOULA
EMRE YILDIRIM	MANUFACTURING ENGINEERING	DEVELOPMENT AND EXPERIMENTAL VALIDATION OF A NOVEL SHAPE SENSING STRATEGY FOR COMPOSITE AIRCRAFT WINGS USING INVERSE FINITE ELEMENT METHOD AND FBG SENSORS	ADNAN KEFAL
ERFAN TARMOHAMMADI	DATA SCIENCE	LLM-DRIVEN EXTRACTION AND FINANCIAL APPLICATION OF M&A EVENTS AND ACTORS FROM EDGAR	ONUR VAROL
ESRA AKKUŞ	MOLECULAR BIOLOGY, GENETICS AND BIOENGINEERING	EVOLUTION OF TRIPLE-NEGATIVE BREAST CANCER HETEROGENEITY VIA OXPHOS-GLYCOLYSIS BIOSENSORS	ALEX LYAKHOVIC

NAME / SURNAME	PROGRAM	THESIS TITLE	THESIS ADVISOR
EZGİ GÜLLÜ	MOLECULAR BIOLOGY, GENETICS AND BIOENGINEERING	CHARACTERIZATION OF NOVEL SULFUR-OXIDIZING MESOPHILIC BACTERIA ISOLATED FROM THERMAL SPRINGS IN THE MARMARA REGION AND THEIR BIOFERTILIZER POTENTIAL FOR DURUM WHEAT (TRITICUM DURUM CV. DURUSA)	LEVENT ÖZTÜRK
FAHD ADEBOLA KHALID-SALAKO	MATERIALS SCIENCE AND NANO ENGINEERING	THE DESIGN AND DEPLOYMENT OF A NANOPLASMONIC METAL-INSULATOR-METAL METASURFACE FOR SERS-BASED DETECTION OF CHEMICAL CONTAMINANTS IN FOOD	MERAL YÜCE
FARIZ IBADOV	CYBER SECURITY	THE ROLE OF LLMS IN PYTHON PACKING	FEYZULLAH ORÇUN ÇETİN
FEYZA TEKER	MECHATRONICS ENGINEERING	MULTI-DATASET LABEL SPACE UNIFICATION FOR OFF-ROAD AUTONOMOUS DRIVING USING LARGE LANGUAGE MODELS	MUSTAFA ÜNEL
GİRAY DÜZEL	DATA SCIENCE	ON THE USE OF ONLINE ESTIMATION FOR LOCAL DIFFERENTIAL PRIVACY WITH SEQUENTIAL INTERACTION	SİNAN YILDIRIM
GÖRKEM GEMALMAZ	MECHATRONICS ENGINEERING	PASSIVITY AND PERFORMANCE OF HAPTIC RENDERING WITH FRACTIONAL-ORDER MODELS	VOLKAN PATOĞLU
HAMZA ARSLAN	MATERIALS SCIENCE AND NANO ENGINEERING	INVESTIGATION OF ACTIVITY AND STABILITY OF IRIDIUM BASED DOPED ELECTROCATALYSTS FOR WATER SPLITTING IN PEM ELECTROLYSERS	SELMİYE ALKAN GÜRSEL
HASAN BİLGİLİ	MATHEMATICS	RATIONAL PREPERIODIC POINTS OF QUADRATIC RATIONAL MAPS OVER Q WITH NONABELIAN AUTOMORPHISM GROUPS	MOHAMMAD SADEK
HELİN HİVDA YILDIRIM	MATERIALS SCIENCE AND NANO ENGINEERING	LIGNIN-BASED PHOTOTHERMAL MATERIALS FOR LIGHT-ACTIVATED ANTIBACTERIAL APPLICATIONS	SERAP HAYAT SOYTAŞ
HOSSEIN YOUSEFIMIAB	MECHATRONICS ENGINEERING	INVERSE SPECTRAL CHEBYSHEV METHOD: A NOVEL SPECTRAL CHEBSYHEV-COMPRESSED SENSING FRAMEWORK FOR INVERSE PROBLEMS AND FIELD RECONSTRUCTION	BEKİR BEDİZ
İBRAHİM BAHADIR	MANUFACTURING ENGINEERING	INTEGRATING MULTI-SENSOR EXPERIMENTAL AND NUMERICAL APPROACHES FOR DAMAGE LOCALIZATION AND CRACK PROPAGATION MONITORING IN COMPOSITE LAMINATES	ADNAN KEFAL
İCLAL ZEYNEP ÖZGÜÇ	DATA SCIENCE	A MIP FORMULATION FOR PREFERENCE LEARNING WITH MULTIPLE SEGMENTS	EZGİ KARABULUT TÜRKSEVEN
İLKNUR ÖZTÜRK	MATHEMATICS	ON THE COVERING RADIUS OF BCH CODES	FERRUH ÖZBUDAK

NAME / SURNAME	PROGRAM	THESIS TITLE	THESIS ADVISOR
KADIRHAN KANA	ELECTRONICS ENGINEERING	HARDWARE AWARE TRAINING AND FPGA IMPLEMENTATION OF A QUANTIZED SIMPLERNN	KORKUT KAAN TOKGÖZ
KAĞAN GÜLSÜM	COMPUTER SCIENCE AND ENGINEERING	ON FORMAL VERIFICATION TECHNIQUES FOR MASKED CIRCUITS: APPROACHES AND THEORETICAL UNDERPINNINGS	SÜHA ORHUN MUTLUERGIL
MANSUR KIRAZ	DATA SCIENCE	EXPLAINABLE ACS PREDICTION AT THE EMERGENCY DEPARTMENT FROM ROUTINE TESTS AND VITALS	ÖZNUR TAŞTAN OKAN
MEHMET AKIF ÖZKAYA	ELECTRONICS ENGINEERING	DYNAMIC AND STATIC CODESIGN METHODOLOGY AND REALIZATION OF PIEZORESISTIVE PRESSURE SENSORS	KORKUT KAAN TOKGÖZ
MEHMET EMRE ÇAKIR	ELECTRONICS ENGINEERING	SIGE AND SOI RF FRONT-END BUILDING BLOCKS FOR WIDEBAND APPLICATIONS: HIGHLY LINEAR LNAS, A TEMPERATURE-INDEPENDENT I/Q GENERATION NETWORK, AND A DC–110 GHZ SPDT SWITCH	YAŞAR GÜRBÜZ
MEKAN MYRADOV	DATA SCIENCE	A SYSTEMATIC EVALUATION OF SINGLE-CELL BATCH INTEGRATION METRICS AND SBEE: A ROBUST NEW METRIC	ÖZNUR TAŞTAN OKAN
MELİS HAZAL PORSUK	MOLECULAR BIOLOGY, GENETICS AND BIOENGINEERING	IDENTIFICATION OF SPECIFIC SINGLE CHAIN VARIABLE FRAGMENTS (SCFV) AGAINST A CANCER-ASSOCIATED CYTOKINE	SİBEL ÇETİNEL MEMİŞ
MERT BERKE ŞAHİN	ELECTRONICS ENGINEERING	FULL DUPLEX WIFI: IMPLEMENTATION OF SYNCHRONOUS CONTENTION WINDOW FULL DUPLEX (S-CW FD) MAC PROTOCOL ON SOFTWARE DEFINED RADIO	ÖZGÜR GÜRBÜZ
MERYEM BERFİN ÖZKÖK	CYBER SECURITY	LLM APPLICATIONS IN PHISHING DETECTION	FEYZULLAH ORÇUN ÇETIN
METE KAAN LERMİ	ELECTRONICS ENGINEERING	A 3-33 GHZ SATCOM RECEIVER AND ITS BUILDING BLOCKS AND A 220-290 GHZ HIGHLY EFFICIENT DIFFERENTIAL POWER AMPLIFIER IN SIGE BICMOS	YAŞAR GÜRBÜZ
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OLUWATOSIN JOHNSON AJALA	MATERIALS SCIENCE AND NANO ENGINEERING	VALORIZATION OF DISCARDED CIGARETTE BUTTS INTO HIGH-PERFORMANCE CARBON ELECTRODES FOR SUPERCAPACITORS	EMRE ERDEM
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ONUR CAN	COMPUTER SCIENCE AND ENGINEERING	EVIDENCE-BASED BONE FRACTURE DETECTION THROUGH ENSEMBLES OF CONVOLUTIONAL NEURAL NETWORKS	AYŞE BERRİN YANIKOĞLU
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SALİH IŞIKSAÇAN	ELECTRONICS ENGINEERING	PROCESS INTEGRATION AND OPTIMIZATION OF LOW-COST SPIN-ON-DOPANT (SOD) AND PECVD POLYSILICON TECHNOLOGY FOR PHYSICAL SENSING APPLICATIONS	MURAT KAYA YAPICI
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ZEYNEP SUDE AKSU	MOLECULAR BIOLOGY, GENETICS AND BIOENGINEERING	ISOLATION AND CHARACTERIZATION OF MESOPHILIC BACTERIA FROM YAZLIK ILICASI THERMAL SPRING WATER AND EVALUATION OF THEIR BIOFERTILIZER POTENTIAL USING BRASSICA JUNCEA (L.) CZERN. AS A MODEL PLANT	LEVENT ÖZTÜRK

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