



19 בינואר 2025

אל : חברות וחברי הסגל בטכניון
מאת : פרופ' נעמה ברנר, המשנה לנשיא לעניינים אקדמיים
הנדון : תחומי המחקר של חברות וחברי הסגל שהצטרפו לטכניון

שלום רב,

מצורפת רשימת תחומי המחקר של עמיתנו החדשים.

אני מעודדת את כלל חברי הסגל לבחון את הרשימה ולזהות בה תחומי עניין רלוונטיים להם, ליצור קשר עם המצטרפים ולסייע ככל האפשר בקליטתם המוצלחת זה ראוי ונכון תמיד, קל וחומר כעת.

בברכה,

פרופ' נעמה ברנר
משנה לנשיא לעניינים אקדמיים



January 19, 2025

To: Faculty Members at Technion
From: Prof. Naama Brenner, Vice President for Academic Affairs

Subject: Research Areas of New Faculty Members Joining Technion

Dear All,
Attached is a list of the research areas of our new colleagues.

I encourage all faculty members to review the list, identify relevant areas of interest, and reach out to the new members to facilitate their successful integration. This is always appropriate and beneficial, especially currently.

Best regards,

Prof. Naama Brenner
Vice President for Academic Affairs



The Faculty of Aerospace Engineering

Dr. Ameer Marzok - Assistant Professor

The areas of expertise include computational solid mechanics, structural optimization, finite element methods (FEM, XFEM, and GFEM), nonlinear structural dynamics, and fracture mechanics.

Dr. Maxim Freydin - Lecturer

The areas of expertise include fluid-thermal-structure interaction in high-speed flow, theoretical and computational methods in fluid-structure interaction, and the stability of elastic plates.

The Faculty of Civil and Environmental Engineering

Dr. Tatyana Bloch - Assistant Professor

Dr. Bloch's interests lie in integrating data-driven approaches with Building Information Modeling (BIM). Her research focuses on the semantic enrichment of BIM models, automated code compliance checking, and digital permitting by leveraging advanced machine learning tools. Her overarching goal is to develop intelligent, data-driven processes that enhance efficiency in design throughout the entire building lifecycle.

Dr. Roy Posmanik - Assistant Professor

Dr. Roy Posmanik's research focuses on the intersection of chemical engineering and biotechnology, with an emphasis on developing green chemistry technologies for the sustainable conversion of solid waste into renewable energy and bio-based chemicals. His work includes fundamental research on green catalytic mechanisms for transforming biomass into valuable products, contributing to the shift from an unsustainable linear economy to a circular economy driven by renewable resources.

Dr. Huaquan Ying - Assistant Professor

Dr. Huaquan Ying's research lies at the intersection of AI and Building Information Modeling (BIM). His work includes: (1) developing effective representation learning techniques for linked and heterogeneous BIM data, and (2) integrating generative AI into BIM to enhance BIM-based building design processes. Additionally, his research explores the integration of AI, robotics, and digital twin technologies to advance sustainable construction practices.



[The Faculty of Biology](#)

Dr. Inbal Shainer-Gali - Assistant Professor

Dr. Inbal Shainer's lab investigates the complex relationship between cell types and brain function, with a focus on the visual system in fish. Her research explores pathways in comparative neuroscience, transcriptomics, animal behavior, and visual ecology to uncover how neuronal building blocks and transcriptional programs are adapted to meet diverse sensory and behavioral needs.

[The Faculty of Biomedical Engineering](#)

Dr. Avinoam Bar-Zion - Assistant Professor

Avinoam's research centers on developing non-invasive, image-guided therapeutic ultrasound modalities. These techniques leverage sound waves to precisely destroy malignant tissues, modulate neural activity, or control engineered therapeutic cells deep within the body.

[The Faculty of Chemistry](#)

Dr. Ron Tenee - Assistant Professor

Ron's research focuses on the intersection of optics and nanometer-sized particles, particularly under conditions such as cold temperatures, where their quantum properties become prominent. His past work includes demonstrating quantum-enhanced microscopy for biological samples labeled with nanocrystals and uncovering the mechanisms behind emission instability in quantum dots. In his new group, he aims to investigate how high-power laser pulses can control the radiation from individual nanoparticles to create novel quantum states of light.

Dr. Dvir Harris - Assistant Professor

Dvir's lab focuses on the structure-function relationship of proteins, particularly in light-driven biological systems, with a special emphasis on photosynthesis. Additionally, the lab applies design principles derived from nature to various solar energy applications as part of their research efforts.



Dr. Ofer Neufeld - Assistant Professor

The research areas include light-matter interactions, ultrafast and nonlinear optics, high harmonic generation, density functional theory (and time-dependent density functional theory), attoscience, quantum materials, ultrafast magnetism, chirality, and spectroscopy.

The Faculty of Electrical and Computer Engineering

Dr. Ariel Cohen – Associate Professor

Ariel's research focuses on designing innovative circuits and systems, including advanced analog converters, ultra-fast wireline transceivers, and power-efficient electro-optic transceivers, aimed at overcoming communication bottlenecks in AI computing and data centers.

Dr. Avinoam Zadok – Full Professor

Zadok's group is focused on nano-photonic integrated circuits, primarily in silicon, with applications in high-rate data communications, sensing, and signal processing. A second area of research involves fiber optics, aimed at sensing and signal processing. The group investigates and applies principles of nonlinear optics, optical-mechanical wave interactions, and quantum optics. Prof. Zadok has been awarded research grants totaling approximately 9M USD, including two ERC grants in 2015 and 2020.

The Faculty of Computer Science

Dr. Omri Ben-Eliezer – Assistant Professor

The research areas include algorithms for massive data, sublinear algorithms, algorithms in social networks, beyond worst-case analysis of algorithms, robustness and privacy, and knowledge representation.

The Faculty of Mathematics

Dr. Ofir Gorodetsky – Assistant Professor

Dr. Ofir Gorodetsky's research focuses on number theory, particularly its analytic and probabilistic branches. His work addresses problems at the intersection of number theory and probability, studying the distribution of primes and other interesting sequences, as well as their connection to random matrix theory.



Dr. Itay Glazer – Assistant Professor

Dr. Glazer's primary research areas are analytic and algebraic group theory. Specifically, he focuses on the representation theory of locally compact groups and its applications in harmonic analysis, random walks on groups, and the spectral behavior of various models of random matrices in high dimensions.

The Faculty of Mechanical Engineering

Dr. Andy Thawko - Assistant Professor

The research areas include reacting flow, sustainable energy technologies, cool flames, plasma-assisted chemical manufacturing, advanced propulsion systems, and pollutants mitigation.

The Faculty of Data and Decision

Dr. Nadav Merlis - Assistant Professor

The research focuses on the theory of sequential decision-making under uncertainty. It involves the design and analysis of provably efficient learning algorithms for reinforcement learning, multi-armed bandits, and other sequential decision-making problems. In particular, the research explores settings and structures that allow for learning with theoretical guarantees in complex and/or large environments, as well as the design of learning-augmented algorithms.

The Faculty of Medicine

Dr. Gilad Barshad - Assistant Professor

Gilad joined the Department of Genetics and Developmental Biology at the Faculty of Medicine at the Technion in October 2024. He is currently studying the interplay between genome folding and transcriptional regulation, exploring how this relationship evolved and its manifestation in development and complex human autoimmune disorders.

Dr. Recanatesi Stefano - Assistant Professor

They develop AI systems that mimic brain functionality and use AI tools to advance neuroscience research, including the development of brain-computer interfaces (BCI).