Global Research Experience in Advanced Technologies (GREAT) Program
List of Potential Faculty Mentor Participants

Department	Faculty Mentor	Research Interest
Biological and Agricultural Engineering	Dr. Zhiliang (Julia) Fan	advancing technologies for production of fuels and chemicals from renewable resources
Biological and Agricultural Engineering	Dr. Alireza Pourreza	sensing tech, agricultural automation, precision agriculture, big data
Biomedical Engineering	Dr. Jinyi Qi	Molecular imaging, signal and image processing, image reconstruction, image quality evaluation, system modeling and optimization, inverse problems.
Biomedical Engineering	Dr. Sochiro Yamada	Cell-cell adhesion, cytoskeletal mechanics, tissue morphogenesis and cell motility in three-dimensional culture, high-resolution fluorescence microscopy, artificial cell membrane.
Biomedical Engineering	Dr. Sharon Aviran	Computational Biology, RNA Genomics, Synthetic Biology, RNA Structural Biology, Statistical Inference and Algorithms
Biomedical Engineering	Dr. Marc Facciotti	Systems biology, synthetic biology, structure, dynamics and function of gene regulatory networks, protein engineering
Biomedical Engineering	Dr. Cheemeng Tan	Synthetic biology, artificial cellular systems, gene regulation, cellular heterogeneity, antibiotic treatment
Biomedical Engineering	Dr. Karen Moxon	Neural encoding and plasticity, neuroprosthetics, neuroengineering, brain-machine interfaces
Biomedical Engineering	Dr. Eduardo Silva	Biomaterials, polymers for drug delivery, gene delivery, tissue engineering
Biomedical Engineering	Dr. J Kent Leach	Biomaterials, tissue engineering, cell and drug delivery
Biomedical Engineering	Dr. Soheil Ghiasi	design methods for embedded computing systems with a focus on streaming and data analytic workloads, such as signal processing, computer vision and machine learning
Biomedical Engineering	Dr. Atul Parikh	Membranes, vesicles, and cells: biophysical mechanisms and bio-inspired materials
Chemical Engineering	Dr. Nael El-Farra	Process systems engineering, nonlinear process control and estimation, analysis and control of hybrid systems,
Chemical Engineering	Dr. Marjorie Longo	Application of quantitative microscopy and engineering techniques to biophysics problems
Chemical Engineering	Dr. William Ristenpart	complex transport phenomena, with an emphasis on using advanced experimental techniques to extract quantitative measurements

Chemical Engineering	Dr. Adam Moule	Development of low-cost photovoltaic (PV) devices
Civil and Environmental Engineering	Dr. Dawn Cheng	Infrastructure design and renewal using fiber reinforced polymer composite materials.
Civil and Environmental Engineering	Dr. Heather N. Bischel	Resource-oriented sanitation; pathogens and micropollutants; wastewater-based epidemiology; rapid detection of viruses; PFAS bioaccumulation; sustainable international development; water quality and reuse; environmental health; natural systems.
Civil and Environmental Engineering	Dr. Sabbie Miller	research at the interface of materials science, structural performance, and industrial ecology; Resource utilization and spatiotemporal environmental burdens,
Computer Science	Dr. Kwan-Liu Ma	scientific visualization, information visualization, computer graphics, user interface design, and high-performance computing
Computer Science	Dr. Yong Jae Lee	computer vision, machine learning, and computer graphics
Computer Science	Dr. Felix Wu	social computing, information search and analytics, cyber security, Internet architecture and protocols
Computer Science	Dr. Zhaojun Bai	Applied numerical linear algebra and matrix computations, iterative methods, software development and high performance computing
Computer Science	Dr. Hao Chen	broad range of security problems, including machine learning security, software security, and mobile and wireless security
Computer Science	Dr. Michael Neff	intersection of computation and human movement
Computer Science	Dr. Hao-Chuan Wang	Human-Computer Interaction (HCI); computer-mediated communication, conversation support tools, social media, crowdsourcing and human computation
Electrical and Computer Engineering	Dr. Ben Yoo	future Internet architectures, high-performance optical switching systems, optically-interconnected computing systems
Electrical and Computer Engineering	Dr. Lifeng Lai	Information theory, stochastic signal processing, machine learning and their applications
Electrical and Computer Engineering	Dr. Chen-Nee Chuah	Communications and computer networks, and wireless/mobile computing, with emphasis on Internet measurements and analysis, anomaly detection, architecture of the future Internet, network management, and big data applied to online social networks, intelligent transportation systems, and health informatics.

Electrical and Computer Engineering	Dr. Saif Islam	focuses on the synthesis and incorporation of low-dimensional and nanostructured materials and devices with conventional integrated circuit (IC) elements and systems
Electrical and Computer Engineering	Dr. Soheil Ghiasi	design methodologies for embedded and cyber-physical systems
Electrical and Computer Engineering	Dr. Venkatesh Akella	Data Analytics in Agriculture and Infrastructure, Computer Architecture and Parallel Computing, Embedded Systems and Software, Reconfigurable Computing, Asynchronous Circuits, Photonic Interconnects
Electrical and Computer Engineering	Dr. Rajeevan Amirtharajah	Low power digital and mixed-signal integrated circuits, energy harvesting, sensor interfaces, power electronics,
Electrical and Computer Engineering	Dr. Leo Liu	investigating various aspects of cutting-edge high-frequency circuit and system design and implementation concepts
Electrical and Computer Engineering	Dr. Neville Luhmann	Millimeter Wave Imaging, Vacuum Microelectronics, Phased Array Antennas, Microwave Tube Design, High Power Microwave Sources
Electrical and Computer Engineering	Dr. Bevan Baas	algorithms, applications, architectures, arithmetic, circuits, VLSI design and software tools for high-performance, energy-efficient and area-efficient computation
Electrical and Computer Engineering	Dr. Anh-Vu Pham	RF, microwave to sub-millimeter-wave frequency integrated circuit (IC) design, electronic packaging, antennas, and phased array antennas
Electrical and Computer Engineering	Dr. Wieijian Yang	Biophotonics, implantable biomedical devices, MEMS/NEMS devices, metastructures, optical imaging, two-photon microscopy, brain imaging and modulation, neural circuits
Electrical and Computer Engineering	Dr. J. Sebastian Gomez-Diaz	applied electromagnetics from RF and microwaves to terahertz and infrared frequencies, metamaterials/metasurfaces, novel 2D materials, nonlinear phenomena, antennas, and numerical techniques, among other emerging topics in plasmonics and nanophotonics.
Electrical and Computer Engineering	Dr. Brian Kolner	Space-time analogies in electromagnetics, Terahertz spectroscopy, Lasers as clocks
Mechanical and Aerospace Engineering	Dr. Zhaodan Kong	Control theory, machine learning, formal methods, and their applications to autonomous systems, human-automation teaming, cyber-physical systems, and neural engineering
Mechanical and Aerospace Engineering	Dr. Vinod Narayanan	Energy Efficiency, High Flux Thermal Management, Microscale Heat Transfer, Phase Change Heat Transfer, Solar Energy Utilization

Mechanical and Aerospace Engineering	Dr. Jonathon Schofield	Assistive robotics, rehabilitation engineering, neural-integrated prosthetic limbs, cognition and perception, clinical translation
Materials Science and Engineering	Dr. Ricardo H. R. Castro	Nanocrystalline materials, nanomechanics, ceramics, sintering, thermodynamics, nuclear materials
Materials Science and Engineering	Dr. Roopali Kukreja	understanding ultrafast dynamics in electronic and magnetic materials
Chemistry	Dr. Susan Kauzlarich	Synthesis and characterization of inorganic solid state and nanomaterials for emerging technologies.
Chemistry	Dr. Phil Power	The synthesis of molecules with new types of bonding and the investigation of their reactivity are the main themes of our research.
Chemistry	Dr. Alexander Dudnik	development and application of photoactive organic materials.
Chemistry	Dr. Xi Chen	We focus on developing novel chemoenzymatic methods that combine the flexibility of chemical synthesis and the high efficiency and superior selectivity of enzyme-catalyzed reactions for elucidating the structure-function relationship of carbohydrates and glycoconjugates.
Chemistry	Dr. Matthew Augustine	The Augustine Lab is interested in using magnetic resonance to probe novel samples and exotic geometries. A focus in our lab is on using low field, low resolution nuclear magnetic resonance (NMR) to probe geometries which are impossible to probe with conventional high resolution NMR.
Chemistry	Dr. Davide Donadio	WE PERFORM MOLECULAR SIMULATIONS OF NONEQUILIBRIUM PROCESSES, WHICH RANGE FROM PUMP-PROBE SPECTROSCOPY TO THERMAL ENERGY TRANSPORT AND CONVERSION IN COMPLEX SYSTEMS.
Hematology and Oncology	Dr. Kit Lam	The main focus of the Lam Lab lies in discovering revolutionary and innovative methods of disease treatment on a nano-scale and molecular medicine, drug discovery, nanoparticle and drug-delivery techniques
Land , Air and Water Resources	Dr. Adele Igel	Cloud microphysics; precipitation; aerosol-cloud-radiation interactions; climate change; cloud model development; atmospheric transport.
Land , Air and Water Resources	Dr. Zhang Minghua	GIS database development. Spatial analysis of groundwater leaching and surface water runoff as affected by pesticide applications in agriculture fields using GIS. Integrated solute transport modeling in GIS.
Mathematics	Dr. Jesus de Loera	applications of discrete computational geometry, in topics such as algorithms, optimization, data science, statistics, and operation research.

Physiology and Membrane Biology	Dr. Jie Zheng	The long term goal of my research is to understand molecular mechanisms for opening (and closing) the ion permeation pathway in channels, and how this process is controlled by various physical and chemical stimuli.
Physics	Dr. Rena Zieve	My physics interests center on how seemingly simple systems can exhibit complicated behavior. In addition to physical experiments, my group does a significant amount of computational work.
Viticulture and Enology	Dr. Kaan Kurtural	Kurtural's research focuses on three main parts : 1) improving production efficiency in vineyards by applying principles of canopy and crop load management using vineyard mechanization and applied water amounts; 2) identifying quality improvement traits in berry composition by translating fundamental research into applied production practices in vineyards; 3) evaluating alternative methods of control invasive species in vineyards.
Public Health Sciences	Dr. Lihong Qi	Dr. Qi's research interests include: design and analysis of genetic association studies, study of complex traits including cancer, survival analysis, modeling missing data and measurement error problems.
Evolution and Ecology	Dr. Artyom Kopp	Our research lies at the interface of developmental and evolutionary genetics. We are particularly interested in the origin of evolutionary innovations, evolution of sexual dimorphism, and the role of development in shaping the genetic basis of trait evolution.
Evolution and Ecology	Dr. Brian Moore	The Moore lab is primarily focused on the development and application of statistical phylogenetic methods.
Center for Neuroscience	Dr. Timothy D. Hanks	The central goal of Dr. Hanks's research is to elucidate the neural mechanisms that underlie decision making.
Plant Biology	Dr. Neelima R. Sinha	Evolution of developmental morphology and plant responses to stress
Textiles and Clothing	Dr. Gang Sun	Dr. Sun studies and develops fibrous materials for functional, protective and eco-friendly clothing.

*Note: This is not a comprehensive list of potential faculty mentors. Applicants should include one faculty member from this list on their list of three potential faculty members on the GREAT Summer Application.