BIOENGINEERING & CHEMICAL ENGINEERING

Wenji Dong

Wenji Dong’s research interests include bioassay development for diagnosis of cancers and heart diseases at their early stages, and solar energy harvest. He has advised one REU student and four bioengineering students last summer. Currently he has three undergraduates working his lab.

Su Ha

Dr. Ha’s research interests include generating hydrogen gas from bio-fuels and abundant natural gases, developing fuel cells that directly convert the chemical energy of small organic molecules (e.g., formic acid) or logistic fuels (e.g., gasoline and biodiesel) to electrical power, working with natural enzymes to produce electrical power from sugars, and developing electric field assisted fuel reforming systems. He has advised several “Research Experience for Undergraduates (REU)” students in past summers. He currently has 4 undergraduate students working on his research projects.

Haluk Beyenal

Dr. Beyenal is known for his biofilm engineering expertise. His work involves healing wounds by removing biofilms and using electrochemistry for health, energy and environment.

Alla Kostyukova

Dr. Kostyukova’s research interests include protein engineering to study disease development and to create proteins with new properties. She says, “I have had more than 20 undergraduate students who volunteered to work in my lab. Many of them have had their own research projects and presented their data at the SURCA.”

David Lin  
Dr. Lin's research interests include musculoskeletal function and disease. He usually has 1 or 2 undergraduates working in the laboratory, including an opportunity for a new student this upcoming summer.

Hongfei Lin

Dr. Lin’s research centers on catalysis for sustainability. His research interests include coupling environmentally friendly chemical processes with novel catalytic material systems for of production of clean fuel and bio-based chemicals, renewable energy storage, as well as for CO2 utilization. In the past, Dr. Lin has mentored more than 30 undergraduate researchers, most of them received undergraduate research scholarships and were co-authors of journal papers.

Jean-Sabin McEwen

Dr. McEwen’s research is on atomistic modeling of catalytic process for energy applications. He usually works closely with experimentalists and has worked with many undergraduates in his group, which has led to 5 publications with undergraduates.

Peter Pfromm

Dr. Pfromm’s research interests include synthesis of renewable ammonia for fertilizers and to store renewable energy, and membrane separations.  Together with his Ph.D. students he has advised a large number of undergraduate researchers over the years, with many going on to graduate school and being co-authors on peer-reviewed publications.  Undergraduate researchers are working on existing projects in his group.

Steven Saunders

Dr. Saunders’ research focuses on using fundamental chemical engineering to understand the molecular behavior of small molecules and manipulating materials at the nanoscale for applications ranging from fuels to food to pharmaceuticals and nuclear waste.  Undergraduate students working with Dr. Saunders have traveled to, presented their research, and won awards at national scientific conferences.

Dmitri Tolkatchev

Dr. Tolkatchev’s research is focused on molecular assemblies of muscle and neuron cytoskeleton proteins in norm and disease. Under his supervision undergraduate students learn a variety of biochemical and biophysical methods used in a lab to answer pressing questions of modern muscle and brain research. In the lab they learn principles and acquire basic skills in biomolecular engineering.

Anita Vasavada

Dr. Vasavada’s research is on the biomechanics and neural control of the human musculoskeletal system.  Most of her work focuses on the head and neck system, addressing areas such as ergonomics, concussion, whiplash injury and gender differences in neck biomechanics.  Undergraduate researchers have been involved in modeling and experimental studies in her lab, including presenting their work at conferences and in journal articles.

Di Wu

Dr. Wu’s research interests include physics and chemistry of material surfaces, thermodynamics of nanostructured materials, and calorimetry. Currently, there are 4 undergraduate researchers performing scientific projects in his laboratory, the central unit of the Alexandra Navrotsky Institute for Experimental Thermodynamics.

CIVIL & ENVIRONMENTAL ENGINEERING

Jennifer Adam

Dr. Adam’s group works to enable humans and the environment to adapt to global change. To do this, they study the connections between climate, hydrology, land use, and ecological (natural and agricultural) processes. This includes understanding how climate variations and direct human influences interact to alter land surface hydrologic processes at watershed, regional, and global scales. They apply process-based models in integrated modeling frameworks to explore these interactions.

Idil Akin

Dr. Akin’s research interests include a wide range of topics in geotechnical and geo-environmental engineering. She says, “I had an undergraduate student last semester in my lab, who now is a graduate student. He started his MS project when he was an undergraduate student. I am currently looking for new undergraduate students to work in projects related to geo-environmental engineering.”

Saumya Amarasiri

Dr. Amarasiri’s research interests include Geotechnical and Pavement Engineering, and includes applications of Computer Science. She is currently looking for student volunteers.

Jan Boll

Dr. Boll’s research is on watershed hydrology and water quality, looking at urban and natural systems. He says, “I have five graduate students and a post-doctoral associate, and we currently have four undergraduate students in our program.”

Nick Engdahl

Dr. Engdahl’s research focuses on understanding and predicting the movement of water and contaminants in the environment, specializing in numerical simulation. Recently, he has been working on artificial streambed designs, and on developing new methods for modeling how micro-plastics are transported through soils and by rivers. Undergraduates have been involved in both projects with hands-on roles, and he regularly works with a diverse group of international collaborators.

Courtney Gardner

Dr. Gardner’s lab group uses principles in molecular and microbiology to solve current engineering problems with multidisciplinary teams of graduate and undergraduate students. Dr. Gardner’s research investigates the interactions between human mediated stressors on environmental microbiomes in both natural and engineered systems, with a particular emphasis on surface water quality and stormwater management. Dr. Gardner is also interested in characterizing and applying the mechanisms driving microbial resilience to adapt engineered water treatment, bioremediation, and agricultural systems to the challenges posed by climate change.

Tim Ginn

Dr. Ginn’s research is on mathematical modeling of water age and quality, and chemical reactions in the environment.  He usually works collaboratively in interdisciplinary teams and has worked with many undergraduate researchers within his group.

Ali Hajbabaie

Dr. Hajbabaie's research focuses on distributed optimization applications to next-generation cooperative traffic control systems. In a recent activity, his research group developed logic to control the movement of automated vehicles through signal-free intersections

Amanda Hohner

Dr. Hohner’s research group studies watershed disturbances and the resiliency of drinking water systems to extreme events. They conduct field-based monitoring of rivers and lakes to evaluate changes in source water quality. Experiments and laboratory analyses are used to gain an understanding of how water treatment and drinking water quality may be affected. Their research findings are used to guide drinking water providers as they plan and prepare for extreme events, such as wildfire.

Adam Phillips

Dr. Phillips’ research is focused on earthquake engineering, structural dynamics, and hybrid structures systems.  His work usually involves both computational modeling and large-scale physical testing.  His research group frequently collaborates with other researchers within WSU and at other universities.

Ji Yun Lee

Dr. Lee's research interests include risk-informed decision-making for civil infrastructure systems and communities. In her research group, undergraduates can have diverse research experiences such as data analysis, probabilistic and statistical models in civil engineering.

Yunha Lee

Dr. Lee’s primary research interests are in air quality and how air quality affects public health, economics, and climate change. Her research is based on computational modeling tools, from 0-D box model to predict local-scale air quality to 3-D models to predict large-scale air quality

Chris Motter

Dr. Motter’s research interests include behavior and design of structural components and systems. He says, “I have advised multiple "Research Experience for Undergraduates" (REU) students, and I currently have four undergraduate student volunteers involved with laboratory testing and analytical studies.”

ELECTRICAL ENGINEERING & COMPUTER SCIENCE

Venera Arnaoudova

Dr. Arnaoudova’s research interest is in the domain of software engineering and particularly, program comprehension, software evolution, analysis of source code lexicon and documentation, empirical software engineering, refactoring, patterns, and anti-patterns. She strongly encourages undergraduate students to join her group and discover research. In the past year alone, she has worked with eight undergraduate students in different contexts: senior design project, research projects over the summer, Special Problems course (CptS 499), or as part of EECS REU program.

Sarah Fakhoury

Sarah Fakhoury is a third-year doctoral candidate performing research in the software engineering lab under the supervision of Dr. Venera Arnaoudova. Sarah’s thesis is focused on improving the ways developers write, comprehend, and review source code. She uses techniques from neurocogntive science, like brain imaging and eyetracking, to model cognitive processes of software developers as they interact with source code. Sarah has helped mentor over eight undergraduate students on various research projects. Sarah is incredibly enthusiastic about sharing what it is like to work on novel problems in research, and hopes to encourage more students to pursue graduate studies.

Shira Broschat

The Broschat Virtual Lab uses bioinformatics, machine learning, data analysis, big data, and mathematical modeling for microbiology applications.  Major areas of focus are prediction of antimicrobial resistance genes, development of machine learning algorithms to predict proteins secreted by pathogens, and datamining bacterial genomes.

Diane Cook

Dr. Cook leads the CASAS group that designs machine learning techniques to understand human behavior from sensor data collected in smart homes and on mobile devices. Students and faculty analyze this data to improve automation of health monitoring and intervention, building automation, and understanding of human behavior.

Beiyu Lin

Beiyu Lin is a Ph.D. candidate in Computer Science, focusing on data mining and machine learning. She constructs computational models based on smart home sensor data for the purpose of identifying routine behavior patterns and assessing behavior changes with a view to applications to personalized healthcare.

Anamika Dubey

Dr. Dubey’s research interest includes the planning and operation of electric power distribution systems. She enjoys bringing undergraduate students together for interdisciplinary projects. Currently, she is looking for motivated undergraduate students to work on problems related to renewable integration and power grid resilience.

Subhanshu Gupta   
Dr. Gupta’s research interests are on low-power and high-speed miniaturized electronics for telecommunications (4G/5G), wireless power transfer and long-term sensing. He has advised undergraduates both through the "Research for Undergraduates (REU)" program as well as capstone projects in EECS.

Adam Hahn

Dr. Hahn’s research interests are in the areas of cybersecurity and the smart grid. He says, “Many undergraduate students have supported my research within the Smart City Testbed, which is a research lab that explores modern technologies supporting the power grid.”

Noel Schulz

Dr. Schulz’s research interests include power system design, analysis and operations including rural electrification, smart grid, renewable energy, shipboard power systems, and intelligent system applications. She is currently working with one senior design team and has one undergraduate student doing research in her lab.

MECHANICAL & MATERIALS ENGINEERING

Amit Bandyopadhyay

Dr. Bandyopadhyay's research is focused on additive manufacturing or 3D printing of advanced materials with special emphasis on biomedical devices and structural materials. During his tenure at WSU, he has worked with over 50 undergraduate researchers and published scientific articles with most of them.

Roland Chen

Dr. Chen’s research interests include biomedical manufacturing and additive manufacturing.  He has advised several “Research Experience for Undergraduates (REU)” students and has volunteers helping on his research projects.

Arda Gozen

Dr. Gozen’s research focuses on micro-additive manufacturing and its applications on smart systems that work directly with the human body. His lab hosts about six undergraduate researchers per semester and he advised two Research Experience for Undergraduates (REU) students.

Jake Leachman

Dr. Leachman’s research is on cryogenic hydrogen technologies for clean energy and aerospace. He says, “We have fun designing, building, and testing, sometimes we publish papers. More on how my lab works with students can be found here: [https://hydrogen.wsu.edu/2015/07/26/how-to-reliably-get-brilliant-students/](about:blank)”

Jin Liu

Dr. Liu's research is focusing on the multiscale modeling and simulations of transport phenomena, and their biological and engineering applications. During the past few years, he has participated REU and designed several research projects for undergraduate students.

John Swensen

Dr. Swensen’s research interests include minimally invasive medical devices and tunably-compliant materials. He consistently has 2-6 undergraduates working in his lab in a mixture of volunteer and paid positions based on experience and expertise.