



News

ENGINEERING AT ILLINOIS



Home / News / Ten Faculty Chosen As Willett Scholars

CURRENT NEWS

NEWSLETTER

SOCIAL MEDIA

IN THE NEWS

IN THE NEWS ARCHIVE

MEDIA CONTACT INFORMATION

CALENDAR

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Ten faculty chosen as Willett Scholars

3/4/2015

The College of Engineering has announced that ten faculty members have been named Donald Biggar Willett Scholars for 2015: Daniel Bodony (AE), Yann Chemla (Physics), Deming Chen (ECE), Sascha Hilgenfeldt (MechSE), Harrison Kim (ISE), Xiuling Li (ECE), Yanfeng Ouyang (CEE), Saurabh Sinha (CS), Dallas Trinkle (MatSE), and Tao Xie (CS). The recognition is targeted for faculty members who, at a relatively early stage in their careers, are excelling in their contributions to the University of Illinois.

Daniel Bodony, a Blue Waters Associate Professor of [Aerospace Engineering](#), is a lead principal investigator for the Department of Energy Center for Exascale Simulation of Plasma-Coupled Combustion that is developing a multiphysics computational fluid dynamics code and software tools that use exascale-class computers. He uses Blue Waters to study the noise pollution caused by commercial and military aircraft in order to improve near-airport community conditions and reduce hearing damage and related health care costs. An Illinois faculty member since 2006, he has held affiliate positions with [Computational Science and Engineering](#), the [Department of Mechanical Science and Engineering](#), the [National Center for Supercomputing Applications](#), and the [Parallel Computing Institute](#). Bodony earned an NSF CAREER Award in 2012, and that year was named a Tau Beta Pi Eminent Engineer. He is regularly included on the campuswide list of Teachers Ranked as Excellent, and was named the Aerospace Engineering Teacher of the Year in 2008, 2010 and 2012.

Yann Chemla is an associate professor in [physics](#) and a member of the Experimental Biological Physics Research faculty. His broad area of interest is in understanding the mechanism by which molecular machines operate, and specifically, the process of mechano-chemical conversion. His research group works on all facets of research in this area: design and construction of instrumentation, development of biological systems for single-molecule manipulation, and quantitative analysis and modeling of collected data. Chemla, who joined the Department of Physics in 2007, is a member of the [Center for the Physics of Living Cells](#) and has been recognized with a Sloan Research Fellowship, an NSF CAREER Award, and a Center for Advanced Study appointment at Illinois. He has also appeared on the list of Teachers Ranked as Excellent by Students.

Deming Chen has been an associate professor in the [Department of Electrical and Computer Engineering](#) since 2011. He is also a research associate professor in the [Coordinated Science Laboratory](#) and an affiliate associate professor in [computer science](#). His current research interests include system-level and high-level synthesis, nano-systems design and nano-centric CAD techniques, GPU optimization, reconfigurable computing, hardware/software co-design, hardware security, and computational biology. In the recent years, he is also actively involved with other research directions, such as computational genomics, hardware security, and computation in the Smart Grid. In 2014, he received an IBM Faculty Award for his contributions to the areas high performance computing, synthesis, architecture and design space exploration. In addition to numerous Best Paper awards, Chen has received an NSF CAREER Award and has been included on the list of Teachers Ranked as Excellent by Students.

Sascha Hilgenfeldt, an associate professor of [mechanical science and engineering](#), conducts theoretical and experimental research on the interfacial structure and dynamical evolution of foam and soft condensed matter. Working with colleagues in the biological sciences, he has created a functional equation that describes how living cells pack together to create fruit fly eyes. The model helps researchers understand how adhesion energy changes the shape of the eye and allows them to study how such molecules develop and function during embryo development. His group is currently testing whether this model can be applied to different kinds of tissues, which

could lead to advances in regenerative medicine. An Illinois faculty member since 2008, Hilgenfeldt's research has important implications for drug delivery, gene therapy, and cell diagnostics, as well as generally enhancing the understanding of the mechanics of life.

Harrison Kim is an associate professor of [industrial and enterprise systems engineering](#) and the director of the Enterprise Systems Optimization Laboratory at Illinois. In his research, supported by the National Science Foundation and several key manufacturers, Kim and his colleagues have developed an optimization model to maximize total life-cycle profit from selling new products and remanufactured products. It optimizes both the initial design and design upgrades at the end-of-life stage and also provides corresponding production strategies, including production quantities and take-back rate. The model is extended to a multi-objective model that maximizes both economic profit and environmental-impact saving. Kim has received numerous recognitions including an NSF CAREER Award, Dean's Award in Excellence in Research, and a Best Paper Award in ASME Design for Manufacturing and Life Cycle Conference. He joined the Illinois faculty in 2005.

Xiuling Li is an associate professor of [electrical and computer engineering](#) with affiliate appointments in [mechanical science and engineering](#), [materials science and engineering](#), the [Frederick Seitz Materials Research Laboratory](#), and the [Beckman Institute](#). Her research group at the [Micro and Nanotechnology Laboratory](#) is currently focused on several areas: semiconductor nanowires, strain-induced self-rolled-up membranes, and metal-assisted chemical etching. Since joining the faculty in 2007, her work has been recognized with an ONR Young Investigator Program Award, a DARPA Young Faculty Award, an NSF CAREER Award, and as a Center for Advanced Study Fellow at Illinois.

Yanfeng Ouyang is an associate professor and the Paul F. Kent Endowed Faculty Scholar in the [Department of Civil and Environmental Engineering](#). His research focuses mainly on developing strategic, tactical, and operational models and solution methods for problems that arise in the multidisciplinary and interdisciplinary areas of transportation systems, operations management, network optimization, and logistics systems planning. His research portfolio covers a combination of theoretical research on complex engineering systems and real-world applications that address high-priority societal needs, for example, renewable energy systems, food supply chains and sensor networks. He joined the CEE faculty in 2005, and he is also affiliated with the [Department of Industrial and Enterprise Systems Engineering](#) and the [Computational Science and Engineering](#) program. His honors include an NSF CAREER Award, a High Impact Project Award from the Illinois Department of Transportation, the Engineering Council Outstanding Advising Award, a Xerox Award for Faculty Research. He has been recognized on the Teachers Ranked as Excellent by Their Students ten times.

An associate professor of [computer science](#) and an affiliate member of the [Institute for Genomic Biology](#), **Saurabh Sinha** is concerned with computational approaches to problems in molecular biology, especially gene regulation in metazoan genomes. His work looks to understand how sequences involved in gene regulation have evolved, and how such evolutionary dynamics may inform the discovery of novel regulatory sequences. Sinha is a principal investigator at the Center of Excellence for Big Data Computing, an Illinois-Mayo Clinic joint project focusing on the rapidly growing body of genomic and transcriptomic data produced by genome-wide, high-throughput experimental technologies. An affiliate of the Department of Entomology and the Biophysics program, Sinha has also been recognized with the Dean's Award for Excellence in Research from the College of Engineering.

Dallas Trinkle joined the faculty of the [Department of Materials Science and Engineering](#) in 2006. The main focus of his research is on structural materials—impacting energy efficiency by improving processing capabilities of lighter materials or improving high temperature properties for materials in energy production. His group studies both properties of defects in materials and chemical effects on mechanical properties of advanced structural metals, such as plasticity, phase transformations, and solidification. He has been recognized with an NSF CAREER Award, the AIME Robert Lansing Hardy Award, three 3M Untenured Faculty Research Awards, and the Xerox Award for Faculty Research from the College of Engineering.

Tao Xie, an associate professor in computer science, joined the Illinois faculty in 2013. Before then, he was an associate professor in the Department of Computer Science at North Carolina State University. His research interests are in software engineering, with a focus on software testing, program analysis, and software analytics.

interests are in software engineering, with a focus on software testing, program analysis, and software analytics. He leads the [Automated Software Engineering Research Group](#) and is a member of the Programming Languages, Formal Methods, and Software Engineering (PL-FM-SE) area at Illinois.

The current Donald Biggar Willett Scholars in the College of Engineering at Illinois:

- Tarek Abdelzaher, CS
- Daniel Bodony, AE
- Ximing Cai, CEE
- Ioannis Chasiotis, AE
- Yann Chemla, Physics
- Deming Chen, ECE
- Jianjun Cheng, MatSE
- Brian DeMarco, Physics
- Sascha Hilgenfeldt, MechSE
- Elizabeth Hsaio-Wecksler, MechSE
- Harrison Kim, ISE
- Xiuling Li, ECE
- Olgica Milenkovic, ECE
- Angelia Nedich, ISE
- Yanfeng Ouyang, CEE
- Matthias Grosse-Perdekamp, Physics
- Moonsub Shim, MatSE
- Saurabh Sinha, CS
- Dallas Trinkle, MatSE
- Tao Xie, CS
- Chengxiang Zhai, CS

The Willett Research Initiatives in Engineering funds term professorships, undergraduate and graduate student research, and related research activity. It honors the memory of Donald Biggar Willett (1897-1981) who attended the University of Illinois from 1916-1921. Mr. Willett left the University before graduation, just a few credits short of completing his coursework in civil engineering. He started his career as a partner in the family business, Suburban Coal and Supply Company, and later, worked as a self-employed bookkeeper and tax preparer. In 1994, his widow, Elizabeth Marie Willett, willed her entire estate to the College of Engineering, which established the Willett Research Initiatives Fund.

ABOUT ENGINEERING AT ILLINOIS

The College of Engineering at [Illinois](#) is among the world's most prestigious and largest engineering institutions, with undergraduate and graduate programs ranked in the Top Five nationally and internationally.

Renowned faculty and exceptional students are drawn to Engineering at Illinois because of our global reputation for leadership in research and education. The Illinois environment offers a distinctive combination of academic rigor within a uniquely Midwestern culture of collaboration and approachability.

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