

NOTABLE LEADERS

Ashis Banerjee (Assistant Professor) serves as the director of the Scale-independent Multimodal Automated Real Time Systems (SMARTS) Lab. He develops decision-making methods for cyber physical systems at widely varying scales ranging from optically actuated micro-bio systems to large manufacturing enterprises.



Linda Ng Boyle (Professor) is the director of the Human Factors and Statistical Modeling (HFSM) Lab. The goal of her research is to gain insights on driving behavior to enhance operator safety and reduce the risk of injuries and fatalities.



Archis Ghate (Professor) holds the College of Engineering Professorship in Health Care Operations Research. His research focuses on sequential decision problems under uncertainty. He has pioneered the possibility of dynamically optimizing cancer treatment by adapting to individual patient's biological response to radiotherapy.



Simge Küçükyavuz (Associate Professor) is researching optimization of complex systems under uncertainty. In one application area, she develops methods to optimize pre- and post-disaster humanitarian relief efforts to create efficiency, efficacy and equity.



Susie Lu (B.S. '10) is a data visualization engineer at Netflix where she makes custom data visualization applications to help the business effectively look at the data they collect. "Working collaboratively was a huge part of what I learned from UW ISE."



Tatiana Shefts (B.S. '13) is a consultant for Accenture where she uses her education to approach situations or problems from a broader systems perspective. "This department gave me so much in terms of education, growth opportunities, and a sense of community."



Jay Kim (Ph.D. '12) is an assistant professor at Oregon State University where he focuses his research on occupational ergonomics and biomechanics. "The depth and breadth of my Ph.D. training at UW ISE has been of indispensable value for me personally and to my career."



Tolu Abe (Ph.D. '17) has accepted a position as a senior program manager with Amazon. "The diverse cultures and perspectives within our department provides a collaborative learning environment, a benefit which enhanced my overall academic experience."



ISE AFFILIATE SCHOLARS PROGRAM

The Affiliate Scholars Program (ASP) exists to help you stay connected to ISE, the UW and to each other, wherever you are in your life. Whatever you're seeking, be it connections with other ISE alumni and friends, involvement in campus activities and department events, mind-expanding career opportunities, or keeping you informed about UW ISE, we've got you covered. Perhaps more importantly, the ASP allows you to continue to have an impact on the future of the department, our students, and the region. Membership is free. All you need to do is participate! You can join online at: www.uwse.wildapricot.org



"In UW ISE, we are known for our supportive atmosphere, the accessibility of our faculty, and the inclusiveness of our community. As a leading department in the field, our students take courses from internationally renowned faculty and participate in cutting-edge research to foster a safe and sustainable future. We invite you to join us in creating a world of good."

- Linda Ng Boyle, Professor and Chair

UNIVERSITY of WASHINGTON

INDUSTRIAL & SYSTEMS ENGINEERING

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DRIVEN TO
CREATE A
WORLD OF
GOOD.

Industrial and systems engineers design, implement and improve entire systems by integrating people, materials, information, equipment and energy. This integration lays the foundation for industrial engineers to focus on the big picture and helps make us the most people-oriented engineering discipline.

WHAT MAKES ISE UNIQUE?

Vibrant intellectual community

ISE faculty are passionate teachers and researchers and that passion is contagious. Our undergraduates are some of the best and brightest, pursuing double degrees in everything from art to psychology. Our graduate students are active teaching and research partners. For us, it's all about community. Everyone has a home in ISE. We are ethnically diverse, have equal numbers of women and men, and welcome students from all over the world. We work hard and we play hard.

Collaborative, creative research culture

Using mathematical modeling and scientific tools, ISEs extract meaning from a sea of data and find the keys to unlocking a system's true potential. In UW ISE, we design, optimize and provide quality solutions in the areas of health care, transportation and manufacturing. If there is a better way, we will find it—from improving the survival rate with better cancer treatment to addressing pressing societal issues like distracted driving to optimizing the flow of products and services around the world.

The power of flexibility

The most distinctive aspect of industrial engineering is the flexibility it offers. ISEs are everywhere and can work in any context or environment. An ISE degree gives graduates the opportunity to work in many businesses and industries including technology, healthcare, manufacturing, service, retail, transportation, and logistics—just to name a few. Many ISEs are hired as project managers and move into supervisory or management roles where they continue to draw on their technical backgrounds.



STUDENTS

DEGREE PROGRAMS

Bachelor of Science in Industrial Engineering (BSIE)
Provides students with the technical skills to serve as organizational change agents who employ a systems view when solving problems.

Master of Science in Industrial Engineering (MSIE)
An advanced, research-oriented program for students pursuing careers in industry, government, or the engineering sciences or in preparation for a Ph.D.

Doctor of Philosophy in Industrial Engineering (Ph.D.)
A rigorous academic research program that prepares students for high-level leadership roles in academia, industry, and top engineering research institutions.

Master of Industrial & Systems Engineering (MISE)
A part-time degree program for working professionals that emphasizes technical leadership management and systems engineering. Classes are offered in person or online.

Certificate Programs
For working professionals who desire advanced training in Global Integrated Systems Engineering (GISE) or Engineering Leadership.

STUDENT DEMOGRAPHICS

Undergraduate enrollment 2016: 128

Bachelor's degrees awarded 2016: 55

Graduate student enrollment 2016: 203

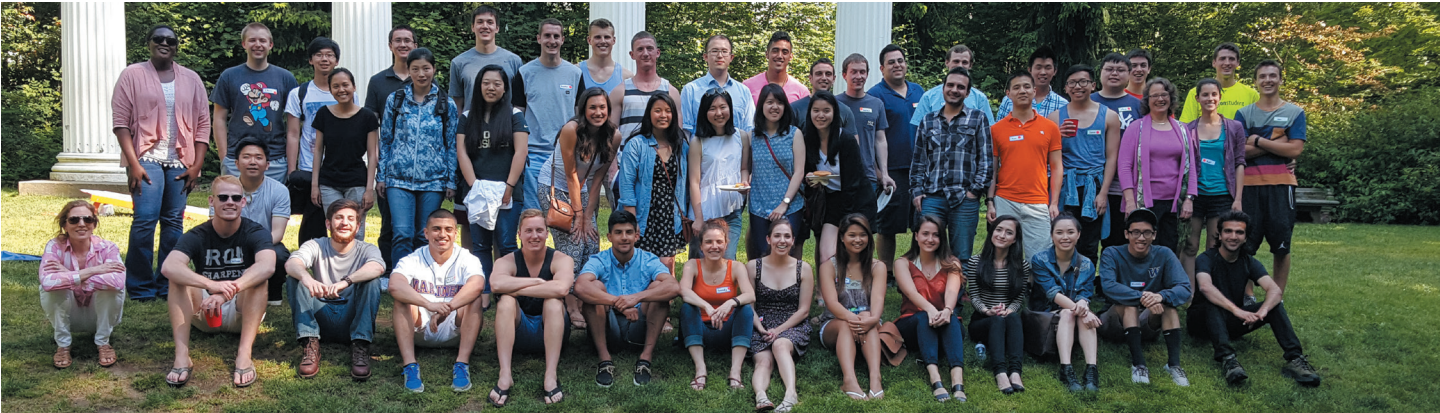
MSIE degrees awarded 2016: 21

Ph.D. degrees awarded 2016: 6

MISE degrees awarded 2016: 12

DIVERSITY OF DEGREE RECIPIENTS	BS	MS	PhD
Women	27%	31%	25%
Underrepresented minorities*	7%	7%	7%
Asian Americans	27%	15%	9%
Foreign nationals	18%	28%	39%
Washington residents	72%	45%	23%

*African American, Hispanic American, Native American and Hawaiian/Pacific Islander



FACULTY

COMPOSITION

11 tenure-track faculty (55% female)

1 full-time lecturer

1 research scientist/engineer/lecturer

11 adjunct faculty

9 affiliate faculty

HONORS

- 3 CAREER Awards from the National Science Foundation
- Research Innovation Award from NSF
- IIE Fellow Award
- IEEE VR Career Award
- 2 Excellence in Teaching Awards from IISE
- 4 Outstanding Professor Awards
- Augmented World Expo - Lifetime Achievement Award
- Innovations in Curriculum Award from IISE
- Community of Innovators Award: Research

NOTABLE INDUSTRY PARTNERS

- Accenture
- Amazon
- Apple
- AT&T
- Boeing
- Envision Consulting
- Genie
- Intel
- Kocer Consulting
- Microsoft
- PACCAR
- Physio Control
- Seattle Cancer Care Alliance
- Seattle Children's Hospital
- Starbucks
- Toyota
- UPS
- UW Medical Center
- Westat

RESEARCH & INNOVATION

RESEARCH AREAS



Optimize solutions for decision-making problems

Faculty

- Archis Ghate
- Simge Küçükyavuz
- Shan Liu
- Zelda Zabinsky



Improve quality of products & services through data monitoring & analyses

Faculty

- Ashis Banerjee
- Youngjun Choe
- Shuai Huang
- Christina Mastrangelo



Design technological systems that function safely and efficiently with humans

Faculty

- Linda Ng Boyle
- Tom Furness
- Ji-Eun Kim

RESEARCH APPLICATIONS



- Scheduling patients
- Diagnosis
- Treatment planning

Faculty

- Tom Furness
- Archis Ghate
- Shuai Huang
- Ji-Eun Kim
- Shan Liu
- Christina Mastrangelo
- Zelda Zabinsky



- Improving flow
- Road safety
- Logistics/distribution

Faculty

- Linda Ng Boyle
- Simge Küçükyavuz
- Zelda Zabinsky



- Assembly design/control
- Robotics
- Process control

Faculty

- Ashis Banerjee
- Youngjun Choe
- Shuai Huang
- Ji-Eun Kim
- Christina Mastrangelo
- Zelda Zabinsky

TOP RESEARCH FUNDERS

- Collaborative Safety Research Center Toyota
- Digital Manufacturing and Design Innovation Institute
- National Highway Traffic Safety Administration
- National Institutes of Health
- National Science Foundation
- Pacific Northwest Transportation Consortium
- Seattle Children's Hospital
- U.S. Department of Transportation
- U.S. Navy

SENIOR DESIGN PROJECTS

Our senior design projects provide a unique opportunity for companies and organizations in the Pacific Northwest to work with ISE student teams on selected company-proposed problems. Students gain professional experience and disseminate new information to local industry, while participating companies and other agencies receive innovative student-proposed solutions.

Recent projects:

Genie Industries: Aerial work platform assembly line improvement

Starbucks Coffee: Developing Starbucks mobile order and pay algorithm using queueing theory

Amazon Fulfillment: Multi-order automation project

Seattle Cancer Care Alliance: Imaging scheduling team optimization