

ELECTRICAL & COMPUTER ENGINEERING

AT UW ECE, WE CULTIVATE INNOVATION AND INSPIRE THROUGH HIGH-IMPACT RESEARCH. WE EDUCATE AND DEVELOP TOMORROW'S LEADERS TO HELP SOLVE THE WORLD'S MOST PRESSING CHALLENGES.

Our position as a top-ranked electrical and computer engineering department provides our faculty and student body a vibrant learning culture. Students receive a robust education through a strong technical foundation, group project work and hands-on research opportunities. Our faculty work in dynamic research areas collaborating with academia, industry and government institutions.

UW ECE continues to lead in cutting-edge science and technology while advancing socially-responsible innovation. Our innovation ecosystem is critical in promoting an entrepreneurial mindset in our teaching, and is strengthened through diverse partnerships that address complex global challenges in health, energy, technology and the environment.

COMMUNITY

UW ECE exceeds the national average of women in the field for undergraduate and graduate degrees awarded and the number of women in tenured and tenure-track faculty positions. We continue to work to build a community that is welcoming, supportive and a safe place for all to learn and grow.

Diversity of Current Students *(Winter 2026)*	**B.S.**	**M.S.**	**Ph.D.**	**PMP**
Women	25%	22%	32%	24%
Underrepresented Minorities*	8%	11%	3%	9%
Foreign Nationals	22%	46%	15%	57%
Washington Residents	64%	44%	15%	38%

** Underrepresented minorities include African American, American Indian / Alaska Native, Latinx, and Hawaiian / Pacific Islander.*

DEPARTMENT HIGHLIGHTS

#1

STARTUP GENERATOR OF ALL UW DEPARTMENTS FOR OVER 10 YEARS

Source: *UW CoMotion, 2014-26*

#1

LARGEST PROFESSIONAL MASTER'S PROGRAM IN UW COLLEGE OF ENGINEERING

Source: *UW College of Engineering, 2025-26*



27

FACULTY WITH RESEARCH PUBLICATIONS CITED OVER 1,000 TIMES

#1

UW ECE is the **largest department** in the College of Engineering with over **1,400 students.**

Source: *UW College of Engineering, 2025-26*





#1

Electrical Engineering is the **most popular graduate degree major** for incoming UW students.

Source: *UW Office of the Registrar, 2021*

TOP-TIER EDUCATION

UNDERGRADUATE EDUCATION

Bachelor of Science in Electrical & Computer Engineering (BSECE) degree prepares students for the workforce with a strong grounding in fundamentals and opportunities for internships, leadership roles, and hands-on research with renowned faculty in one of 40 department labs.

The five-year combined B.S.-M.S. program provides ambitious undergraduates with a seamless transition to graduate studies following completion of their bachelor's degree.

STUDENT INNOVATION

The ENGineering INnovation and Entrepreneurship (ENGINE) capstone program helps undergraduate students build and strengthen their entrepreneurial and networking skills. Students are mentored by faculty and industry sponsors while learning about innovation readiness, startups and new ventures through exciting year-long, industry-sponsored projects.



PROJECT-BASED LEARNING:
AIRCRAFT SOFTWARE CONFIGURATION TOOL

An ENGINE team partnered with Alaska Airlines on a web portal to efficiently load computer software onto airplanes. The tool will be implemented across Alaska Airlines' entire fleet.

Our graduates find employment at top companies in the region, including: Amazon • Apple • Boeing • Meta • Google • Intel • Microsoft • T-Mobile

GRADUATE EDUCATION

UW ECE graduate education prepares students to address pressing challenges in healthcare, energy, the environment, communication and more. Students receive unique opportunities to interact with technology companies and a vibrant startup community.

The Ph.D. Program prepares students for work in academia or industry as independent researchers and scholars. It is the highest degree awarded in the field. Students work closely with distinguished faculty on research and pursue their own innovative projects, preparing them to make a difference in the world.

The Daytime Master's Program (MSECE) provides advanced preparation for professional practice through a highly customizable, coursework-based or thesis curriculum. The coursework option is typically selected by students wanting to work at a higher level in the industry, while the thesis option involves more in-depth research and is designed for students with the passion of pursuing a Ph.D.

The Professional Master's Program (PMP) leads to an MSECE and offers an exciting industry-responsive curriculum. PMP students include recent undergraduates seeking more technical depth, working engineers who want to advance their career, and professionals from other backgrounds seeking to enter the field. Students explore cutting-edge technical topics and university research, giving them the expertise to drive innovation.

GRADUATE CERTIFICATE PROGRAMS

Certificate in Quantum Information Science and Engineering

Professional Master's Certificate Programs

Certificate in Machine Learning and Deep Learning: Application Frontiers
Certificate in GPU-Accelerated Computing & Visualization
Certificate in Applied Cybersecurity Engineering (ACE)

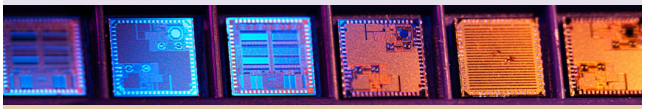
Graduate Data Science Option (DSO)
The Juris Doctorate and Master of Science in Electrical Engineering (JD/MSEE) Program
Short Courses (Masterclasses on LLMs and ChatGPT; DS/ML Interview Prep)

OUR STUDENTS *(data from Autumn 2026)*

789 Undergraduate students
566 Graduate students

DEGREES AWARDED AY2025-26

294 Bachelor's degrees awarded
180 Professional Master's Program (PMP) degrees awarded
66 Daytime Master's degrees awarded
30 Ph.D. degrees awarded



UW ECE INNOVATION

With more spinouts than any other department at the UW (20% of the University's total from FY2013-2024), UW ECE faculty and students have founded or been in leadership roles at nearly 60 startup companies, including:

Jeeva Wireless (now WaveWorks) – Reimagining connectivity with low-power backscatter technology

MicrobiomX (now Tend) – Providing rapid, personalized restorative gut therapy through microbiota transplants

Olis Robotics – Making robots smarter through progressive autonomy

OneRadio – Changing the way we access the radio-frequency spectrum

Parse Biosciences – Providing scalable single cell RNA-sequencing solutions

Proprio – Using computer vision and machine learning to enhance human and computer performance

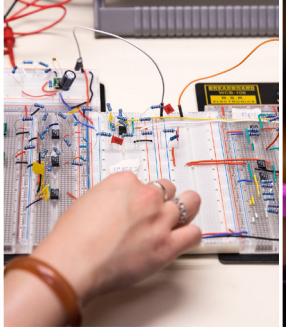
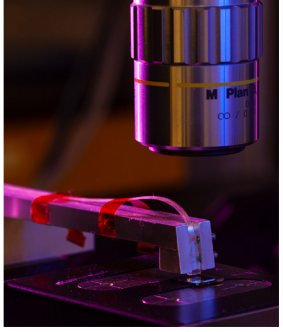
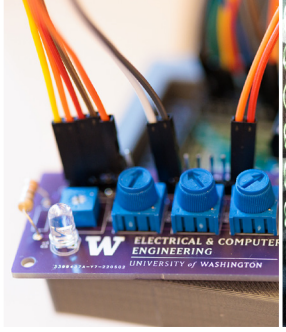
Tunoptix, Inc. – Tunable metasurface optics for machine vision and AR/VR applications

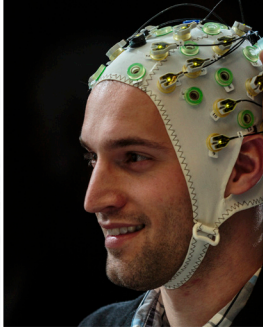
ThruWave – Providing state-of-the-art millimeter-wave (mmW) 3D imaging

WiBotic – Providing wireless power solutions for robotics

UW ECE FY2016–2026:

22 ECE SPINOFFS	**388** INNOVATIONS DISCLOSED
27% OF ALL UW ENGINEERING PATENTS	**815** NEW PATENTS FILED (ALL FILING TYPES, US AND FOREIGN)
42 COMPANIES LICENSED ECE TECHNOLOGIES	**130** INDIVIDUALLY LICENSED TECHNOLOGIES

RESEARCH

RESEARCH AREAS

Biosystems – synthetic biology, neural engineering, medical devices, mobile health

Computing & Networking – computer engineering and architecture, VLSI, embedded systems, wireless communication, cybersecurity

Data Science – machine learning, statistical signal processing, speech and natural language processing, computer vision and image processing

Electronic, Photonic, and Integrated Quantum Systems (EPIQS) – quantum electronics, nanoscale optics, materials and structure, MEMs, novel photon sources, and optical metamaterials

Power & Energy Systems – smart Grid, integration of renewable energy sources, grid security, power system economics, energy harvesting

Robotics & Controls – surgical biorobotics, smart cities, haptics, network control systems

In FY22, UW ECE received $25M in research awards.

EMERGING STRATEGIC RESEARCH AREAS

Quantum systems promises to solve data intensive problems regular computers can't handle by increasing the capacity of quantum computing systems from its current state of 100 qubits to 1,000 qubits, with applications in cybersecurity, drug development, traffic optimization, financial modeling and weather forecasting.

Sustainable energy systems focus on expanding the capacity of power grids to reliably integrate renewable energy from solar and wind into existing systems. In addition to our work on smart grids, we work on grid security, energy economics, and solar and electromagnetic energy harvesting.

Neuroengineering explores advanced brain-computer interfaces that help the body heal itself after serious injuries and conditions such as stroke, spinal cord injury and Parkinson's disease. UW ECE partners with surgeons in UW Medicine and ethicists in the UW College of Arts & Sciences for guidance on ethical considerations in neurotechnology.

FACULTY

Our department's reputation is based on the quality of our faculty and their contributions to education, research and leadership. UW ECE faculty are frequently honored nationally and internationally for excellence. Attracting, retaining, and rewarding faculty remains one of our highest priorities.

50 Core Faculty
9 Research / Teaching Faculty
119 Affiliate Faculty
38 Adjunct Faculty

FACULTY ACHIEVEMENTS

31	IEEE Fellows	**9**	Sloan Fellows
1	MacArthur Fellow	**5**	NAE members

CENTERS AND LABS

UW ECE faculty lead or participate in interdisciplinary research centers across campus, and direct laboratories at the cutting-edge of the field.

- AMP Lab – Amplifying Movement and Performance
- The UW Biofabrication Center (BIOFAB)
- Clean Energy Institute (CEI)
- Center for Neurotechnology (CNT)
- Center for Intelligent Silicon (coming soon)
- UW ECE Center on Satellite Multimedia and Connected Vehicles (CMMB Vision)
- eScience Institute
- Institute for Nano-Engineered Systems (NanoES)
- Molecular Engineering and Sciences Institute (MolES)
- Northwest Quantum Nexus (NQN)
- QuantumX Initiative
- U.S. Dept. of Energy PNW National Lab (PNNL)
- Washington Nanofabrication Facility (WNF)

TRAILBLAZERS

UW ECE trailblazers are honored for the work they do to effect positive change in the world. Our academic pioneers' far-reaching research has created important foundations for other electrical and computer engineering scholars to build upon, while our industry leaders' ground-breaking enterprises have provided important solutions that improve lives.



Elaine Chang (BSEE '93) has served in various leadership positions at Amazon China, including leading the launch of Amazon Prime in China. Now managing director for AWS Greater China, she is responsible for business strategies, and industry and government partnerships.



Keith Rattie (BSEE '76) has a 40-year-career in the oil and gas industry, serving as CEO of Questar Corp. and general manager of Chevron's international gas unit. He has helped shape utility, power and energy legislation representing industry at congressional hearings.



John MacLeod (BSEE '64) designed NASA's Apollo ground communications network, headed Sklylab's solar telescope operations and held a technical management role for the Space Shuttle communications and data systems. He later founded two companies that introduced nationwide and international text messaging.



Gabriela A. Gonzalez (BSEE '92) is the director of Intel's STEM Education Research Office and former deputy director of the Intel Foundation, focused on K-12 STEM education for underserved communities. As a program manager at Intel Labs, she steered program and curriculum development at research universities around the world.



Alanson Sample (Ph.D. '11) led The Walt Disney Company's work in robotics and artificial intelligence. As an associate professor at the University of Michigan, he applies novel approaches to electromagnetics, RF and analog circuits, and embedded systems.



Yael Hanein (Postdoc) is an associate professor and VP of NanoRetina, a startup company developing artificial vision. Yael designs electronic nanodevices that interface with the brain, novel materials for artificial retina applications, and skin electronics for electrophysiology.



Pamela Bhatti (MSEE '93) is an associate professor and associate chair at Georgia Tech. She researches hearing loss through focused neural stimulation and novel implantable sensors, as well as cardiac imaging to assess and monitor cardiovascular disease.



Alhussein Abouzeid (MSEE '99, Ph.D. '01) is the founding director of WiFiUS, an international NSF-funded virtual institute on wireless systems research. He builds dynamic wireless networks with applications in environmental sensing and disaster response.

"Electrical and computer engineering technology has become ubiquitous, defining how we work, how we live, and even what it means to be human. UW ECE means more than just exploring amazing new technologies; it means *shaping the future of humanity.*"

— UW ECE Professor and Chair Eric Klavins



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Box 352500, Seattle, WA 98195–2500 | ece.uw.edu | 206-221-5270