The Department of Electrical and Computer Engineering

2018

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Professor and Chair
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NAME CHANGE: EE TO ECE

Department Name Change Celebration, Sept. 26, 2018

DEPARTMENT HISTORY

1895 *First courses in electrical engineering taught in the Administration Building, now Denny Hall.*

1902 *First baccalaureate degree awarded to Stephen Parker Rowell*

1910 *First M.S.E.E degree awarded to Magnus T. Crawford*

1958 First Ph.D. awarded to Akira Ishimaru

1961 *First female faculty member Irene Peden*

1977 The department develops a computer engineering program within electrical engineering, led by Professor Bill Moritz

2001 *NSF Awards funding for the Center for Institutional Change to UW*

2013 *Babak Parviz creates Google Glass*

2016 *The UW ECE Entrepreneurial Capstone program (ENGINE) established*

2018 *Department name changes to Electrical and Computer Engineering*

FACULTY SNAPSHOT

- **30** Full Professors, including
  UW VP for Innovation Strategy
  UW AVP for Research
  AD for Diversity & Access
  Director, APL
- **10** Associate Professors
- **10** Assistant Professors
- **3** FT Lecturers
- **3** Research Faculty
- **36** Adjunct Faculty
- **103** Affiliate Faculty
- **52** Research Labs

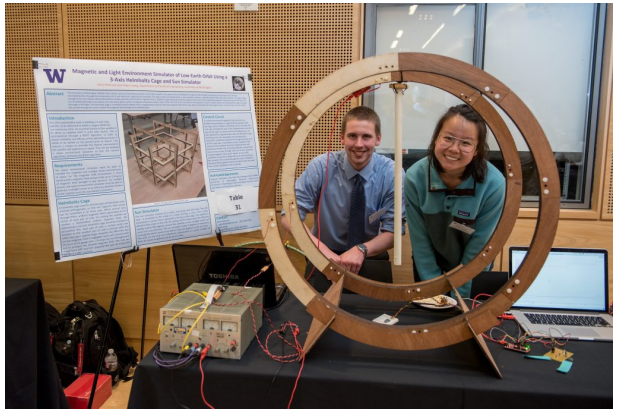
STUDENT SNAPSHOT

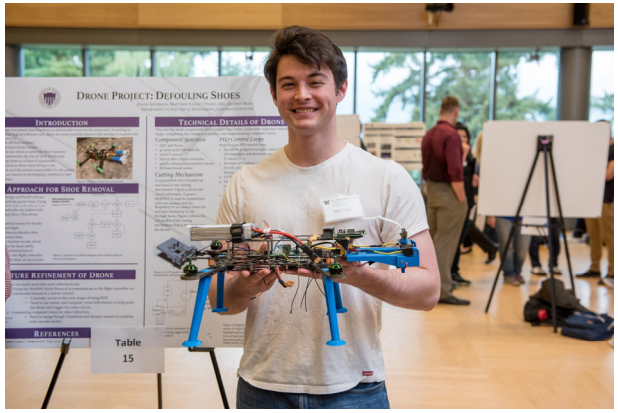
572 undergraduates

19% women

237 graduates

24% women





NATIONAL RANKINGS

21 in EE

10 in CompE

18 in Engineering PhD programs – national public universities

8 in BSEE degrees

1 Startup hub of UW

STUDENT ACHIEVEMENTS

- First place in Grace Hopper ACM Student Research Competition
- CVPR 2018 AI City Challenge Award
- ACM SIGCOMM Dissertation Award
- ACM SIGMOBILE Dissertation Award
- Amazon's Inaugural Alexa Prize
- MIT EECS Rising Star Awards
- NSF 1st Place Innovation Award for EcoCAR
- IEEE/IFIP William C. Carter Award

FACULTY ACHIEVEMENTS

- 26 IEEE Fellows
- IEEE James L. Flanagan Award
- ECEDHA Diversity Award
- Fulbright Senior Scholar
- Amazon Catalyst Fellows
- ONR YIPs
- Forbes' '30-under-30' List

- MacArthur Fellow
- 5 Sloan Fellows
- 2 Allen Distinguished Investigators
- NSF Career Awards
- NSF PECASE Awards

12 RESEARCH CENTERS

INSTITUTE FOR
NANO-ENGINEERED SYSTEMS

National Nanotechnology Coordinated Infrastructure

NanoES building, $87.8M, opened 2017

Washington Nanofabrication Facility

- Vision: Cutting-edge and translational research in scalable nano-engineered devices and systems
- *Launched 2017*, NSF NNCI Anchor in the PNW
- 35,000 sq. feet of top-quality research space

12 RESEARCH CENTERS

CENTER *for*
NEUROTECHNOLOGY
a National Science Foundation Engineering Research Center

- Vision: Engineered neuroplasticity to improve function after brain & spinal cord injury
- *Launched 2011*, with a trans-disciplinary team working on:
  - Implanted Devices
  - Computational Neuroscience
  - Experimental Neuroscience
  - Neuroethics

12 RESEARCH CENTERS

CMMB VISION Center for Satellite Multimedia & Connected Vehicles

- Vision: Joint University Industry Applied Engineering R&D
- *Launched 2017*, with focus areas:
  - Satellite Communications
  - Mobile Multimedia
  - Connected Vehicles
  - Sensor Fusion & Machine Intelligence

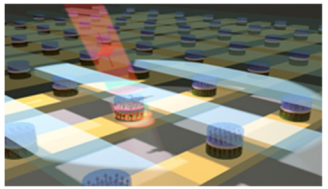


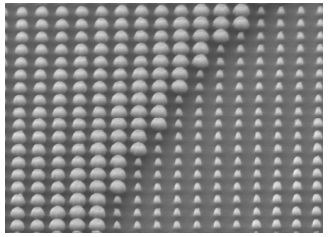
5 STRATEGIC RESEARCH INITIATIVES

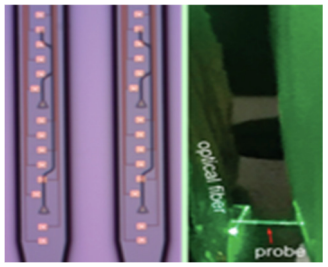
INTEGRATED NANOPHOTONICS AND QUANTUM OPTICS

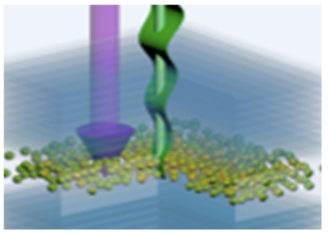
Launched 2016, with focus areas:

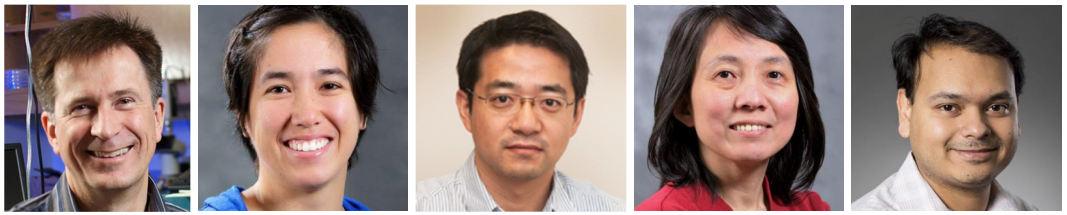
- Quantum Computing, Communication, Sensing
- Metasurface & Metamaterials
- Neurophotonics
- Hybrid Photonics with new materials









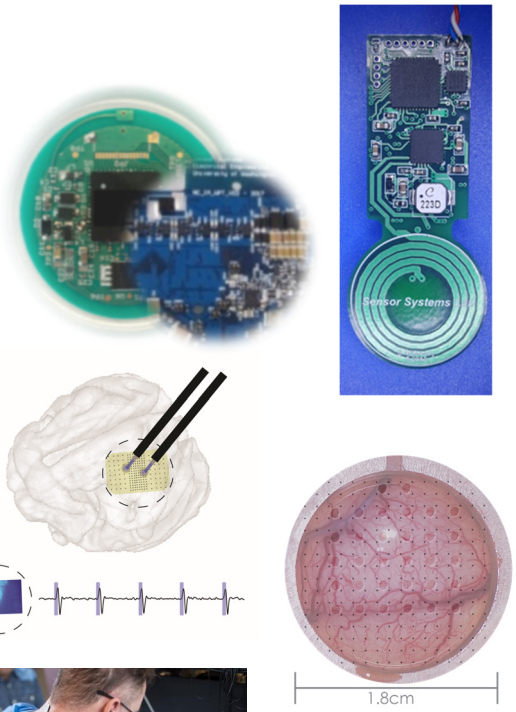


5 STRATEGIC RESEARCH INITIATIVES

DEVICE-DRIVEN REHABILITATION

Launched 2016, with a focus on neural devices to improve recovery after brain & spinal cord injury

- Wireless implantable neural interface devices
- Optogenetic treatments for stroke
- Multi-modal brain-computer interfaces
- Spinal stimulation for rehabilitation

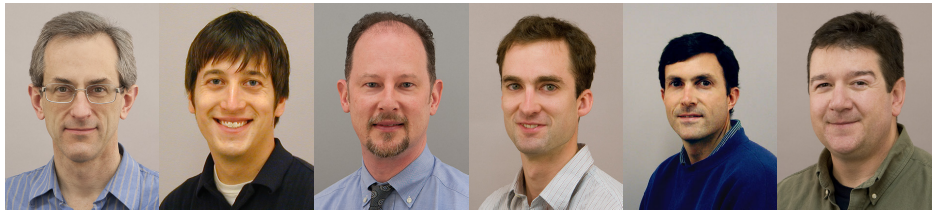


LARGE GRANTS

AERIAL DRAGNET – DARPA, $12.7M

Persistent wide-area surveillance using active and passive radar to detect and classify drones in urban terrain on a city-wide scale

UNIVERSITY of WASHINGTON
ELECTRICAL & COMPUTER ENGINEERING



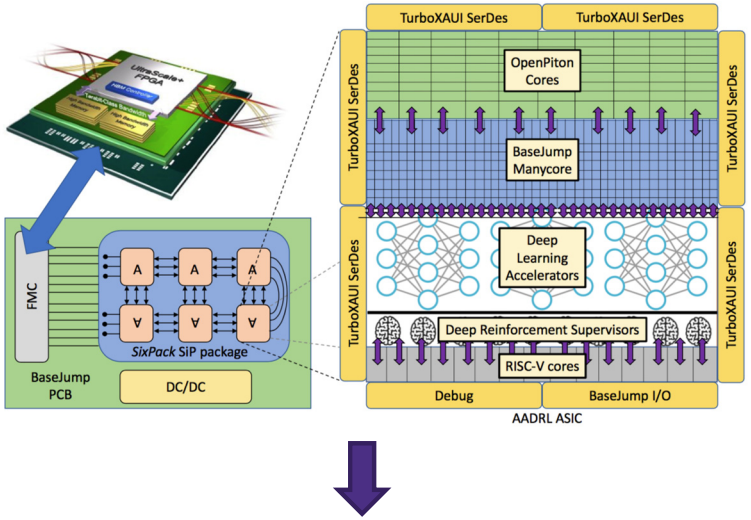
APL

ECHODYNE

LARGE GRANTS

MACHINE LEARNING ASIC DESIGN FOR EDGES AND CLOUDS – DARPA, $22M

- Multi-core accelerator ASICs for deep-reinforcement learning on edges and clouds
- Automated design flow for rapid tape out of state-of-art ASICs in latest process nodes
- Open-source hardware to enable system innovation



LARGE GRANTS

DEFENSE AGAINST ADVANCED PERSISTENT THREATS – ONR MURI, $7.5M

- Novel game theory framework to address continuous computer hacking attacks, known as advanced persistent threats
- Combines statistical modeling, adaptive game theory, machine learning and control and systems theory








ENDOWMENTS

- Donald W. and Ruth Mary Close Professor of Power Systems – **Daniel Kirschen, 2009**
- Milton & Delia Zeutschel Professor for Entrepreneurial Excellence – **Joshua Smith, 2017**
- Keith and Nancy Rattie Career Development Professor – **Baosen Zhang, 2017**
- CJ and Elizabeth Hwang Professors (Device Driven Rehabilitation) – **Rajesh Rao, 2017** and **Chet Moritz, 2018**

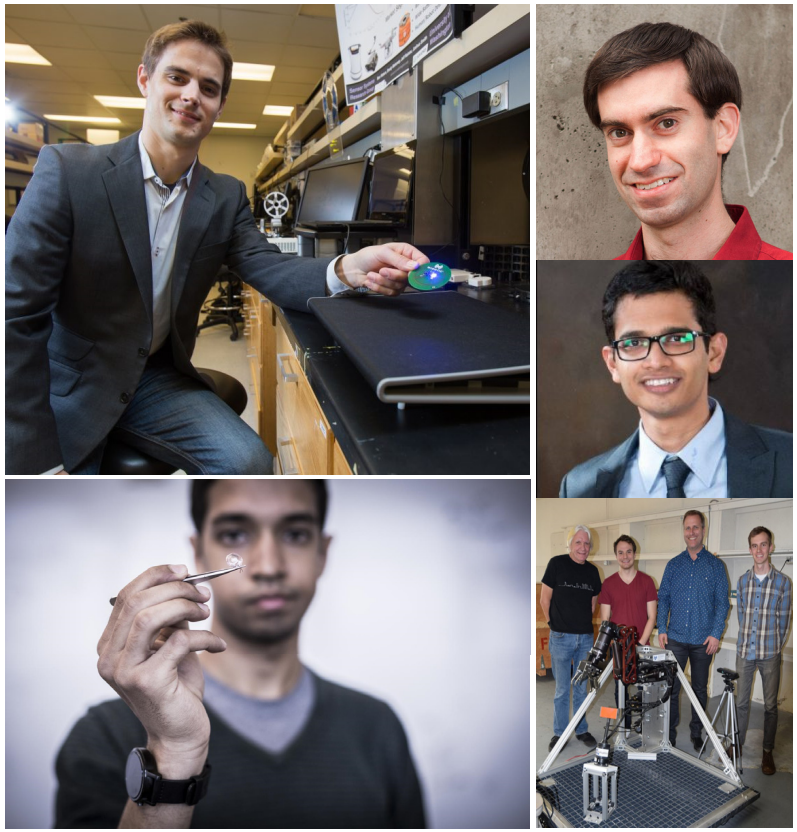




ECE STARTUPS

25+ since 2009

- ThruWave
- Split Biosciences
- Jeeva Wireless
- PhysioWave
- OneRadio
- Olis Robotics
- WiBotic
- Summary Analytics
- SNUPI Technologies
- Applied Dexterity
- Aquarium
- Senosis
- Physware
- Magic Leap
- Viket Medical
- Portage Bay Photonics
- Intelligent ION
- Takahashi Instruments
- Pacific Air Filtration
- LENS
- Zplasma
- Zensi



WECEDHA 2018 LOGISTICS

- Wi-Fi Information (*see agenda in welcome packet*)

  NetID: event0341 **Password:** d3G7+b5B8+z8L4
- Restrooms located outside main door – *women to the left as you exit, men to the right*
- First Break: 10 am
- Lunch: 12 – 1:30 pm – *Main Floor Atrium (downstairs)*
- Lab Tours: 4 – 5:30 pm – *ECE and CSE Buildings*
- Dinner: 7 pm @ El Gaucho – *see transportation insert in welcome packet*
- Sunday: 8:30 am start, adjournment at 1 pm – *same location as today*