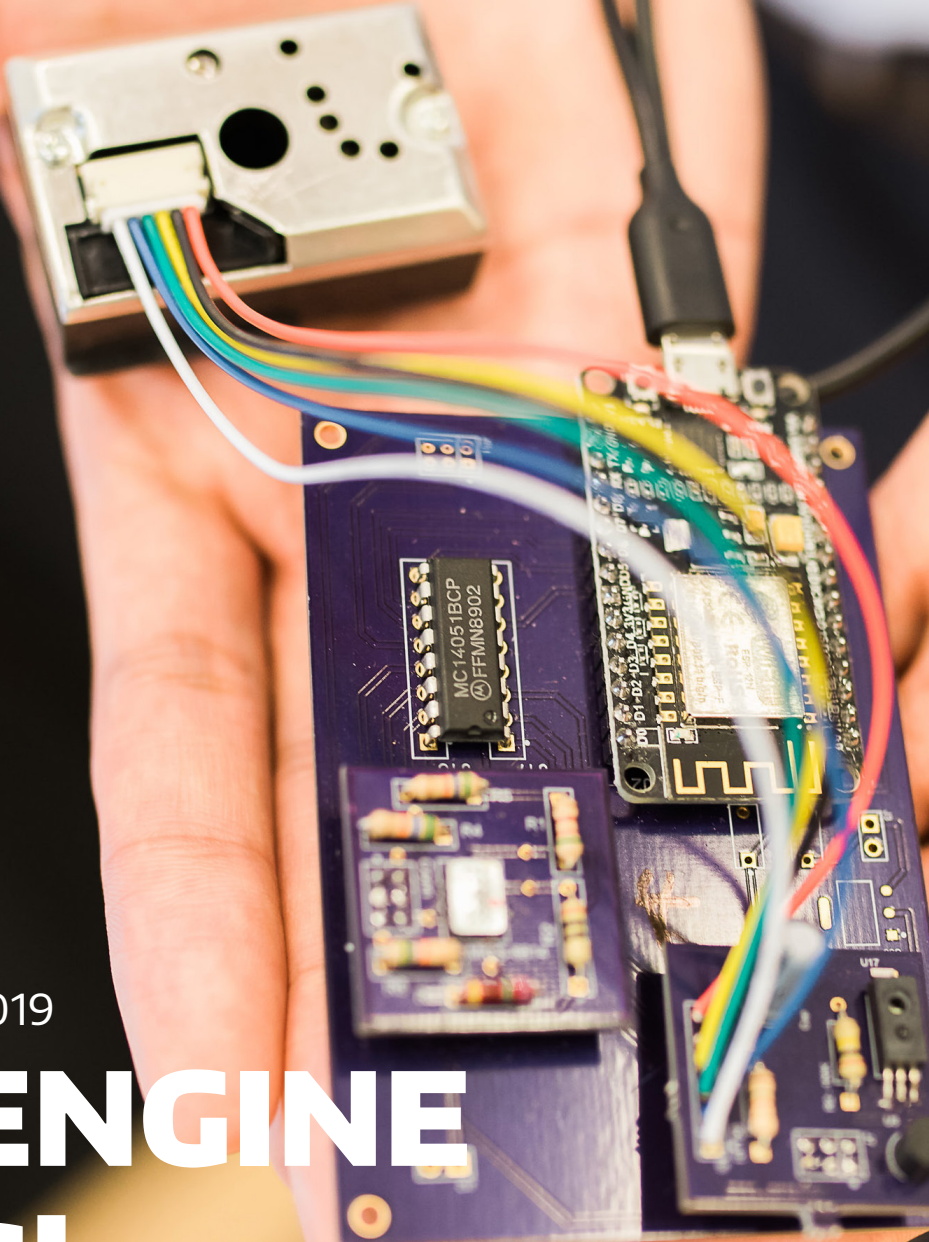




ELECTRICAL & COMPUTER
ENGINEERING

UNIVERSITY of WASHINGTON



2019

ENGINE Showcase



W UNIVERSITY of WASHINGTON MFCC Processed Audio Class University

Introduction: Number Recognition

Number recognition is a crucial task in automatic speech recognition (ASR) for different commercial applications. In this project, we built a model to achieve high precision and recall of numbers from zero to nine. Challenge from speech noise includes use of Dynamic Time Warping (DTW) or Dynamic Time Warping + Mel-Frequency Cepstral Coefficients (DTW+MFCC). We used a combination of MFCC and DTW, and we tested it over robust regarding with the audio noise with different characteristics.

Figure 11: Number Recognition

Mid-Frequency Cepstral Coefficients Extract Features of Audio Signal

We want to identify the components of the audio signal that are good for speech for the frequency range and changing information such as how frequency changes over time. MFCCs (Mel-Frequency Cepstral Coefficients) are a set of coefficients that are derived from the MFCCs. MFCCs are used to extract features from the audio signal and are used for speech recognition tasks.

Figure 12: Block Diagram of MFCCs Extraction



WELCOME

A LETTER FROM THE CHAIR



Welcome to UW Electrical & Computer Engineering's 2019 ENGINEERING INNOVATION and Entrepreneurship (ENGINE) program showcase. It's a delight every year to invite our industry and campus colleagues to join us as we showcase and celebrate the hard work of our students, who will soon be graduating as the next generation of electrical & computer engineers.

This year's fair features nearly 50 team projects on topics as diverse as computer systems architecture, power electronics, machine learning, communications, and robotics. The students here today comprise the majority of our graduating seniors.

Most of the projects here arise from ENGINE — our Engineering Entrepreneurial Capstone program. ENGINE was created to enable students to work in teams on industry sponsored projects. This program, generously endowed by our alums Milton and Delia Zeuschel, is designed to develop students' skills in innovation, systems engineering and project management. Initiated only three years ago, ENGINE has grown every year, from just four projects in 2016 to 43 in 2019. Milt and his business partner John Reece have also spent significant time to give feedback and to shape the program. In addition, John has given several lectures to our students over multiple years on career development, team work, entrepreneurship, and leadership.

I wish to extend a special thanks to all of our industry and faculty mentors, ENGINE Program Director, Payman Arabshahi, our wonderful College of Engineering Capstone Director Jill Dalinkus, Associate Dean for Academic Affairs, Brian Fabien, and our amazing ENGINE Teaching Assistants, Shruti Misra, Niveditha Kalavakonda, and Yana Sosnovskaya, without whom these projects would not have been possible.

Congratulations to all students on the completion of your final capstone projects! The knowledge you have gained from this experience will serve you well in the coming years. I have no doubt that you will build successful and rewarding careers.

In closing, I want to take this time to recognize and thank a very special person, our College of Engineering Dean, Michael Bragg, who has been a leader and friend of UW ECE. Without his help and support we could not have built ENGINE at the Department.

I look forward to having the chance to talk with you about future collaborations. Enjoy the ENGINE of UW ECE!

Best to all,

A handwritten signature in purple ink, appearing to read "P. Poovendran".

Radha Poovendran
Professor and Chair

INDUSTRY MENTOR
Len Cayetano

SPONSOR
Zetron

Internet of Life Saving Thing (IoLST) for Firefighters

FACULTY ADVISER
James K. Peckol

STUDENTS
**Tianning Li, Hong Zhang,
Shen Yuan Yao**

Development of an Internet of Things environmental sensing and communication system for fire rescue operations.

PLACEMENT #1

INDUSTRY MENTOR
Vikram Chalana

SPONSOR
StethIO

An ECG Enabled Smartphone Stethoscope

FACULTY ADVISERS
**James K. Peckol,
Robert Bruce Darling**

STUDENTS
**Sai Sidharth Doppalapudi,
Jason Ku, Edward Lou**

Design and implementation of a single lead electrocardiogram (ECG) system for integration with StethIO's digital stethoscope, and machine learning classification of ECG data.

PLACEMENT #3

INDUSTRY MENTOR
Ian O'Connor

SPONSOR
Kenworth

Automated Turn Signal Cancellation for Semi-Trucks

FACULTY ADVISER
Howard J. Chizeck

STUDENTS
**Feng Wei, Ashley Fogwell,
Eldon Wen**

Design, build, and test of a system to cancel turn signals automatically for semi-trucks based on CAN bus signals and image processing.

PLACEMENT #5

INDUSTRY MENTOR

Xiang Chen

SPONSOR

Tupl

Customer and Network Prediction and Anomaly Detection

FACULTY ADVISER

Payman Arabshahi

STUDENTS

**Yi-Cheng Chen,
Andrew Leung,
Shih-Yin Tsai**

PLACEMENT #2

Prediction and visualization of customer and network issues with deep Learning using Call Detail Records, Key Performance Indicators, and Twitter datasets.

INDUSTRY MENTORS

**Jacob Shannon,
Gregg Stavig**

SPONSOR

**Crane Aerospace &
Electronics**

Digitally-Controlled Synchronous Battery Charger

FACULTY ADVISER

Brian Johnson

STUDENTS

**Jonah Au,
Cooper McBride,
Thaniel Schrimshire**

PLACEMENT #4

Development of a digitally-controlled synchronous battery charger for avionic applications. Converter acts as both a battery charger and bus-sustainer upon loss of power.

INDUSTRY MENTORS

**Cedric Vincent,
Adrien Leravat**

SPONSOR

Witekio

Over-the-Air Update System for Microcontrollers

FACULTY ADVISER

James K. Peckol

STUDENTS

**Lerzan Cengiz,
Connor Kafka,
Anusha Kamat**

PLACEMENT #6

Design and build of a secure over-the-air firmware update system for ARM Cortex-M4 microcontrollers that enables device maintenance and management.

INDUSTRY MENTORS

**Bradley Buniak,
Avinash Hasirumane,
Thao Hoang**

SPONSOR

Collins Aerospace

PLACEMENT #7

Aircraft Non-Intrusive Continuous Level Sensor

FACULTY ADVISER

James K. Peckol

STUDENTS

**Derek Hines-Mohrman,
Selma Kapetanović,
Jon Champion**

Design, build, and test of a non-intrusive continuous level sensor and communication system for aircraft waste systems.

A Wearable Robotic Arm

FACULTY ADVISER

James K. Peckol

STUDENTS

**Gaohong Liu,
Ethan Wang,
Chunguang Xie**

Design and build of a robotic arm to help users execute operations such as lifting heavy objects by detecting muscle micro-motion.

PLACEMENT #9

INDUSTRY MENTOR

Vivek Burhanpurkar

SPONSOR

Cyberworks Robotics

PLACEMENT #11

Autonomous Wheelchair with Monocular Visual Odometry

FACULTY ADVISER

Howard J. Chizeck

STUDENTS

**Ross Bajocich,
Kaiden Field,
Joseph Shieh**

Development and integration of a robust visual odometry package with sensors, an onboard processor, and a user interface, to assist autonomous wheelchair motion.

INDUSTRY MENTORS

**Kumar Maddali,
Changzheng Jiang,
Shubham Agrawal**

SPONSOR

Telenav

PLACEMENT #8

Continuous Destination Prediction Micro Service

FACULTY ADVISER

Robert Bruce Darling

STUDENTS

**Sicong Huang, Tyler Ho,
Muhammad Danish
Farooq**

Design of a machine learning model to predict a user's destination continuously during a trip, with the flexibility to adopt time/distance transitions and spatio-temporal data.

INDUSTRY MENTORS

**Nasser Saber,
Joon Hwan Choi,
Fuxing Yang**

SPONSOR

Verathon

PLACEMENT #10

Wearable Medical Device for Bladder Volume Monitoring

FACULTY ADVISER

James K. Peckol

STUDENTS

**Irfan Wisanggeni,
Skyler Justis**

Development of a wearable medical device to periodically monitor bladder volume and send phone alerts when detecting high volume readings.

INDUSTRY MENTOR

Chris Balton

SPONSOR

Paccar

PLACEMENT #12

Simulating Localization in a Landmark-Sparse Environment

FACULTY ADVISER

Ashis Banerjee

STUDENTS

**Russell DeGuzman,
Everett Key,
Daniel Torres**

Development and simulation of robotic localization based on real-world odometry and LIDAR sensor data in an environment that has very few LIDAR-friendly landmarks.

INDUSTRY MENTORS
Ricardo Rodriguez,
Duy Nguyen

SPONSOR
Fluke

PLACEMENT #13

Dynamic Load Monitoring System for a Set of Complex Devices

FACULTY ADVISER
James K. Peckol

STUDENTS
Dean Khormaei,
Aditya Sharma,
Jingtian Gu

Development and test of a system for accurate identification and monitoring of different electrical loads.

INDUSTRY MENTORS
Ryan Gies,
Prabuddha Biswas

SPONSOR
Agilysys

PLACEMENT #15

Digital Hotel Assistant

FACULTY ADVISER
James K. Peckol

STUDENTS
Jessica Dai, Jason Garcia,
Romo Li

Development of a software plugin that utilizes network voice recognition services to provide voice-to-text and text analysis for guest contact with hotel employees.

INDUSTRY MENTOR
Chris Bolton

SPONSOR
Paccar

PLACEMENT #17

Automotive Radar Data Processing System

FACULTY ADVISER
Sumit Roy

STUDENT
Yekaterina Mikhaylyuta,
Matthew Sissel

Development of radar data processing algorithms to create heat-maps of the environment around a vehicle, and to distinguish between vehicles and pedestrians.

INDUSTRY MENTORS

**Keith McCall,
Trina Nelson,
Mason Lanphear**

SPONSOR

Pollen Systems

PLACEMENT #14

Unmanned Ground Vehicle for Vineyards and Farms

FACULTY ADVISER

Howard J. Chizeck

STUDENTS

**Justin Ngo, Yibo Cao,
Maggie Fagan, Jonathan
Ananda Nusantara**

Development of a semi-autonomous ground vehicle which surveys vineyards and other high-value crop fields, with a focus on collecting pictures to evaluate expected yield and plant health.

INDUSTRY MENTOR

Paul McElhany

SPONSOR

**National Oceanic
and Atmospheric
Administration**

PLACEMENT #16

Smart Light Trap

FACULTY ADVISER

Tai-Chang Chen

STUDENTS

**Xavier Yuan,
Lucas Cauthen**

Development of a smart light trap to capture video of zooplankton and their surrounding environment, and development of a software package to analyze the video, giving scientists a view of the composition of species and a count of specimens in a given trap.

INDUSTRY MENTORS

**Remington Below,
Vanessa Naff,
John Gruender**

SPONSOR

Glympse

PLACEMENT #18

Using GPS Location Data to Score Drivers' Safety

FACULTY ADVISER

Sreeram Kannan

STUDENTS

**Allison Torchia,
Youjun Wu,
Brandon Tjio**

Development of a system using GPS location data to detect and categorize dangerous driving maneuvers, and assignment of a driver safety score.

INDUSTRY MENTORS

**Robert Emery,
Marissa Kranz**

SPONSOR

UW Medical Center

PLACEMENT #19

Motion Control for Cyclotron RF System

FACULTY ADVISER

Howard J. Chizeck

STUDENTS

**Razan Alraddadi,
Akhil Avula,
Dylan Tomberlin**

Design, build, and test of a motion control system that tunes the Cyclotron radio-frequency system. Tuning to different frequencies allows the Cyclotron to be used for cancer treatment, isotope creation, and advanced materials testing.

Aerial Shoeslaughter: Semi-Autonomous Drone Shoe Removal

FACULTY ADVISERS

**Howard J. Chizeck
Blake Hannaford**

STUDENTS

**Rahul Ramanarayanan,
Devon Endsley,
Tamara Lin**

Design of semi-autonomous drone system with electro-mechanical actuators and computer vision to remove shoes from transmission lines.

PLACEMENT #21

INDUSTRY MENTORS

**Arty Makagon,
Phil Rutschman**

SPONSOR

Photonic Sentry

PLACEMENT #23

Laser-Based Insect Eradicator

FACULTY ADVISER

Howard J. Chizeck

STUDENTS

**Ahmad Rasyid,
Rogers Xiang,
Xincheng Wang**

Development of a system to detect irregularities in object detection and target tracking of bugs in the Photonic Fence laser-based insect monitoring and eradication system.

INDUSTRY MENTORS

**Tom Wilson,
Michael Berman,
Brian Brooke**

SPONSOR

Sound Transit

PLACEMENT #20

Machine Learning Mobility Data Through Security Camera Feeds

FACULTY ADVISER

Jenq-Neng Hwang

STUDENTS

**Yifan Bai, Zhe Han,
Austin Miller**

Development of a machine learning system which combines image object detection and tracking to produce aggregated mobility data and traffic counts in Link Light Rail stations using station security camera footage.

INDUSTRY MENTOR

Christopher Diaz

SPONSOR

Accolade

PLACEMENT #22

Accolade Integration with Apple HealthKit

FACULTY ADVISER

Tai-Chang Chen

STUDENTS

**Andrew Liu,
I-Miao Chien, Kyuri Kim**

Development of a system to enhance user experience and interaction with physicians by sharing users' health data from Apple Health Kit with the Accolade platform.

INDUSTRY MENTOR

Colin Reinhardt

SPONSOR

**Naval Information
Warfare Center**

PLACEMENT #24

Situational Awareness in Path Finding

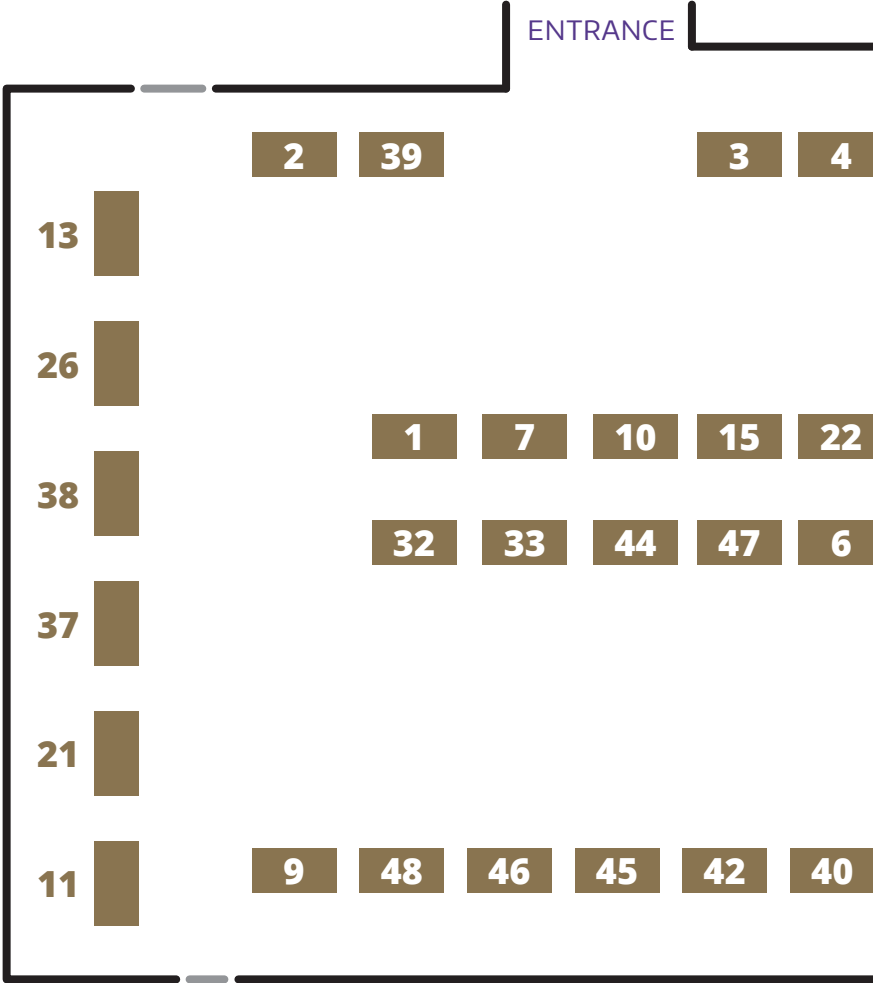
STUDENTS

**Johnson Ly, KuanHsun Lu,
Vikram Sringari**

Development of a machine learning Android application that finds the best driving path between two locations based on optimal weather conditions and other user requirements.

PROJECT LOCATIONS

North Ballroom



ENTRANCE

5

14

16

17

19

20

23

24

29

30

31

41

8

12

18

34

43

36

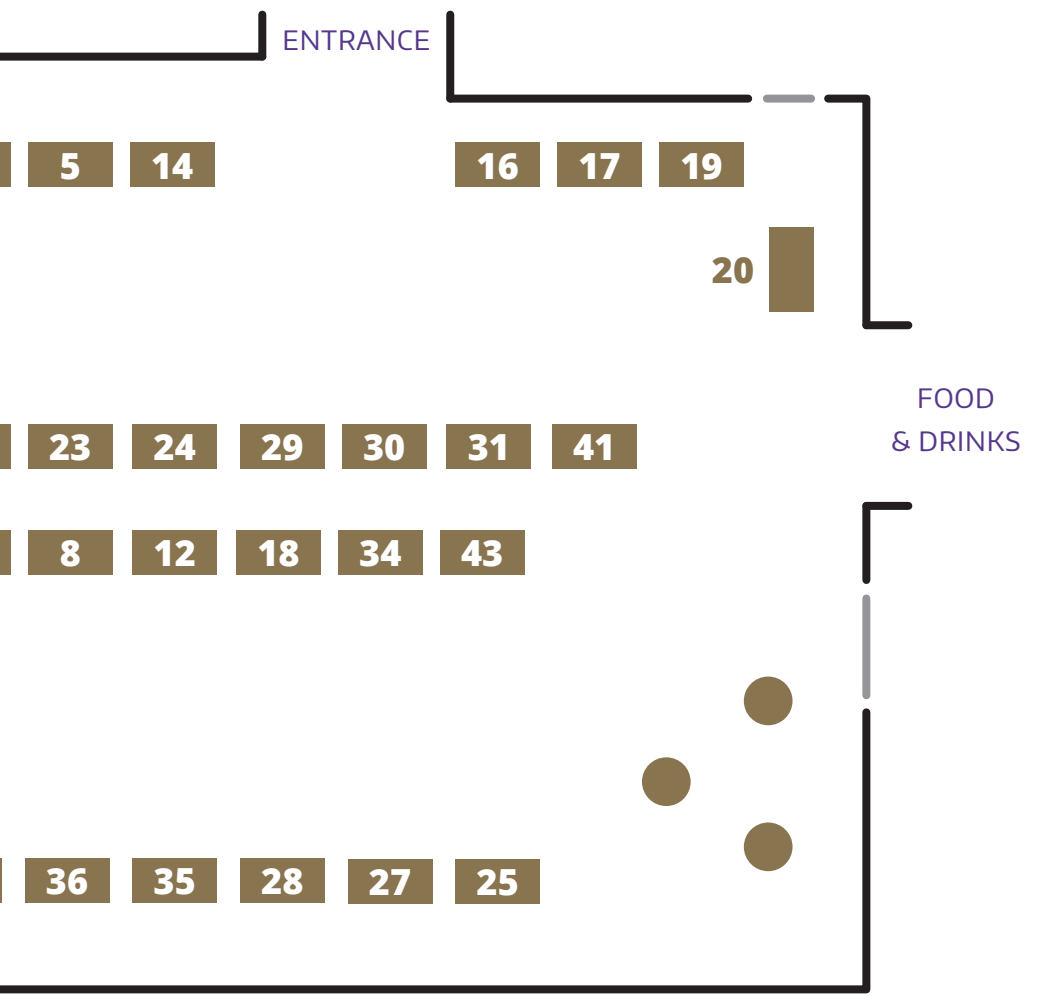
35

28

27

25

FOOD
& DRINKS



INDUSTRY MENTOR

Anat Caspi

SPONSOR

TCAT

Contextually Aware Autonomous Wheelchair

FACULTY ADVISER

Howard J. Chizeck

STUDENTS

**Benton Kwong, Yeyun Lu,
Jesse Lu**

Development of a smart sensor suite to be used in an autonomous wheelchair, enabling context awareness and path reconstruction.

PLACEMENT #25

INDUSTRY MENTORS

**Eric Jones,
David Sanborn**

SPONSOR

Booz Allen Hamilton

Bluetooth Multiplexer

FACULTY ADVISER

James Ritcey

STUDENTS

**Philip White,
Ying Cheng Lin,
Chumei Yang**

Design, build, and test of a system using a single host serving multiple bluetooth audio devices which stream the same audio.

PLACEMENT #27

INDUSTRY MENTOR

Shana Matthews

SPONSOR

Microsoft

K-12 Data Science Curriculum

FACULTY ADVISER

Payman Arabshahi

STUDENTS

**Abhishek
Sangameswaran,
Kailing Shen**

Development of a hands-on data science curriculum which aims to make K-12 learners data literate as well as introduce them to data science topics such as data visualization, statistics, and machine learning.

PLACEMENT #29

INDUSTRY MENTORS

**Sarah Hovsepian,
Eric Junkins,
Richard Otis**

SPONSOR

**NASA Jet Propulsion
Laboratory**

PLACEMENT #26

PUFFER Autonomous Navigation and Coordinated Search

FACULTY ADVISER

Howard J. Chizeck

STUDENTS

**Jace Barayuga,
Alex Hoffman,
Andysheh Mohajeri,
Brandon Yee**

A multi-robot navigation and search for the Pop Up Flat-Folding Explore Rover (PUFFER), including computer vision, LIDAR distance sensing, and SLAM, to cooperatively find a goal object.

INDUSTRY MENTOR

Manish Engineer

SPONSOR

Seattle Art Museum

PLACEMENT #28

Isolator Base: Seismic Damage Mitigation for Museums

FACULTY ADVISER

Howard J. Chizeck

STUDENTS

Will Gear, John McIntyre

Development of a system to actively stabilize a sculpture subject to seismic forces, using sensors and motors.

INDUSTRY MENTOR

Junhua Chang

SPONSOR

Lightning Network LLC

PLACEMENT #30

Real Time Financial Transactions Using Lightning Network Protocol

FACULTY ADVISER

James K. Peckol

STUDENTS

**Brian Yu,
Zheng Hong Tan**

Development of a payment app utilizing the Lightning Network to increase the rate of completion of cryptocurrencies to meet consumer needs.

INDUSTRY MENTORS

**Tatum Fettig,
Ivy Cheung**

SPONSOR

**Sweet Tea Cancer
Connections**

PLACEMENT #31

Community Heals Web App

FACULTY ADVISER

James K. Peckol

STUDENTS

**Ameer Talal Mahmood,
Siyou Li, Manchen Jin**

Design and build of an app to connect parents who have a child with pediatric cancer, with their child's caregivers.

INDUSTRY MENTORS

**Shay Strong,
Lilly Thomas**

SPONSOR

EagleView Technologies

PLACEMENT #33

Sign Reading In Oblique Aerial Imagery

FACULTY ADVISER

Robert Bruce Darling

STUDENTS

**Xinbei Gong,
Truong Nguyen,
Mengqi Chen**

Development of a system that uses deep neural networks and optical character recognition techniques to detect and read oblique signage in aerial imagery.

INDUSTRY MENTOR

Jay Lindenauer

SPONSOR

WatchGuard

PLACEMENT #35

Advanced Security Compute Module

FACULTY ADVISER

Scott Hauck

STUDENTS

Tin Vo, Benjamin Eastin

Design and build of a module for storage and computation of network data to be integrated with existing WatchGuard technology to provide users with more information on network traffic.

INDUSTRY MENTORS
Paul Sturmer,
Jeffrey Chrisope

SPONSOR
Husky Satellite
Laboratory

Implementing Driver Logic for Reaction Wheels using FPGA

FACULTY ADVISER
Robert Winglee

STUDENT
Thu Phan

Development of a reliable FPGA system to drive reaction wheels for UW's first CubeSat satellite.

PLACEMENT #32

INDUSTRY MENTOR
Evan King

SPONSOR
Magic AI

Individual Horse Identification

FACULTY ADVISER
Eli Shlizerman

STUDENTS
Brandon Noyes,
Mingyi Yang,
Hady Ouyang

Development of a data pre-processing pipeline and classification neural net to individually identify horses.

PLACEMENT #34

INDUSTRY MENTORS
Jeff Ahmet,
Ahmad Armand

SPONSOR
T-Mobile

NB-IoT Power Line Obstruction Detection

FACULTY ADVISER
Sumit Roy

STUDENTS
Zidi Wei, Ying Kit Chui,
Bogdan Tudos

Development of an NB-IoT-enabled device to detect obstructions near power lines and report them to a remote web server, assisting in efforts to prevent wildfires and saving lives.

PLACEMENT #36

Helical Structures for Controlling Electromagnetic Waves

FACULTY ADVISER

Yasuo Kuga

STUDENTS

**Kuo Yan, Chenxin Su,
Cerwyn Chiew**

Design of a stacked helical structure to control linearly polarized and circularly polarized electromagnetic waves.

PLACEMENT #37

Intelligent Floor Tile

FACULTY ADVISER

Steve Tanimoto

STUDENTS

**Thao Ngo, Jichun Li,
Shahrzad Feghhi**

Design, build, and test of an intelligent floor tile that permits arbitrary spaces to have interactive floors, using LED lighting and pressure switches.

PLACEMENT #39

INDUSTRY MENTOR

Andrew Lee

SPONSOR

Washington SuperBike

Modular Battery Management System for EV

FACULTY ADVISER

Robert Bruce Darling

STUDENTS

**Cole Ballard, Bryan Ford,
Bernardo Olivas III,
Nathan Williams**

Design and manufacture of a battery management system for an all-electric racing motorcycle. The design features state of charge (SOC) calculation and implements safety measures such as temperature and over/under voltage cutoff.

PLACEMENT #41

INDUSTRY MENTORS

**Ilya Goldberg,
Michael Calhoun**

SPONSOR

Mindshare Medical

PLACEMENT #38

Improved Sensitivity and Specificity with AI on 3D Mammography

FACULTY ADVISER

Ming-Ting Sun

STUDENTS

**Drew Clark, Chen Bai,
Kyle Zhang**

Design and build of a neural network system for localizing and characterizing breast cancer lesions in 3D tomosynthesis scans, with significantly reduced false positives.

INDUSTRY MENTOR

Amit Mital

SPONSOR

Kernel Labs

PLACEMENT #40

Teleoperated Farming Rover

FACULTY ADVISER

Sam Burden

STUDENTS

**Donavan Erickson,
Samson Waddell,
Zhuoming Zhang**

Design, build and test of a cost-efficient general purpose rover for farm use. The rover is remotely operated and built with a machine learning framework for implementing future applications.

INDUSTRY MENTORS

**Shwan Ashrafi,
Ben Robaidek**

SPONSOR

Axon

PLACEMENT #42

Speaker Identification for Voice Command-enabled Body Worn Cameras

FACULTY ADVISER

Mari Ostendorf

STUDENTS

**Ashwin Srinivas
Badrinath, Alex Hu,
Christina Tang**

Development of two neural network systems for text-independent speaker identification of law enforcement officers and other authorized speakers.

27-30 GHz All Digital PLL Frequency Synthesizer

FACULTY ADVISERS

Jacques C. Rudell

STUDENTS

**Andrea Jin,
Mohamed Gnedi,
Brandon Tjio**

PLACEMENT #43

Design of a fully digital PLL synthesizer to operate in the Kurz band. It uses a 100MHz reference crystal oscillator for a 27-30 GHz output with 1 MHz steps.

Ultra Thin Camera with Metasurface Lens

FACULTY ADVISER

Arka Majumdar

STUDENTS

**Mark Odendahl,
Yuxuan Chen, Geyu Yan**

PLACEMENT #45

Development of an extremely compact camera using a metasurface lens in conjunction with a convex lens, along with a camera sensor connected with a microcontroller.

A Wearable Sleep Monitor

FACULTY ADVISER

Robert Bruce Darling

STUDENTS

**Alvin Cao, Evan Gordon,
Andrea Jin**

PLACEMENT #47

Development of a wearable sleep monitor for pre-screening sleep testing for disorders such as sleep apnea. The system is comprised of motion and respiration rate sensors, and transmits captured biometrics via Bluetooth to a remote device.

INDUSTRY MENTOR

**Matthew Orr,
Jeffrey Hogan**

SPONSOR

Boeing

PLACEMENT #44

Boeing Dedicated Air Freighter

FACULTY ADVISER

Susan Murphy

STUDENTS

**Cameron Joy, Julian Woo,
Keenan Boudan,
Ramon Laya, Sean Lam,
Matthew Edwards,
Dickson Cheung**

Design of a medium size turboprop freighter for entry into service by 2029.

INDUSTRY MENTORS

Aaron Cheng

PLACEMENT #46

DopCuff: A Blood Pressure Monitor for LVAD Patients

FACULTY ADVISER

Eric Seibel

STUDENTS

Alex Auld, Katie Maskal

DopCuff will integrate doppler ultrasound and automatic cuff technology into a single device that can detect the initiation of blood flow and associate it with a blood pressure reading for LVAD patients.

INDUSTRY MENTORS

**Gaia Borgias, Travis
Phelps, Matt Hansen,
Michael Berman,
Kiley Winsnes**

SPONSOR

**UW Mobility Innovation
Center, WSDOT,
Challenge Seattle,
Sound Transit,
King County Metro**

PLACEMENT #48

Mobile Ticketing Enhancements for General Population Incident Avoidance

FACULTY ADVISERS

**Don Mackenzie,
Mark Zachry,
Richard Kielbowicz,
Andisheh Ranjbari**

STUDENTS

**Anny Kong, Catherine
Wang, Chris Angkico,
Pari Gabriel, Steven
Tuttle, Yuki Asakura**

Development of a mobile ticketing prototype that can help the general public navigate or avoid major incidents and related congestion.



THANK YOU

Milt and Delia Zeuschel

UW alums Milton “Milt” and Delia Zeuschel are fervent supporters of education and entrepreneurship. Their own successes come from a strong combination of excellent education at UW—Milt, a BSEE ‘60 and Delia a B.S. in education, 1958—and unwavering determination and grit, starting and growing three businesses: Zetec, Data I/O Corp., and Zetron, Inc.

In 2017, they cemented their support for education and entrepreneurship with a transformational endowment to establish the ENGINE program at UW ECE. The investment enables our students to engage in real-world industry partnerships and gives local companies an opportunity to benefit from the vibrant innovative culture in UW ECE.

Another component of the endowment is the Milton and Delia Zeuschel Professorship in Entrepreneurial Excellence which was awarded to

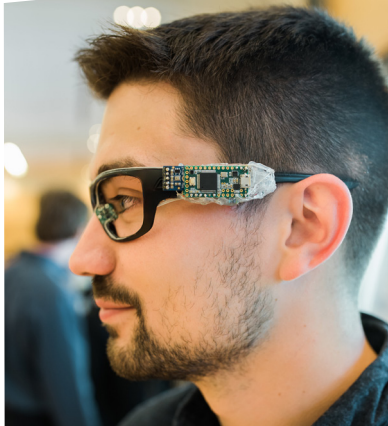
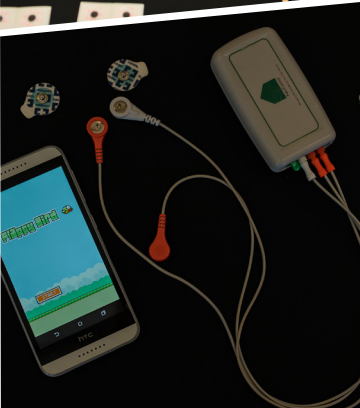
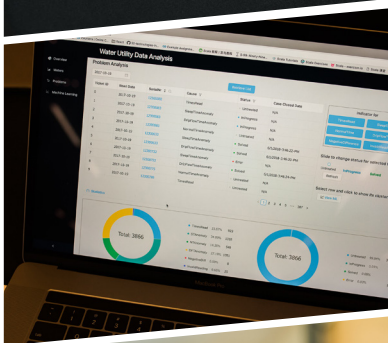
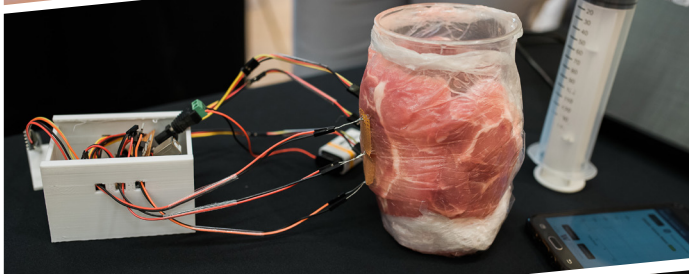
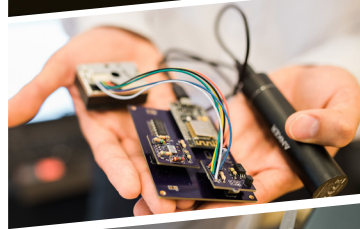
Professor Joshua Smith. The professorship allows the department to recruit, retain and reward entrepreneurially-driven faculty who will help build and sustain an engineering entrepreneurial ecosystem at the UW.

UW ECE is very grateful to Milt and Delia for their generous contributions to the department. Not only is their gift a significant resource for ECE students, it also gives back to the university as a whole and the state of Washington. ENGINE is now scaled at the UW College of Engineering and continues to grow.



From left to right: College of Engineering Dean, Micheal Bragg, Milt Zeuschel, John Reece, and ECE Chair, Radha Poovendran

Past Projects



43

Partnerships

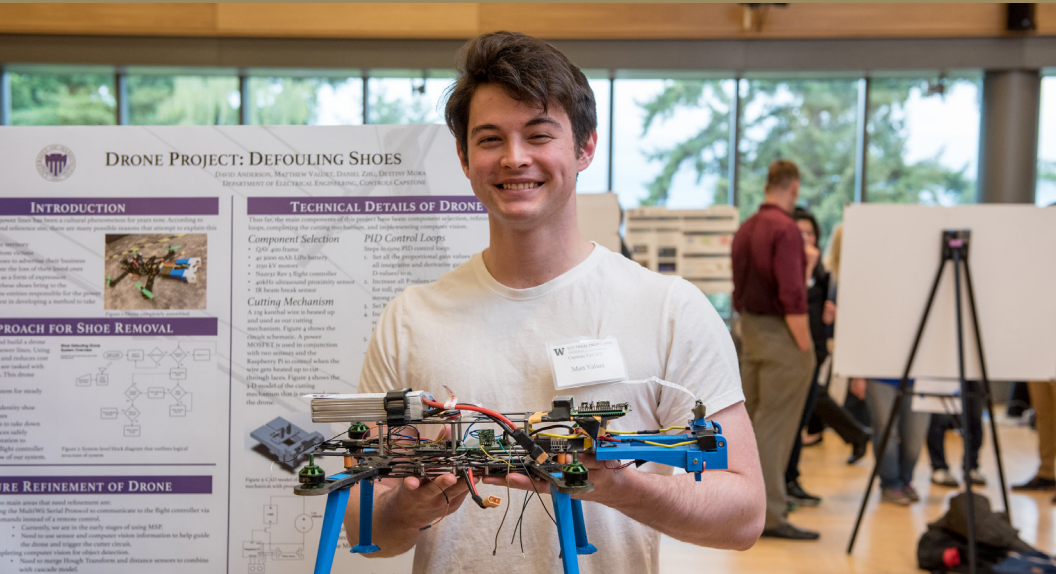
40

Sponsors




120

Students

Innovation starts here.



CONNECT WITH UW ECE

 ece.washington
 UWECENews
 uwecenews