

# EDWARD JAY WANG

My research focuses on developing novel sensing solutions that enhance existing sensors in the environment and uncover new opportunities for dedicated sensing solutions to fill the gaps in current sensing systems. I mainly target grand challenges in health sensing and technologies for developing world, while exploring novel interactions to expand my knowledge and ideas in the newest in sensor technologies. Although I am able to draw from my diverse skillset in signal processing, embedded system design, physical prototyping, and mobile application development, much of my work is interdisciplinary in nature and would not be possible without the numerous collaborators across medicine, computer science, and global health workers. Through my research and outreach efforts, I want to create a bridge between real users, medical providers, and technology developers to identify the most pressing issues in medical care and find solutions for them.

## PhD Candidate

Department of Electrical Engineering  
University of Washington  
Seattle, WA

## WEBSITE

[www.ejaywang.com](http://www.ejaywang.com)

## EMAIL

[ejaywang@uw.edu](mailto:ejaywang@uw.edu)

## EDUCATION

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- PhD** Electrical Engineering, University of Washington  
2013 - Current Advisor: Shwetak Patel  
Thesis Topic: Tracking Our Health like Tracking the Weather: Ubiquitously, Frequently, and Predictively
- Bachelor of Science** Engineering, Harvey Mudd College  
2008 - 2012 Advisor: Elizabeth Orwin

## HONORS & AWARDS

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- 2016 Best Paper Award at Ubicomp 2016 for HemaApp  
2014 NSF Graduate Research Fellowship  
2013 ARCS (Achievement Rewards for College Scientists) Fellowship  
2011-2012 President of Tau Beta Pi CA-W Chapter  
2010 J.R Phillips Award for demonstrating excellence in exercising engineering judgement

## PROFESSIONAL EXPERIENCE

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- Summer 2015 Microsoft Research Medical Devices Group, Redmond, WA  
Research Intern. Advisor: Gabe Cohn, Desney Tan  
Exploratory research into using bio-impedance to monitor cardiovascular symptoms
- Summer 2014 Intel Corporation, Santa Clara, CA  
Research Intern. Advisor: Richard Chow  
Develop a proof-of-concept privacy aware IoT framework that revolves around service declaration.
- Summer 2013 Hasso Plattner Institute, Potsdam, Germany  
Research Intern. Advisor: Patrick Baudisch  
Built various wearable haptic devices with an aim to create a notification system on the skin.

## PEER-REVIEWED PUBLICATIONS

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- P9 *Carpacio: Repurposing Capacitive Sensors to Distinguish Driver and Passenger Touches on In-Vehicle Screens*  
**Edward Jay Wang**, Jake Garrison, Eric Whitmire, Mayank Goel, Shwetak Patel  
UIST 2017
- P8 *Glabella: Continuously Sensing Blood Pressure Behavior using an Unobtrusive Wearable Device*  
Christian Holz and **Edward Jay Wang**  
UBICOMP (IMWUT Volume 1 Issue 3 Article 58) 2017
- P7 *Noninvasive Hemoglobin Measurement using Unmodified Smartphone Camera and White Flash*  
**Edward Jay Wang**, Junyi Zhu, William Li, Rajneil Rana, Shwetak Patel  
EMBC 2017
- P6 *HemaApp: Noninvasive Blood Screening of Hemoglobin using Unmodified Smartphones*  
**Edward Jay Wang**, William Li, Doug Hawkins, Terry Gernsheimer, Colette Norby-Slycord, Shwetak Patel  
UBICOMP 2016 **Best Paper Award (Top 1%)**
- P5 *A Smartphone-Based System for Assessing Intraocular Pressure*  
Alex Mariakakis, **Edward Jay Wang**, Shwetak Patel, Joanne Wen  
EMBC 2016
- P4 *What Can I Do Here? A Framework for IoT Service Discovery*  
**Edward Jay Wang** and Richard Chow  
PERCOM IOT WORKSHOP 2016
- P3 *MagnifiSense: Inferring Device Interaction using Wrist-worn Passive Magneto-Inductive Sensors*  
**Edward Jay Wang**, Tien-Jui Lee, Alex Mariakakis, Mayank Goel, Sidhant Gupta, Shwetak Patel  
UBICOMP 2015
- P2 *Skin Drag Displays: Dragging a Physical Tactor across the User's Skin Produces a Stronger Tactile Stimulus than Vibrotactile*  
Alexandra Ion, **Edward Jay Wang**, Patrick Baudisch  
CHI 2015
- P1 *Design Considerations for Leveraging Over-familiar Items for Elderly Health Monitors*  
**Edward Jay Wang**, Samantha Ipser, Patrick Little, Benjamin Liu, Noah Duncan, Shinsaku Nakamura  
HCI 2013

## ADVISING AND MENTORING

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Masters Students	Yiran Zhao (Fall 2017 – Present) – Independent research on passive early detection and prevention of migraine onset
Undergraduate Students	William Li (Fall 2015 – Present ) Rajneil Rana (Winter 2017 – Present) – Accepted to UW CSE 5 <sup>th</sup> Year Master's Program Parker Ruth (Fall 2017 – Present )
High School Students	Eshika Saxena (Spring 2015 – Present) – 2017 3 <sup>rd</sup> place Grand Award in Systems Software category Ethan Seubert (Fall 2017 – Present) Veena Kollipara (Summer 2016)

Milicent Li (Summer 2016)  
Angela Lee (Summer 2016)

Past Students Junyi Zhu (Spring 2016 – Summer 2017) – PhD student at MIT CSAIL under Stefanie Mueller

## TEACHING EXPERIENCE

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University of Washington EE-PMP Ubiquitous Computing (Co-Instructor with Alex Mariakakis)  
Designing and co-instructing an upcoming course for the Electrical Engineering department's Professional Master's Program course on ubiquitous computing.

CSE 467 Advanced Digital Logic (Lead Teaching Assistant for Gabe Cohn)

Harvey Mudd College Bio-signal Processing (Co-Instructor with Elizabeth Orwin, Course developer)  
I designed the first bio-signal processing course at Harvey Mudd College over the summer of 2011 and co-instructed the class in Fall 2011 and Fall 2012.

## SELECTED INVITED TALKS

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T4 Measuring Our Health like We Measure the Weather  
TEDxSJI San Juan Islands, September 2017

T3 Filling the Blind Spots of Modern Health Diagnostics using Mobile and IoT Technologies  
UW Allen School MSR Summer Institute, Seattle, August 2017

T2 Ubiquitous, Continuous, and Predictive Health Monitoring  
Art Institute of Seattle Lecture Series, Seattle, November 2016

T1 MagnifiSense: Personalized Energy Disaggregation to Improve Sustainable Behaviors  
UW Environmental Stewardship Committee Guest Speaker, Seattle, December 2015

## SERVICE

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Reviewer CHI 2016, 2018  
IEEE Pervasive Computing Journal 2017  
IMWUT 2017  
UbiComp 2016  
ISWC 2016  
IEEE Journal of Biomedical and Health Informatics 2014

Outreach UW UbiComp Lab Industry Affiliation Demo Lead: 2013 - Present  
UW UbiComp Lab High School Mentorship Program: 2015 – Present  
Presentation to Washington state legislators about research in computer science and electrical engineering: 2015, 2017  
UW College of Engineering Discovery Days 2013 - 2015

## SELECTED PRESS

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HemaApp **GetMobile June 2017 Volume 21 Issue 2.** HemaApp: noninvasive blood screening of hemoglobin using smartphone cameras  
**MIT Technology Review.** How to make a smartphone detect anemia  
**Engadget.** HemaApp gives smartphones the power to detect anemia  
**medGadget.** HemaApp accurately estimates hemoglobin in blood using standard smartphone  
**BeBright.** Health Enablers 2017: Technological developments in Western healthcare

MagnifiSense **GeekWire.** UW researchers build wearable sensor that could help people shrink their carbon footprint  
**Engadget.** Wrist sensor logs the devices you use and your power consumption  
**BYU Radio.** School Shootings, Carbon Footprint, Parent Previews  
**IEEE Spectrum.** Wearables uses your local EM field to track your electronics use  
**King 5.** New UW wearable helps track carbon footprint