

Josh Fromm

CONTACT INFORMATION

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EDUCATION

University of Washington, Seattle, WA

Pursuing a Ph.D in Electrical Engineering as part of the UbiComp Lab.
Focusing on developing novel hardware solutions to problems ranging
from interaction to implanted health sensing.

2014 - 2019

California Institute of Technology, Pasadena, CA

Bachelor of Science with Honors in Electrical Engineering
with a Minor in Computer Science.
Emphasis on embedded system and low level software development
along with VLSI and FPGA systems.

June 2014

EXPERIENCE

Graduate Student

UbiComp Lab

Researching novel ways to use sensing and embedded systems for medical purposes and human machine interaction. Specific current projects involve through body power transfer for battery-free onbody health sensors, enabling passive 3d interaction around smartphones through capacitive sensing driven by NFC, and screening for osteoporosis on a smartphone.

2014 to present

Research Assistant

Microsoft Research

Sensors and Devices Team

Worked as a member of the NEXT initiative developing novel interaction technology with a focus on producing high impact results in a real product. My contribution involved low level system development along with exploratory power harvesting research and design.

2013 and 2014

Research Intern

Nvidia Corporation

GPU Verification Division

Verified that streaming multiprocessor operation in RTL matched simulated outputs using a C++ model. Also developed a software framework that allows increased automation in bug detection and filing.

2013 and 2014

ASIC Engineer

NASA Jet Propulsion Laboratory

Chris Assad Lab, Robotics Division

Designed and developed the hardware and software of a system that uses an array of EMG electrodes to monitor muscle activity in a user's arm, classify the raw data using support vector algorithms, and control any of several robotic interfaces using simple trained gestures.

SURF Fellow 2012

Continued Work in Robotics Division

Developed an embedded system device capable of mimicking the functionality of the original, much more cumbersome and power inefficient, BioSleeve.

Independent Researcher 2013

California Institute of Technology

Guillaume Blanquart Lab, Department of Mechanical Engineering

Studied the simulation of multiphase flow using distinct materials. Developed novel simulation methods and algorithms to obtain results that better agree with physical observations.

Richter Scholar 2011

CONFERENCE PUBLICATIONS

Fromm J, Patel S, Phillipose M. Heterogeneous Bitwidth Binarization in Convolutional Neural Networks. In: NIPS, 2018.

Saba E, Fromm J, Jiayao C, Patel S. TB or not TB: Cough Detection and Tuberculosis Classification for Pulmonary Health Estimation. In: IMWUT 2018.

Hwan Ko J, Fromm J, Phillipose M, Tashev I, Zarar S. Liming Numerical Precision of Neural Networks to Achieve Real-Time Voice Activity Detection. In: ICASSP 2018.

Li H, Brockmeyer E, Carter E, Fromm J, Hudson S, Patel S, Sample A. PaperID: A Technique for Drawing Functional Battery-Free Wireless Interfaces on Paper. In: CHI, 2016.

- Goel M, Saba E, Stiber M, Whitmire E, Fromm J, Larson E, Borriello G, Patel S. SpiroCall: Measuring Lung Function over a Phone Call. In: CHI, 2016.
- Wolf M, Assad C, Vernacchia M, Fromm J, Jethani H. Gesture-Based Robot Control with Variable Autonomy from the JPL BioSleeve. In: IEEE Conference on Robotics and Automation (ICRA), 2013. Oral.