

RACHEL ZOLL

Berkeley, California, USA

rachelzoll@berkeley.edu \diamond (510)542-1545 \diamond <https://people.eecs.berkeley.edu/~rachelzoll>

EDUCATION

University of California, Berkeley	Aug '14 - May '18
Bachelor of Science in Electrical Engineering and Computer Science	3.56/4.00
Thomas Jefferson High School for Science and Technology	Sep '10 - Jun '14
Alexandria, Virginia	4.44/4.00

RESEARCH INTERESTS

Biomedical devices, BioMEMS, neurorecording, low-energy wireless ASICs, implantable medical electronics

RESEARCH EXPERIENCE

Graduate Student Researcher - UC Berkeley May '18 - Present
Guides: Kristofer Pister, Rikky Muller, Michel Maharbiz

- Simulated and tested MEMS actuators for insertion of carbon fiber neural recording microelectrodes
- Currently redesigning for parallel insertion of electrodes and improved packaging
- Plan to fabricate new devices in Marvell Nanofabrication facility

Undergraduate Student Researcher - UC Berkeley Aug '17 - May '18
Guide: Kristofer Pister

- Integrated and tested BLE packet (dis)assembler with existing Cortex-M0, clock, and radios
- Designed, simulated, and verified (FPGA & ASIC) GFSK modulator for 2.4GHz crystal-free radio
- Optimized ARM Thumb assembly for cycle-efficient memory read/write
- Modelled MEMS asynchronous finite state machine for operation of robotic “inchworm” motors

Undergraduate Student Researcher - UC Berkeley Jan '16 - Aug '17
Guide: Vladimir Stojanović

- Designed test PCB to interface optical ring resonator chip with FPGA
- Simulated optical link performance for CMOS-photonic co-design

High School Research Intern - U.S. Naval Research Laboratory Jun '12 - Aug '13
Guides: Jennifer Hite, Michael Mastro

- Investigated thin-film gallium nitride growth parameters for optimization of non-linear optics
- Fabricated experimental materials and spent 150+ hours in a class 100 cleanroom

PUBLICATIONS

1. F. Maksimovic, B. Wheeler, D. Burnett, O. Khan, S. Mesri, I. Suci, L. Lee, A. Moreno, **R. Zoll**, B. Zhou, A. Sundararajan, A. Ng, T. Chang, X. Vilajosana, T. Watteyne, A. Niknejad, and K. Pister, “A Crystal-Free Single-Chip Micro Mote with Integrated sub-mW 802.15.4 Compatible Transceiver, BLE Compatible Beacon Transmitter, and Cortex-M0,” 2019 IEEE International Solid-State Circuits Conference (ISSCC) (In submission).

2. **R. Zoll**, CB Schindler, TL Massey, DS Drew, MM Maharbiz, KSJ Pister, “MEMS-Actuated Carbon Fiber Microelectrode for Neural Recording,” EMBS Micro and Nanotechnology in Medicine Conference (MNM), December 2018 (Accepted).
3. D. Burnett, B. Kilberg, **R. Zoll**, O. Khan, and K.S.J. Pister, “Tapeout Class: Taking Students from Schematic to Silicon in One Semester,” IEEE International Symposium on Circuits and Systems (ISCAS), May 2018.
4. J.K. Hite, **R. Zoll**, M. Mastro, and C.R. Eddy, “Role of Growth Parameters in Equalizing Simultaneous Growth of N- and Ga-polar GaN,” Physica Status Solidi C, pp. 458461 (2014).

WORK EXPERIENCE

Operations and Manufacturing Intern, Facebook - Menlo Park, CA May ‘17 - Aug ‘17

SSD Failure Analysis Intern, Intel Corporation - Folsom, CA May ‘16 - Aug ‘16

- Automated SSD electrical failure analysis processes and improved debug workflow for PCIe products
- Learned about CPU design and verification, chip manufacturing, and reliability testing
- Trained colleagues in semiconductor wafer processing and MOSFET functionality

Electrical Engineering Intern, Shilling Robotics - Davis, CA May ‘15 - Aug ‘15

- Implemented feedback control system for cutting-edge Ultra-Heavy Duty ROV valve pack
- Drafted H-bridge microprocessor architecture for wireless power applications on hydraulic manipulators
- Experience with Kaizen-style manufacturing and rapid prototyping equipment

Computer Networking Intern, Zeta Associates - Fairfax, VA Jun ‘14 - Aug ‘14

- Performed data visualization from VantagePro2 weather stations using weewx open source weather SW
- Implemented network and server analysis using Xymon monitoring framework

TEACHING EXPERIENCE

Discussion TA, EE 16A: Designing Information Devices and Systems I (Spring ‘17, Fall ‘17)

Lab Assistant, EE 16A: Designing Information Devices and Systems I (Fall ‘15)

AWARDS AND FELLOWSHIPS

UC Berkeley EECS Departmental Fellowship (Aug ‘18 - May ‘19)

UC Berkeley EECS Excellence Award (Aug ‘18)

Undergraduate Finalist, UC Berkeley Analog Integrated Circuits Design Competition (Dec ‘17)

2nd Place at CLTAC Mandarin Speech Contest (Apr ‘17)

Ford Motor Blue Oval Vehicle Team Scholarship (Jul ‘15)

\$25,000/yr UC Berkeley Regent’s and Chancellor’s Scholarship (Aug ‘14 - May ‘18)

UC Berkeley Alumni Association Leadership Award (Jun ‘14)

LEADERSHIP AND VOLUNTEER EXPERIENCE

UC Berkeley EE Undergraduate Study Committee, Student representative (Fall ‘18)

UC Berkeley EEGSA Faculty Interview Committee (Fall ‘18)

UC Berkeley Solar Vehicle Team, Electrical Team Co-Lead (Jun ‘15 - Aug ‘16)

UC Berkeley Solar Vehicle Team, Electrical Team Secretary (Jan ‘15 - Aug ‘16)