

ERIK JUNG

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PROFESSIONAL SUMMARY

An adept engineer, and learner with a relentless work ethic, generalist variety of skills, and an enthusiastic perspective to tackle any project. Thriving to maintain and grow both personal and professional relationships to elevate cross-functional communication among teams. Self-motivated to consistently challenge myself to maintain a desire to learn and further my career in engineering.

EDUCATION

University of California, Santa Cruz	Santa Cruz, CA
PhD Candidate in Computer Science and Engineer, GPA 3.8	Anticipated Graduation Date: Fall 2020
B.S. in Computer Engineering, GPA 3.7	2017

TECHNICAL SKILLS

Software and Programming Skills:

MATLAB (5+ years)	C, C++ (5+ years)	Python (3+ years)	Git, Bash & Linux (5+ years)
AWS CLI (3+ years)	CORS	HTML, JavaScript	Node
BLE, UDP, TCP	JSON	Scikit-learn	Objective-C
Agile & Scrum	CAD	PCB	Verilog
Microsoft Suite	Google Suite	LaTeX	Adobe Photoshop/Illustrator

Laboratory and Hardware Skills: Mechatronics, LabJack T7, Arduino, 3D printing & slicing, PCB design and layouts, Voltera PCB printing, CNC 3-axis milling, operation of standard electronics equipment including oscilloscopes, waveform generators, soldering

EXPERIENCE

Genomics Institute Santa Cruz, CA

Systems Integration Graduate Student Lead – [Braingeneers](#) June 2018 – Present

- Collaborating with cross-functional teams (30+ people) to design web-based applications (React/Node) to control, monitor and mitigate potential failures of cell life.
- Recruited as an embedded firmware/software (C++/Bash/Python) and hardware PCB design and manufacturing for a multi-well imaging system (Linux) from proof-of-concept to practical in-lab use.
- Designed and deployed a distributed IoT MQTT broker with AWS CLI to control multiple devices simultaneously (Bash/C++/Node), store data into S3 (Node/PHP).
- Promoted to manage, design, prototype and implement a cloud-based infrastructure (AWS CLI/IAM/CORS) by employing complex concepts & technologies including Git, Docker, Kubernetes, networking, etc.

University of California, Santa Cruz Santa Cruz, CA

Graduate Student Researcher – [DANSER](#) June 2017 – Present

- Designed, prototyped and developed biometric pipeline with custom wearable hardware (PCB/CAD) and firmware (C++) interfacing with wireless protocols (BLE/TCP/Bash) for complex biomechanical analysis (Python/MATLAB) with an avg. RSME of 5% against commercial motion capture systems.
- Researched, trained and validated a gait phase ML prediction algorithm (Python/Scikit-learn) to reduce the number of sensors/features (24 → 4) required for kinematic data acquisition (93% accuracy).
- Designed, developed, tested, and debugged bio-inspired robotic manipulator (UDP) interfacing with an iOS app (Objective-C).
- Led 10 members on design reviews, papers, data analysis (MATLAB/Python) by collecting inputs and proposed solutions to overcome system challenges or weekly time constraints.
- Interviewed incoming faculty and researchers to construct a collaborative culture yet willing to challenging environment.
- Experience writing and applying for grants for projects with budget and cost reduction, project management.

Associate-In (Graduate Student Instructor) Sept – Dec 2019

- Department nominated position, instructed a Logic Design course (90 undergraduates) on finite-state machine design, FPGA programming with Verilog, system level design, logic minimization, sequential circuits, boolean algebra, the electrical behavior of circuits including three state outputs, propagation delay, logic levels, and fanout.

- Responsibilities included holding lectures, office hours, advising students, attending faculty meetings or orientations, designing midterms, finals, laboratory work.

Teacher's Assistant 2018

- Instructed and debugged Logic Design lab sections (20 students) for programming FPGA hardware in Verilog, held office hours and furthered their understanding and development of system level design.

Science Internship Program (SIP) Mentor 2018 – 2019

- Mentored 4-6 high-school students throughout the summer into university quality researchers for CAD, hardware and firmware contributions to on-going projects.

Undergraduate Student Researcher – [DANSER](#) 2014 – 2017

- Simulation and modeling (C++), hardware & firmware development (C++/C) for event-driven robotics.

Senior Design Project Lead, "Smart Parking Over There" (SPOT) 2016 – 2017

- Designed a scalable infrastructure to monitor and report live updates from IoT devices using Python/Bash.
- Created, tested, debugged and deployed hardware and firmware for proximity detection and BLE beacon, and iOS app (Objective-C) Bluetooth and Google Cloud.

Laboratory Tutor 2014 – 2016

- Help students further their understanding and development of laboratory experiments in Computer Systems and Assembly Language with LC-3, MIPS, and Multimedia Logic.

SURF-IT Undergraduate Researcher – Partnered with Ontera (was TwoPoreGuys) 2014

- Conducted experiments (LabView/MATLAB) on solid-state nanopore technology for single molecule detection.

Otto (acquired by Uber) San Francisco, CA

Software/Hardware Engineering Intern June 2016 – Sept 2016

- Developed a GeoJSON/JSON parser (Python/C++) for online web-based applications for logging prior self-driving courses.
- Implemented a local server that live tracks vehicles using their cellular signals from the modems using UDP.
- Created, designed, test, debugged a hardware rig using continuous integration (Git/Jenkins) for steering, braking, and throttle control before deployment on autonomous trucks (Python/C++).

BEST: Berkeley Emergent Space Tensegrities Lab Researcher Berkeley, CA

Undergraduate Researcher – University of California, Berkeley [BEST](#). 2015 – Aug 2016

NASA Ames Research Center Moffett, CA

Dynamic Tensegrity Robotics Intern. June – Aug 2015

PUBLICATIONS

- Jung, Erik, et al. (2020). "Low-cost Motion Tracking System Using OpenSim for Kinematic and Dynamic Analysis". In: *Under-review*.
- Jung, Erik, et al. (2020). "Suspended Gait-inspired Tensegrity Flexural Joints". *Under-review*.
- Jung, Erik, et al. (2019). "Design and Selection of Muscle Excitation Patterns for Modeling a Lower Extremity Joint Inspired Tensegrity". In: [IRC 2019 IEEE International Conference on Robotic Computing](#).
- Jung, Erik, et al. (2018). "Knee-inspired Tensegrity Flexural Joint". In: [International Ubiquitous Robotics \(UR\), IEEE International Conference](#)
- Jung, Erik, et al. (2018). "Bio-inspired Tensegrity Flexural Joints". In: [Robotics and Automation \(ICRA\), IEEE International Conference](#).
- Chen, Lee-Huang, et al. (2017). "Soft spherical tensegrity robot design using rod-centered actuation and control". In: [vol. 9. 2. American Society of Mechanical Engineers, p. 025001](#).
- Baltaxe-Admony, Leya, et al. (2016). "Simulating the human shoulder through active tensegrity structures". In: [V006T09A027-V006T09A027](#).
- Lessard, Steven, et al. (2015). "A lightweight, multi-axis compliant tensegrity joint". In: [Robotics and Automation \(ICRA\), IEEE International Conference](#).

COMMUNITY INVOLVEMENT

Lighthouse for the Blind San Francisco, CA

Volunteer 2011 – Present

- Teach blind and visually impaired children and adults how to play ukulele.
- Assisted with a variety of organization events and services; Braille Challenge, Blind Marathon, Family Camp.