Douglas Hutchings

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EDUCATION

University of California, Berkeley *M.Eng. in Mechanical Engineering* *Aug 2024 – May 2025*
Concentration: Control of Robotic and Autonomous Systems *Capstone Advisor: Blue Goji LLC*
University of California, Berkeley *B.S. in Mechanical Engineering* *Aug 2011 – Dec 2015*

COURSEWORK

Experiential Advanced Control Design	Machine Learning Tools	National Security & Intelligence Seminar
Control of Multi-Agent Systems	Digital Signal Processing	R&D Technology Management & Ethics
Feedback and Control Systems	Deep Learning for Visual Data	Introduction to Product Development
Introduction to Robotics	Mechatronic Design Laboratory	Technology Strategy

SKILLS

Computer Tools: Solidworks, Windchill, Matlab, Git, Eagle, ROS, Open CV, Keras, FEMM Magnetics
(Programming) Languages: C, Java, C++, C#, Python, Mathematica, JavaScript (Basic), Japanese (Basic)
Qualifications: Part 107 Commercial Drone License, Private Pilot License

PROFESSIONAL EXPERIENCE

Lead Mechatronics Engineer, Squishy Robotics *May 2018 – Jun 2024*
- Coordinated technical efforts towards drone-deployable HazMat (Chemical Spill) Robots for First Responders.
- Engineered battery-powered Embedded Systems in impact-resilient, temperature-controlled, waterproof enclosures for remote sensing, motor control, cameras, and gas sensors, using SPI, I2C, and analog design.
- Improved robots' mesh network range & speed with an ISM-band RF module in NIST field testing.
- Conducted customer discovery, end-user interviews, and Regional I-Corps Program.
- Organized 50 customer-facing field events in 12 U.S. states & DC, often including drone flights.
- Led competitively selected R&D efforts for the U.S. Army, Office of Naval Research & NSF totaling $1,786,000.

Production Engineer, Anthropocene Institute – Sapphire Motors *Aug 2017 – May 2018*
- Prototyped 10kW-100kW DC Brushless electric motors via novel mechanical design and magnetic modeling.
- Applied manufacturing techniques developed on miniature prototypes to motor production process.
- Built test setups to collect Back EMF, Eddy Current & Windage data; developed empirical models.

R&D Engineer 1, BEST Lab, M.E. Dept, UC Berkeley *Apr 2017 – Aug 2017 (Full Time) – May 2018 (Part time)*
- Deployed robust PCBs and Control Software for use in Tensegrity Robots 3x faster than previous version.
- Robot is used as a shared lab-wide platform and served as infrastructure basis for Squishy Robotics' systems.

Electronic Technician, E.E.C.S. Dept, UC Berkeley *Jan 2016 – Aug 2016*
- Delivered logistical and technical support for two upper division robotics courses of thirty students each.
- Developed & Deployed telemetry, control, and electrical systems to improve student learning in the classes.

Hardware Engineering Intern, Google Inc *Summer 2013*
- Developed a robotic device to route network cabling bundles between devices in Data Centers (DCs).
- Designed user-friendly sheet metal packaging for electronics to increase hard drive erasure throughput.

RESEARCH

Research Assistant, Biomimetic Millisystems Laboratory, UC Berkeley *Summer 2012, Fall 2014 – 2015*
- Developed a miniaturized robotic control system and production method for ~30-gram crawler robots.
- Characterized vertical wall climbing capabilities of crawler robots.

Intern, Carnegie Mellon University – Silicon Valley *Summer 2011*
- Researched consumable free, maintenance free robotic method of cleaning Photovoltaic Solar Cells.

Papers:
- Zhang, A, Hutchings, D, Gupta, M, & Agogino, A. "Orientation Control of Self-Righting Tensegrity Landers."
- Agogino, A et. al. "Methane Detection and Characterization with AI Sensor Fusion … of Rapidly Deployable Sensors"

ACTIVITIES

Fung Institute, UC Berkeley, Capstone Industry Advisor *Sept 2018–May 2024*
- Hosted 8 master's students yearly at Squishy Robotics to simultaneously advance company and student goals.

Pioneers in Engineering, Staff & Foundation Treasurer *Sept 2011–Sept 2019*
- Ran STEM Outreach for East Bay schools with a UC Berkeley student group.
- Led Finances of the Foundation Project, a successful effort to establish a 501(c)(3) non-profit.