Cody C. Badger

(415) 409 - 9362 • 48 Cumberland St. San Francisco, CA 94110
c@codycardbadger.com • codycardbadger.com

Team focused Mechanical Engineer with a passion for innovation, design and product development. Experience in founding and expanding hardware and firmware teams from conceptual design to prototype. Curious and inquisitive in robotics, fluid dynamics, hardware control and product design. Fortune 500 experience in product reliability & validation.

Technical and Applied Skills

- **CAD**: SolidWorks 2004-2018, AutoCAD, Rhino, SketchUp, Adobe Illustrator, CorelDraw, & fab machine specific programs.
- **Languages**: Python, C/C++, G-Code, MATLAB, Fortran 90, Ruby, HTML, Markdown.
- **Data Acquisition**: Somat eDAQ, Head Acoustics Squadriga & DataRec4, VBOX, Memorator, LabJack, RasPi hacky loggers.
- **Test Equipment**: Environmental (temperature, humidity, altitude, UV, rain, vacuum) chambers, load frame (instron), torsion frame (instron), thermostream, Dynamometer, VNA, DMM, oscilloscope.
- **Test Sensors**: Strain gauge, accelerometer, thermocouple, thermistor, GPS, photo sensor, pressure transducer, load cell, motor encoders.
- **Fabricating**: Extensive skills in wood, metal, and automotive shops. Experience with CNC cutters and mills, hand mills, welding, lathe, vacuum forming, injection molding, 3D printing, laser cutting, water jet.
- **Heavy machinery experience**: Loader-backhoe, skid steer, bulldozer, wheel loader, excavator, Previously held CDL Class B -P for driving a passenger bus.
- **Project Management**: Trello, Github, Buganizer, G-suite, Microsoft suite.

Development

Lead Reliability Test Engineer Loon & PFS

Mountain View, CA, August 2018 - Present
Supervisor: *Matt Rogge, Reliability Lead*

Loon, a Google X graduate, has developed the most essential components of a cell tower and redesigned them to be light and durable enough to be carried by a balloon at a 60,000 foot elevation, on the edge of space. I lead the hardware reliability test lab team.

- Manage all hardware related reliability tests for the company.
- Personally setup, maintain, monitor, and analyze between 5 and 15 tests at any given time. Our team will own 25 - 50 live tests.
- Program environmental chamber, write/edit test scripts, build data visualization and alerting.
- Keep entire test lab efficient and functional by owning tool/chamber maintenance and purchasing tools/supplies/equipment as needed.
- Provide metrics and insights on test lab performance to upper management.
- Ensure team's workload is properly distributed based on individual schedule and expertise.

Founding Engineer Industrial Optic

San Francisco, CA, November 2016 - March 2018
Supervisor: *Adam Tank, CEO & Founder*

Industrial Optic, a Lemnos Labs portfolio company, developed drones and in-situ repair solutions of live municipal drinking water pipe systems.

- Lead the technical assessment of the market opportunities and product demand.
- Conceptualized, designed, and fabricated the first 3 working prototypes.
- Integrated Electronic and Firmware requirements and implementation.
- Designed and machined all custom parts and components for protoypes.
- Applied for patent on repair technology.

Lead Hardware Engineer Brewbot

Belfast, Northern Ireland, June 2015 - October 2016
Supervisor: *Sam Khamis, CTO*

Brewbot developed the hardware and software to run a the world's first distributed brewery controlled entirely over wifi with the worlds largest database of brewing inputs

- Designed Brewbot hardware from concept to production.
- Oversaw mechanical and electronic research, development, and design.
- Tested hardware sensors interface with electronic and software requirements.
- Managed CAD and documentation repositories.
- Managed all test brew data and analysis, made great beer

Mechanical Engineer Modular Science

San Francisco, CA, March 2014 – May 2015
Supervisor: *Peter Sand, Founder*

Modular Science, an early stage start-up developing hardware and software for bio-lab procedure automation, focusing on modular, hackable, well-documented systems.

- Hardware design, assembly, and testing of automated benchtop lap assistant
- Improved robotic modules to perform pipette, centrifuge, vial movement and grasping functions

Vehicle Reliability Test Engineer Tesla Motors

Fremont, CA, October 2012 – April 2013
Supervisor: *John Spruill, Manager, Vehicle Test*

- Managed pre-production endurance durability of Model S test vehicles.
- Testing encompassed drivetrain, components, structure, body and interior
- Immediate problem resolution of uninterrupted 8 month test cycle.
- Simulated full life road input, drivetrain & environmental cycling
- Analysis and weekly reporting to engineering teams at Tesla
- Other testing included underbody(battery) abuse, airbag controller vibration reduction effort, test track construction.

Product Validation Test Engineer II Case New Holland

Burr Ridge, IL, August 2011 – October 2012
Supervisor: *James Robertson, Manager, Worldwide Stress Test*

- Design & setup of structural, drive train, and vibration tests utilizing various data acquisition systems and test sensors.
- Test data analysis and reporting of structural damage, life estimates, and vibration limits.
- 50% global travel; most of the testing was at other locations: India, Italy, Germany, IA, ND, TX, KS, IL.

Mechanical Engineering Intern Zero Motorcycles

Santa Cruz, CA Mar 2011 – Aug 2011
Supervisor: *Derek Yuen, Director of Mechanical Engineering*

- SolidWorks CAD part design, prototyping, and testing in the 2012 lineup.
- Assembled full electric motorcycles on the production floor.

Design and Implementation Engineer Engineers Without Borders, SF Professionals

San Francisco & El Salvador, 2009 – 2011, 2014
Supervisor: *Albert Sandell, Project Lead*

- As volunteer in San Francisco, designed a water delivery system for a village in El Salvador.
- As project leader in El Salvador, led two extended stays to oversee completion of project, working with local government and engineers.

Founder Supermileage Vehicle Team

Los Angeles, 2004 – 2006

- Founding member of an SAE sponsored intercollegiate vehicle competition focused on fuel efficiency; our team achieved 824 mpg.

Education

M.S. Mechanical Engineering
University of California, Los Angeles (UCLA), 2008

- Engineering GPA: 3.50 (Dual concentrations in design & manufacturing and fluids & thermal)
- Engineer-in-Training Certified (2010)

B.S. Mechanical Engineering
University of California, Los Angeles (UCLA), 2006

- Engineering GPA: 3.53

Personal Interests

- Fluent in Spanish after living in Spain, Argentina, El Salvador, & Perú, for 3 years; conversational in Portuguese.
- Ten years of brewing experience; I've brewed for weddings, events, and local bars.
- Teaching experience: Lab instructor in grad school, 8th grade pre-algebra, photography.
- Played 4 years of collegiate level Ultimate Frisbee for the UCLA Men's team and passionate about other sports.
- Avid outdoorsman, fisherman, & backpacker; hiked solo 230 miles in the Sierra Nevada in 18 days.