

# Cody C. Badger

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*Hardware is my favorite. I like to design it, test it, build it, fix it, and control it. I'm a hard working mechanical engineer with a lot of startup experience.*

## Technical and Applied Skills

- **Data Acquisition:** Somat eDAQ & eDAQ Lite, Head Acoustics Squadriga & DataRec4, VBOX, Memorator
- **Test Sensors/Tools:** Strain gauge, accelerometer, thermocouple, thermistor, GPS, RPM sensor, photo sensor, pressure transducer, load cell, oscilloscope, DMM.
- **CAD:** Solidworks 2004, 2010, 2015, & 2016, AutoCAD, Rhino, SketchUp, Adobe Illustrator
- **Programming:** MATLAB, Fortran 90, C, Ruby, Python, HTML, Markdown
- **Project Management:** Trello, Github
- **Fabricating:** Advanced skills in wood, metal, and automotive shops. Projects include: furniture, houses, motors, and bicycles.
- **Heavy machinery experience:** Loader-backhoe, skid steer, bulldozer, wheel loader, excavator
- CA Class C & M1 drivers license. Previously held CDL Class B -P for driving a passenger bus.

## Development

### Lead Hardware Engineer @ Brewbot

Belfast, Northern Ireland, June 2015 - Present

Supervisor: *Sam Khamis, CTO*

- My team developed the hardware to run a fully automated and highly repeatable brew from a smartphone, giving way for the world's first distributed brewery. I helped take Brewbot from concept to production.
- I oversaw mechanical and electronic research, development, and design. I ensured that milestones are set and met, and that issues are resolved in a timely manner.
- As the lead hardware engineer, I made sure hardware sensors interfaced properly with the electronic and software requirements.
- Managed CAD and documentation repositories.
- Trained employees in the craft of brewing, and managed all test brew data and analysis.

### Mechanical Engineer @ Modular Science

San Francisco, CA, March 2014 – May 2015

Supervisor: *Peter Sand, Founder*

- Modular Science is an early stage start-up developing hardware and software for bio-lab procedure automation, focusing on modular, hackable, well-documented systems so that modifications can be made for custom experiments.
- I primarily focused on hardware design, assembly, and testing of the main body of the system, as well as the robotic modules to perform pipette, centrifuge, vial movement and grasping, incubator and other various lab operations.

### Vehicle Reliability Test Engineer @ Tesla Motors

Fremont, CA, October 2012 – April 2013

Supervisor: *John Spruill, Manager, Vehicle Test*

- I Managed two different pre-production endurance durability Model S test vehicles.
- The test covered all aspects of the vehicle: drivetrain, components, structure, body, interior, etc.
- Vehicle was tested 24 hours per day, for 6-8 months. Immediate action was required when problems arose.
- Loading from road input, drivetrain cycling, & environmental cycling were balanced to simulate full life.
- Test data analysis and weekly reporting to all other engineering teams in the company. End of test reporting.
- Other tests: underbody (battery) abuse, airbag controller vibration reduction effort, test track construction.

## **Product Validation Test Engineer II @ CNH America LLC**

Burr Ridge, IL, August 2011 – October 2012

Supervisor: *James Robertson, Manager, Worldwide Stress Test*

- CNH (Case / New Holland) is a global leader in agricultural and construction equipment, owned by Fiat.
- Design & setup of structural, drive train, and vibration tests utilizing accelerometers, load cells, pressure transducers, strain gauges, thermocouples, speed sensors, data acquisition systems, etc.
- 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*

- Primarily involved in SolidWorks CAD design, prototyping, and testing of the 2012 lineup.
- Created new parts, engineering drawings, revision updates, engineering change orders, BOMs, purchasing orders.
- Assembled electric motorcycles on the production floor: wrenching, warehousing, machining, following MPs, etc.

## **Design and Implementation Engineer @ Engineers Without Borders, SF Professionals**

San Francisco & El Salvador, 2009 – 2011, 2014

Supervisor: *Albert Sandell, Project Lead*

- Volunteering from San Francisco, designed a new water delivery system for a small village in El Salvador.
- Resident El Salvador project implementation leader. Two extended stays at site to oversee completion of project.
- Worked with Salvadorian local governments and engineers while coordinating with EWB members in SF.

## **Founder @ Supermileage Vehicle Team**

Los Angeles, 2004 – 2006

- Founding member of an SAE sponsored intercollegiate competition focused on optimal fuel efficiency of a gas powered vehicle.
- Leader of design & manufacture of the chassis, driver seat, and suspension system, our team achieved 824 mpg.

## **Education**

### **M.S. Mechanical Engineering**

UCLA, 2008

- Design & Manufacturing and Fluids & Thermal Concentrations
- Engineer-in-Training Certified (2010)
- Engineering GPA: 3.50

### **B.S. Mechanical Engineering**

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.
- Seven years of brewing experience.
- Teaching experience: Lab instructor in grad school, 8th grade pre-algebra summer session, photography teacher.
- Played 4 years of collegiate level Ultimate Frisbee for the UCLA Men's team and passionate about other sports.
- Involved in many volunteer projects both at home and abroad: Engineers Without Borders, Habitat for Humanity, Fairmail, Salvation Army, etc.
- Avid outdoorsman, fisherman, & backpacker; hiked solo 230 miles in the Sierra Nevada in 18 days.