

**EDUCATION**

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University of California, Berkeley	Ph.D. Mechanical Engineering	2016
University of California, Berkeley	M.S. Mechanical Engineering	2012
Colorado State University	B.S. Mechanical Engineering	2008

**HONORS**

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Fulbright Fellow, India	2014
National Science Foundation Fellow, University of California, Berkeley	2011-2016
Outstanding Graduate Student Instructor, University of California, Berkeley	2011
Summa Cum Laude, Colorado State University	2008
Outstanding Engineering Student, Colorado State University	2007

**EXPERIENCE**

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**University of California, Berkeley and Lawrence Berkeley National Laboratory**

Graduate student researcher	2010-present
Fulbright Fellow, India	2014
NSF Fellow	2011-2016
Graduate Student Instructor	2010-2011

- Created novel sensors for monitoring cookstove adoption in Sudan, Ethiopia, and India
- Designed a user-friendly machine learning interface for detecting events in time series data
- Designed novel balloon-borne high-altitude black carbon monitoring platform
- Tested emissions performance of existing cookstoves and designed novel new cookstoves
- Built and commissioned the world's leading cookstove aerosol science laboratory
- Performed life cycle assessment of cookstove a product and supply chain
- Developed STEM-outreach program for Pinoleville Pomo Nation (tribe)

**Persistent Efficiency**

Chief Technology Officer	2015-2016
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- Designed and implemented first-of-its-kind passive sensing system for IOT electricity monitoring
- Managed 8-person team including product design, software, hardware, and manufacturing
- Won the 2015 Clean Tech Open accelerator western division competition
- Secured \$1.5 million in investment capital
- Reduced hardware costs 70%
- Sold over 1000 sensors across the United States
- Built sophisticated backend and frontend capable of handling millions of daily requests and hundreds of terabytes of stored data
- Guided data science team to develop actionable insights for customers

**Triumph Aerospace Systems**

Aerospace Systems and Design Engineer	2009-2010
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- Lead systems and design engineer for Airbus A350 emergency landing gear extension system
- Lead research engineer on redesign of electromechanical brake actuator for Boeing 787
- Co-wrote RFI and RFP and won contract for gimbal actuator on Lockheed dirigible
- Headed technical presentations for three design reviews with Airbus and Messier-Bugatti

**Poudre High School**

High School Technology Student Teacher

2008

- High school technology (SolidWorks, machining, robotics) teacher
- Lead instructor of the 160-student STEM Institute clean energy and robotics program
- Author of two STEM curricula for the secondary-school classroom (downloaded over 10k times)

**Covidien**

Radiosurgery Research and Development Intern

2007

- Developed bench-top model for testing radiofrequency and microwave antenna systems
- Soft tissue radiofrequency and microwave cancer ablation research
- Studied viability of microwave cancer ablation systems in highly-porous vascular tissue

**SKILLS**

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**Project Management**

- Complex program management
- Fundraising (grants and venture)
- Agile management

**Mechanical Design**

- Design for manufacturability
- CNC, sheet metal, cast, packaging, and injection-molded part design
- Finite element analysis (FEA) and computational fluid dynamics (CFD)
- Thermal management
- Machining of many varieties

**Electrical Design**

- Printed circuit boards (PCB)
- Imbedded systems

- Microcontrollers

**Data Analysis and Coding**

- Languages: Python, R, C, and MATLAB
- Big data analytics
- Machine learning
- Embedded systems code

**Laboratory Work**

- Mechanical testing of materials: tensile, dynamic mechanical analysis, tribology, bomb calorimetry
- Aerosol science: gravimetric, optical methods (OPC), aerodynamic drag (FMPS, APS), black carbon
- Experimental design for physical and human subjects research

**VOLUNTEER, COMMUNITY, & CULTURAL EXPERIENCE**

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- Co-created STEM Institute, a summer STEM program for at-risk youth in Colorado
- Volunteer at Lifelong AIDS Alliance in Seattle, Washington
- Created a one-of-a kind “Heroes for Hope” superhero party at the Denver Children’s Hospital
- Have traveled extensively through North America, South America, Europe, Africa, and Asia

**PUBLICATIONS**

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- [1] D. L. Wilson, D. R. Talancon, R. L. Winslow, X. Linares, and A. Gadgil, “Life cycle assessment shows carbon savings from a fuel-efficient biomass cookstove dwarf embodied carbon emissions,” *Energy for Sustainable Development*, 2016, pp. 45-52..
- [2] D. L. Wilson, M. I. Adam, O. Abbas, J. Coyle, A. Kirk, J. Rosa, and A. J. Gadgil, “Comparing Cookstove Usage Measured with Sensors Versus Cell Phone-Based Surveys in Darfur, Sudan,” in *Technologies for Development: What is Essential?*, no. 20, S. Hostettler, E. Hazbourn, and J.-C. Bolay, Eds. New York: Springer International Publishing, 2015, pp. 211–221.

- [3] R. Goel, S. Gani, S. K. Guttikunda, and D. Wilson, “On-road PM<sub>2.5</sub> Pollution Exposure in Multiple Transport Microenvironments in Delhi,” *Atmospheric Environment*, 2015.
- [4] A. Kipf, W. Brunette, J. Kellerstrass, M. Podolsky, J. Rosa, M. Sundt, D. Wilson, G. Borriello, E. Brewer, and E. Thomas, “A proposed integrated data collection, analysis and sharing platform for impact evaluation,” *Development Engineering*, pp. 1–9, Dec. 2015.
- [5] P. M. Amsellem, E. L. Egger, and D. L. Wilson, “Bending Characteristics of Polymethylmethacrylate Columns, Connecting Bars of Carbon Fiber, Titanium, and Stainless Steel Used in External Skeletal Fixation and an Acrylic Interface,” *Veterinary Surgery*, vol. 39, no. 5, pp. 631–637, Mar. 2010.

## PENDING PUBLICATIONS

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- [A] D. L. Wilson, “Current Performance Standards for Biomass Cookstoves are Flawed and Could Incentivize More Dangerous Designs ,” accepted by *Environmental Science & Technology*.
- [B] D. L. Wilson, J. R. Coyle, A. Kirk, J. Rosa, O. Abbas, M. I. Adam, A. J. Gadgil, “Measuring and Increasing Adoption Rates of Cookstoves in a Humanitarian Crisis,” in review at *Environmental Science & Technology*.
- [C] V. Rapp, J. Caubel, D. L. Wilson, , A. J. Gadgil, “Reducing ultrafine particle emissions using air injection in wood-burning cookstoves,” in review at *Environmental Science & Technology*.