Luke Liechty

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In a Nutshell

I am a diverse, technically skilled, and intensely hands-on designer with varied experience across automated quality control systems design, new product development, medical device development, electromechanical systems R&D, and two-wheeled mechanics. I am self-motivated and detail-oriented, yet have an eye for high-level systems thinking. I am devoted to proliferating sustainable design and re-thinking the deeply engrained systems that stand in the way of a sustainable future.

Selected Skills

- Innovative designer and sustainability thinker
- Accomplished TIG welder and CNC machinist
- Comfortable with manual lathes, mills, and general shop tools. Special affinity for bench grinders.
- I also know my way around sensor integration, microcontrollers, C++, embedded systems
- Adept at SolidWorks, HSMWorks, Fusion 360
- Proficient with Minitab, Adobe, KeyShot, and LaTeX
- Experienced with SLA and FDM printing, laser cutting, and other rapid prototyping techniques
- Intuitive mechanical sense and mathematical aptitude
- Spanish: advanced verbal, intermediate written

Schools I Have Learned From

Stanford University, *Palo Alto, CA* June, 2021
M.S. in Engineering, Design Impact
Thesis work involved designing a novel composting reactor and supporting service for the decentralized, scalable, community-driven urban composting of food scraps. Experienced in human-centered design, needfinding and problem definition, mechatronics, and manufacturing methods.

Reed College, *Portland, OR* May, 2014
B.S. in Physics
Thesis work explored Stirling engines and small-scale power measurement. Advanced electrodynamics, classical and quantum mechanics, general relativity, logic, ethics, and philosophy of science.

Talks I Have Given

Liechty, L. & Miller, R., (2017). Real-time Process Controls Across the Ocean. Presented at the WESTEC Conference, Los Angeles, CA.

Jobs I Have Learned From

Design Engineer, Swope Design Solutions, *San Francisco, CA* Sept 2021 - current

- Work directly with clients across medical, environmental, and consumer device disciplines to define problems, generate and iterate on rapid prototypes, and develop, fabricate, and deliver refined concepts in a fast-paced, R&D setting.
- Carried multiple robotic surgery medical device designs from initial concepts to pre-production, V&V units.
- Technical lead on multiple electromechanical systems, overseeing firmware development while pushing mechanical design from specification to assembled product.
- Manage procurement BOMs, test plans, outside vendors (machining, urethane casting, sheet metal). DfM, DfA, DFMEA.
- CAD a design on Monday; print, test, troubleshoot, and iterate during the week; CNC machine by Friday.

Schneider Fellow, Rocky Mountain Institute, *Denver, CO (remote)* June 2020 - Aug 2020

- Worked with RMI's India Mobility team to architect a system of aggregated mobility data across the city of Bangalore's transporation ecosystem, the objective being to reduce congestion and improve urban air quality by increasing mass-transit ridership through improved integration with first- and last-mile mobility solutions.
- Interviewed stakeholders across private industry, government, and academia to uncover needs, risks, and opportunities.
- Published a white paper and article outlining discoveries and next steps, and how they can contribute to a city recovering from COVID 19.

Product Technician, Boa Technology, Inc., *Denver, CO* Feb 2018 - July 2019

- Performed root cause analysis on reported product failures. Developed and managed test and corrective action plans.
- Designed and qualified gauges, fixtures, and optical CMM programs for validating precision plastic parts.
- Managed the implementation of advanced quality tools at contract manufacturers in Asia, including employee training and gage repeatability and reproducibility studies.
- Took ownership over engineering drawings and manufacturing documentation for multiple product suites.
- Travelled to Asia to assist with hiring and training new employees.

Engineering Technician, Boa Technology, Inc., *Denver, CO* Oct 2015 - Feb 2018

- Planned and executed the design and implementation of a real-time, automated quality control system that reduced production costs by $80K per year, per product suite.
- Travelled to Asia multiple times to conduct supplier audits, new quality control systems implementation, and training for contract manufacturer employees.
- Assisted with the validation of plastic injection molds.

Manager, The Singletrack Factory, *Scottsdale, AZ* Oct 2014 - Jul 2015

- Managed sales, inventory, purchasing, repairs, and harder than all, people.
- Designed and constructed merchandise displays, bicycle storage solutions, and workshop layouts.
- Managed the store to self-sufficiency before handing over management.

Mechanic, The Singletrack Factory Bicycle Shop, *Denver, CO* Feb 2008 - Sep 2014

- Troubleshot mechanical issues, and made them disappear. Particularly enjoyed rebuilding hydraulic systems.
- Forged and maintained robust customer relations through clear communication and high-quality work.
- Known as "The Kid," my standards were and remain anything but childlike.

Co-Founder, Backyard Bike Shop, *Denver, CO* May 2007 - Aug 2007

- Opened a full-service, neighborhood bicycle repair business in a home garage.
- I was a kid, I had passion, and though the shop was a failure, it got me my first real job.

Additional Assets and Distinctions

- National Merit Scholarship Finalist, 2010
- 3rd place overall, US Junior Solo Bagpipe Championships, 2008
- Freelance bagpiper, sometimes seen, and most definitely heard, on street corners