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WORK EXPERIENCE

More More Ai — Jan 2024 to Present

- Took ownership of legacy codebase (Python+Pandas, Javascript+Svelte, SQL) and developed it into a successful product prototype.
- Held pair programming sessions with non-technical designers to identify enhancements and rapidly iterate through potential solutions.
- Debugged database, data pipeline, continuous integration issues on AWS.

Electra Inc — Sep 2023 to Jun 2024

- Designed and prototyped kW-scale power inverters for home appliance battery backup and grid-tied systems.
- Built a prototype sine-wave generator on STM32 in Rust for PWM control of H-bridges.

Liminal Insights Inc (formerly Feasible Inc), *Co-founder* — Apr 2016 to Feb 2023

Entrepreneurship

- Grew the company as a founding member of leadership from two full-time employees to 37 over 7 years.
- Contributed to the development of an equitable and robust hiring process for technical contributors, led team growth as a hiring manager, and participated in the hiring process for roles across the company.
- Developed and nurtured a deliberate company culture built around trust, data-driven decisions, well-being, and mutual understanding.
- Researched and implemented project management software (Wrike) across the company.
- Remained a major technical contributor and thought leader through the growth of the company from an academic research project to a commercial success with customer contracts for in-line manufacturing equipment.

Research & Development

- Designed, fabricated, and automated ultrasonic measurement prototype equipment for battery inspection by integrating custom electronics and software; optimizing measurement performance; and providing support during equipment deployments.
- Built and maintained the production codebase for acoustic and electrochemical data acquisition, including backend data conversion and storage, hardware orchestration, microcontroller firmware, and multiple frontends intended for a range of audiences.
- Designed, implemented, and expanded company-wide data ingress pipelines, relational databases, and cloud-based data science tooling in AWS using Terraform to meet internal and external customer requirements.
- Developed and maintained customer facing bespoke REST APIs for interacting with software and hardware products.
- Regularly performed system-scale debugging across data processing and control software, microcontrollers, ultrasonic hardware, and power electronics to identify the root cause of data anomalies.
- Configured, hardened, and maintained company office networking and IT infrastructure, including set up and company-wide roll-out of an on-premises VPN.
- Designed and built technology demos to highlight product features and address specific customer pain points.

Technical Leadership

- Co-invented battery analysis and inspection technologies that have resulted in seven granted patents and several additional patents pending.
- Authored extensive technical documentation and taught core concepts to the broader company through talks, presentations, and demos.
- Collaborated across departments to resolve hardware and software issues, develop product requirements, and develop and implement tools to reduce friction in the team's workflow.
- Performed installations, training, and support for on-site prototype deployments at customer sites.
- Led the successful completion of multiple government grants and projects, resulting in significant additional follow-on funding.

Princeton University, *Postdoctoral Researcher* — Oct 2015 to Apr 2016

- Developed high-voltage ultrasonic pulser/receivers, multiplexers, and control software for the acoustic analysis of batteries.

Princeton University, *Graduate Researcher* — Jun 2013 to May 2015

- Built and designed an automated, large-scale spray deposition system.
- Developed a multi-material reactive spray process to synthesize arbitrary electrode materials on-surface.
- Synthesized Li-ion electrode material using an adjustable combination of reactants and conductive filler.

The City College of New York, *Graduate Researcher* — Jan 2010 to May 2015

- Discovered a novel film treatment to prevent dewetting of a polymer dielectric film.
- Developed a spray deposition process for nanoparticle dielectric materials for thin film capacitors.
- Designed open-sourced hardware and software for inexpensive electrochemical testing.

Palo Alto Research Center (PARC), *Research Intern* — Jan to Jun 2013

- Designed and authored in-house software for data acquisition, data analysis, and image analysis.
- Performed a systematic analysis of gravure printed conductors, dielectrics, and semiconductors.

EDUCATION

Recurse Center — Jul to Aug 2023

- Extended proficiency in Python, Haskell, Rust, and JavaScript through pair-programming, discussions, and coding challenges.
- Learned about binary file formats by reverse-engineering and decoding an e-ink tablet file format, and thoroughly documenting it.
- Developed a proof-of-concept bi-directional conversion tool in Rust for the decoded file format and live-demonstrated conversion to/from SVG.
- Pair-programmed, participated in technical study groups, and communicated everything I learned to others.

Activate Fellowship (formerly Cyclotron Road), *Cohort 2016, as Feasible Inc* — Apr 2016 to Apr 2018

- Pitched early-stage investors and represented my company and the fellowship program at trade shows, conferences, and events.
- Attended entrepreneurial workshops and talks ranging from commercialization to hiring to business development taught by diverse leaders from across the Bay Area startup ecosystem.
- Interviewed potential customers from and performed market research into the battery and EV industries.
- Prepared business plans, product one-pagers and spec sheets, and grant applications.

City College of New York, CUNY — Sep 2009 to Apr 2015

- PhD in Chemical Engineering (2015)
- Master of Engineering in Chemical Engineering (2011)
- Research focus: Electrochemical testing, printed electronics and batteries, and depositon methods [1], [2].

University at Buffalo, SUNY — Sep 2004 to Apr 2008

- Bachelor of Science in Chemical Engineering (2008)

CORE SKILLSET

- Self-taught expertise in full-stack programming, electronics and circuit design, hardware hacking, and the use of software to interface with scientific equipment.
- A lifetime of taking things apart and putting them back together.
- A deep multidisciplinary approach to problem solving.
- A curiosity-driven do-it-yourself attitude that leads to unique solutions to difficult problems.
- 8 years of experience with battery inspection and performance analysis using traditional electrical methods and non-destructive acoustic inspection.
- Experience in authoring and maintaining software for research and commercial audiences.
- Experience building, scaling, and maintaining data pipelines in the cloud and on-device.
- Academic background in chemical engineering, with a research focus on printed electronics and batteries.

PROFICIENCIES

- **Languages:** Fluency in Rust, Python (NumPy, Pandas, Matplotlib, Flask), Haskell, C, TypeScript/JavaScript, Elm, Terraform, and SQL. Comfortable with Bash, ZSH, Perl, Elixir, Erlang, Clojure/Lisp, and others.
- **Databases:** PostgreSQL, MySQL/MariaDB, SQLite3, Redis, Mongo, Aurora.
- **Misc:** Linux, AWS (Console, RDS, EB, EC2, S3, etc), Docker, Wrike, Jira+Confluence+Trello, office suites, RS-232/serial, GPIO, Arduino/ATMega, STM32, REST APIs.

SELECTED PUBLICATIONS

Full list: https://orcid.org/0000-0002-9696-8766

[1] B. Van Tassell, "Use of a segmented electrode to control current distribution in electrochemical systems," 2010. [Online]. Available: https://academicworks.cuny.edu/cc_etds_theses/7/

[2] B. Van Tassell, "Scalable fabrication of energy storage materials using spray deposition," 2015. [Online]. Available: https://www.proquest.com/openview/f222a1fe8e7108b75d5d95a4d06cff07

[3] L. Huang *et al.*, "Structure and performance of dielectric films based on self-assembled nanocrystals with a high dielectric constant," *Nanotechnology*, vol. 24, no. 41, p. 415602–415603, Sep. 2013, doi: 10.1088/0957-4484/24/41/415602.

[4] B. Van Tassell *et al.*, "Metacapacitors: Printed Thin Film, Flexible Capacitors for Power Conversion Applications," *Power Electronics, IEEE Transactions on*, no. 99, p. 1–2, 2015, doi: 10.1109/TPEL.2015.2448529.

[5] S. Bhadra *et al.*, "The relationship between coefficient of restitution and state of charge in zinc alkaline primary LR6 batteries," *J. Mater. Chem. A*, 2015.