Jordan Edmunds

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Experience

Co-Founder and CTO, Axle Repair **Aug 2022 - Mar 2023**
- Architected, built, and tested our web application MVP
- Hired our first full-time engineer, several consultants
- Led a team of 1 other developer, 2 designers, several consultants
- Raised $1.2M in venture capital, onboarded first beta customers

Graduate Student Researcher, UC Berkeley **Sep 2018 - Aug 2022**
- Designed, fabricated, and tested nanofabricated optical modulators for use in neuroscience applications
- Designed experiments to optimize SiO2 and a-Si PECVD film roughness, achieved <0.2nm rms
- Worked with tube furnaces, elevated temperature CVD reactors and sputterers
- Used DOE to optimize many processes (sputtering, CVD, etching, among others), and built statistical process models
- Designed and built optics, electronics (TIA, ADC) for a shot-noise-limited IR reflectometer

R&D Intern, Modern Electron **Aug – Dec 2021**
- Led a cross-functional team to build a prototype next-generation heat engine
- Worked with a variety of external suppliers to source parts and perform process steps
- Worked with machinists and welders to design custom vacuum parts and feedthroughs
- Developed custom glass braze for joining ceramic components designed to withstand temperature cycling
- Built custom vacuum tools to test custom heat engine under vacuum, elevated temperatures
- Ran thermal simulations in COMSOL, ANSYS and ran experiments at temperatures >800C

Project Lead, UCI Brain-Computer Interface Lab **Dec 2014-June 2018**
- Designed, built, and tested efficacy of a multi-channel electrical stimulation device on humans

Intern, Packet Video **Mar-Oct 2014**
- Developed puppet-based pipeline for DevOps team under Michael Marrewa, an independent project

Education

University of California, Berkeley **2018-2022**
Ph.D., Electrical Engineering and Computer Science, Optoelectronics specialization. 3.89 GPA

University of California, Irvine **2013-2018**
B.S. - Electrical Engineering, magna cum laude. B.S. - Biological Sciences, cum laude

Teaching

YouTube Educator **2017-present**

- Maintain an EE-centric educational YouTube channel, which has >4M views, >40k subscribers

Graduate Student Instructor, Introductory Electromagnetism, UCB **Jan – May 2022**

- Taught 4 discussions/labs per week for 16 weeks for lower-division electromagnetism.
- Won an outstanding teaching award given to the top 10% of graduate student instructors

Discussion Leader for Freshman Edge, UCI **June-September 2014, 2015**

- Taught two summer classes of 20 students for six weeks on “Pathways to University Success”. Subsequently served as unofficial TA for semiconductor physics course, ran final review session.

Publications

Edmunds, Jordan L. Optical Voltage Sensing: micro- to kilo-scale. Dissertation, UC Berkeley. (2022)

Shen, Konlin. Chen, Oliver. **Edmunds, Jordan L**. et al. Translational opportunities and challenges of invasive electrodes for neural interfaces. Nature Biomedical Engineering (2023, accepted)

Edmunds, Jordan L., Soner Sonmezoglu, Julien Martens, Alexandra Von Meier, and Michel M. Maharbiz. "Optical voltage sensor based on a piezoelectric thin film for grid applications." *Optics Express* 29, no. 21 (2021): 33716-33727.

Edmunds, Jordan L., Soner Sonmezoglu, Julien Martens, Alexandra Von Meier, and Michel M. Maharbiz. "Optical voltage sensor based on a piezoelectric thin film for grid applications." Optics Express 29, no. 21 (2021): 33716-33727.

Raymond, Samuel J., Trevor Wesolowski, Sam Baker, Yuzhe Liu, **Jordan L. Edmunds**, Mauricio J. Bustamante, Brett Ley et al. "A low-cost, rapidly scalable, emergency use ventilator for the COVID-19 crisis." medRxiv (2020).

Edmunds, Jordan, Mauricio J. Bustamante, Samuel J. Raymond, David B. Camarillo, David K. Piech, Jonathan S. Schor, and Michel M. Maharbiz. "Low-Cost Differential Pressure Spirometry for Emergency Ventilator Tidal Volume Sensing." medRxiv (2020).

Leighton, Laura J., Ke Ke, Esmi L. Zajaczkowski, **Jordan Edmunds**, Robert C. Spitale, and Timothy W. Bredy. "Experience‐dependent neural plasticity, learning, and memory in the era of epitranscriptomics." Genes, Brain and Behavior 17, no. 3 (2018): e12426.

Raasch, Ryan. **Jordan Edmunds**, An Do. “Design of a Low-Cost Open-Source FES System”. 40th Annual IEEE Engineering in Biology and Medicine Conference. 2018.

Edmunds, Jordan, et al. Spatially Distributed Sequential Stimulation for Fatigue Reduction. Senior Thesis, UCI. 2017.

Skills, Awards, Hobbies

Awards: Hertz Fellow, NSF GRFP Finalist, Goldwater Scholarship Finalist (x2)

Engineering Skills: Mixed-signal electronics design and prototyping, FPGA, Arduino, Meep FDTD, RCWA, optics, E&M, instrumentation for metrology, DOE, statistics, microfabrication and metrology (sputtering, E-beam evaporation CVD, ALD, SEM, AFM, XRD, reflectometry, etc.). Signal processing, analog filtering, sampling,

digitization, digital signal processing. Altium, KiCad, EAGLE, printed circuit board (PCB) design and analysis. Excellent communicator who can quickly calibrate to others' background and way of understanding.

Software Skills: git, GitHub, GitHub Actions, Windows, Mac, Linux, Ubuntu, Arch Linux, docker, make, infrastructure as code (IaC), S3, terraform, shell scripting, DigitalOcean, frontend web development, backend web development, firmware, asynchronous programming, python, C/C++, C#
Hobbies: Fluffy cat named after J.C. Maxwell, co-op board games, hiking, climbing, and backpacking

References

Maryam Khan - Axle Repair
maryam@axlemobility.com
Co-founder and CEO, Axle Repair

Michel Maharbiz, Ph.D. – UC Berkeley
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My graduate advisor at UC Berkeley

Max Mankin, Ph.D. – Modern Electron
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CTO of Modern Electron

Alex Pearse, Ph.D. – Modern Electron
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My technical/project manager at Modern Electron

Andrew Koch – Modern Electron
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My manager at Modern Electron

Additional references available upon request.