Chris Saulnier

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Summary

Experienced engineering director equally comfortable serving as the technical lead driving new product introduction efforts or an engineering manager building effective teams while interfacing with customers and C-level executives to align products with business requirements.

Current Role

Anzu Partners (Nirrin Technologies) Billerica, MA

Sr. Director of Product Design (Dec 2023 – Present)
Sr. Director of Engineering (April 2022 – Dec 2023)
Director of Engineering (July 2019 – March 2022)
Systems Engineer (Jan 2019 – June 2019)

Served as technical lead and engineering director for a hardware startup through multiple rounds of VC funding including an $8.5M Series A. Core member of the team that transformed Nirrin from an R&D-centric startup with three employees to a product-focused organization with a team of 20 building next-generation instruments for use in biopharma manufacturing.

Engineering Leadership

- Built the product development team, hiring mechanical, electrical, software engineers and data scientists, while simultaneously writing proposals for and managing engagements with multiple product development consulting firms to augment our internal resources and accelerate development timelines of multiple product lines.
- Implemented agile methodologies and established appropriate engineering controls to launch a lab instrument meeting the requirements for IEC 61010 and 21 CFR Part 11.
- Leading the engineering team through building their first commercial product, working closely with the Director of Product Management to ensure the instrument met customer and business needs while being designed for manufacturability and transferred to a contract manufacturer.

Technical Leadership

- Initially served as the sole electrical and software engineer, taking full responsibility for the design, development, and implementation of electronics and software for early-stage prototypes of spectroscopic instruments for use in biomanufacturing processes.
- Served as technical lead for the company, evaluating and selecting appropriate technologies and engineering approaches to balance cost, manufacturability, long term support, and business needs.
- Personally developed custom high-precision circuit boards for multiple potential product offerings, custom firmware, web-based user interfaces, control systems for critical parameters of fed batch and perfusion cell cultures, and data acquisition software for recording spectroscopic data and directly feeding that data into chemometric models.

Product Leadership

- Collaborated directly with customers to understand their needs and specifications, leading to the development of multiple customized prototypes tailored to solve specific challenges.
- Conducted on-site experiments at client locations, utilizing these opportunities to gather critical feedback and insights directly from the end users and operational environments.

Patents

Device and Bioreactor Monitoring System and Method. Patent No. 20210062133.
In-Situ Probe. Publication number: US20230034379A1.

Skills

Circuit Design and Manufacturing (Altium/Fusion 360), Full Stack Embedded Software Development (Python, C), CI/CD DevOps (Docker, Github Actions, Torizon Linux, AWS), Agile Development, Embedded Computing (Toradex Linux, Ubuntu, Raspberry Pi), Rapid Prototyping (Solidworks, 3D Printing, Milling Circuit Boards), Regulatory Requirements and QMS (IEC 61010, 21 CFR Part 11)

Fun

Ice Report (https://ice.report)

As an ice climber living in Boston, I got tired of obsessively watching weather forecasts to decide where to climb on the weekends. ice.report weaves together historical weather observations and forecasts to create a single stop for ice conditions forecasting.

- Python Web Development (Plotly Dash, Flask), Weather API Integration, NoSQL Database (DynamoDB), Data Science (Pandas), CI/CD (Docker, Github Actions)
- Use of AWS Lambda for serverless deployment keeps hosting costs at around a dollar a month.

Education

Massachusetts Institute of Technology Cambridge, MA

PhD in Product Design Developing, teaching, and evaluating innovative approaches to the product design process. Emphasis on human-centered product design. Created and implemented "Design for the Wilderness" class that develops students' design thinking, engineering science worldview, and leadership skills through design/build projects and wilderness travel. Extensive experience designing, implementing, assessing and communicating the results of qualitative and quantitative research studies. *GPA: 5.0 / 5.0*

Master of Science in Technology and Policy, September 2015
Relevant Coursework: Law, Tech., and Public Policy; Microeconomic Theory and Public Policy; Science, Tech., and Public Policy; Theory and Practice of Public Policy *GPA: 5.0 / 5.0*

Dalhousie University Halifax, Canada

Bachelor of Computer Engineering, June 2012
University Medal in Computer Engineering (awarded for highest GPA)

Teaching

MIT Mechanical Engineering, **Introduction to Design**, (Lab Instructor Fall 2017)
MIT Mechanical Engineering, **Product Engineering Process** (Mentor Fall 2017)
MIT Mechanical Engineering, **Toy Product Design** (Lab Instructor Spring 2017)
MIT Global Leadership Program, **Design for the Wilderness** (Creator/Instructor 2014-2017)
MIT Engineering Systems Division, **Leadership Development** (Instructor Fall 2014)

Publications

2 first-author journal articles; 6 first-author peer-reviewed conference publications.

Prior Work

Outward Bound Canada (Summer 2012 and 2013) Canmore, Canada

Instructor

- Guided 17-day expeditions facilitating group and individual leadership development set against a backdrop of backcountry wilderness travel and survival skill development.

Dalhousie Student Union (2010 – 2012) Halifax, Canada

President and CEO

- Managed four full-time student Vice Presidents and nine career full-time staff members in an organization with over 125 part time student employees; provided a diverse array of services with a three million dollar yearly operating budget.
- Served as the Chair of the Canadian Alliance of Student Associations; developed policy and acted as the spokesperson for over 320,000 students at 26 member institutions regularly providing print, radio and television interviews.
- Provided strategic guidance to Dalhousie University through voting membership on the University Senate, Board of Governors, and other university committees.

Contract

ODIM Brooke Ocean (8-months); developed embedded real-time firmware for a laser optical plankton counter; and **Acceleware (4-months)**; developed a data compression technique that increased speed and preserved accuracy of high-speed mathematical simulations on GPUs.

Leadership

Outward Bound Thompson Island, Developed High School Physics Outreach (2015-2017)
MIT Graduate School Leadership Institute, Founding Fellow and Facilitator (2016-2017)
MIT Outing Club Board of Directors, Member at Large and Climbing Chair (2014-2018)
Dalhousie Alumni Association, Board Member (2010-2014)

Et cetera

Association of Canadian Mountain Guides: Assistant Hiking Guide
Wilderness First Responder: 80 hour first aid certification
National Outdoor Leadership School: Winter Outdoor Educator Program
Outward Bound Canada: Mountain Instructor Development Program

Interests

climbing, long distance running, and mountaineering.