

## I've shipped two products, eight accessories, and led two teams

Developed products from 10g to 100kg and mV to 120VAC  
Consumer electronics, medical devices, food, green tech

BROGAN MILLER

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## EXPERIENCE

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### **GaeaStar- Lead R&D Engineer**

07.2023 – present

GaeaStar, a \$6.5m seed stage start-up, aims to replace single-use cups with thin wall ceramic cups fabricated at point of sale. After you're done with the cup, we don't care where it goes. Earth to Earth.

I lead a team of 4 engineers (1 jr, 1 mid, 2 sr) and a ceramicist. I set the short-term agenda, plan our long-term roadmap, write our budgets, and develop our engineering infrastructure. We improved yield in our Berlin mfg site from 0% to 80%, and are in the process of bringing up a line in SF.

My then boss, the interim Head of Engineering, left a week after I started. I wish he had stayed, great guy. I stepped up and led the team to stabilize our process by implementing a PLM, SPC driven quality, custom jigs / fixtures, and evolving existing process steps such as moving from double fire to a single fire sintering. In parallel, the team is responsible for our regulatory (CE, FDA), traditional product development, our product's Life Cycle Assessment, long-term R&D endeavors such as material characterization, and of course building out our workspaces (shop, EE lab, ceramics lab).

### **Stanford University- Adjunct Lecturer**

02.2023 – present

Coaching a group of Stanford senior PD engineers for their capstone project: taking a product from concept to market.

### **Typhur- Engineering Manager**

06.2022 – 07.2023

Hired and ran a team of two mechanical engineers and led the design of a 200lb servoing electromechanical charcoal grill that can hold a 4°F thermal band at 450°F for 1hr and a 3.2°F band at 250°F for 5hrs. We controlled an uncontrollable fuel source.

In addition to running the team, I designed the more complex kinematic systems, extreme high temp (~2000F) designs, electrical prototypes, the control software, and established our data analysis pipeline.

### **Trove Foods- CTO**

11.2019 - 06.2022

Trove Foods was a venture funded B2B food startup at the intersection of engineering and food science. As CTO, I was responsible for the development of our machines, the creation of our engineering foundation, quantifying and characterizing food and system behavior, and all the other gaps that exist in a small start-up.

Our machine was essentially a desktop compression molder replete with resistive heating, two actuating four-bar mechanisms, pressure regulation, thermal PID control loops, and seasoned cast iron molds. During development, I dove into mechanism design, electronic prototyping, controls via C++ and Python, and characterization within the thermal, pressure, texture, color, and luminance realms. Machine was pre-certed for NSF.

### **AliveCor- Senior Product Design Engineer**

07.2018 - 11.2019

Part of the team that shipped the world's first consumer 6-Lead EKG (Kardia 6L) and its leather case, as the company's lead PDE. DRI for ME, PD, and manufacturing. Contributor to quality and reliability.

Developed familiarity with the FDA regulatory process and medical device design constraints, and developed technical depths in EKGs, electrodes, bioimpedance, and multi-material conductance stack-ups.

### **Sensel- Mechanical Engineer**

02.2016 - 07.2018

Part of the team that shipped the world's thinnest multi-touch pressure sensor (Morph) and swappable silicone overlays. Hired as employee #5, left when head count was ~30.

I was DRI for mechanical design, quality, supplier management, operations, reliability, and mechanicals manufacturing. Created technical depths in haptics, vibration isolation/dampening, ultra-thin designs, touch sensors, trackpads, lamination, and rubbers.

## **Stanford School of Education- Program Director / Designer**

06.2013 - 07.2015

Designed 7 open-sourced educational tools, one of which Google bought. Taught over 150 students (ages 9-50, local, Russia, Thailand, and Mexico), started a user centered design internship for children in East Palo Alto, and developed a burgeoning depth in educational tool design.

## **PROCESS AND CAPABILITIES**

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Injection molding, stamping, machining, compression molding, lamination, converting, magnets, packaging, conductive inks, metal finishes (annodization, passivation, PVD), dispensed adhesives, PSA/HAF/TBFs, screen printing, multi-substrate stack-ups, thermoforming, cable manufacturing, sheet metal photolithography, flat bed knitting, soft goods processes, and FATP. Exposure to PCB/FPC fab, SMT, die casting, and forging.

FEA, FAIs, tolerance stack-ups, FMEAs, Asia (22 trips to date), factory evaluation and sourcing, PLM and BOM management, product cost structure, quality (cosmetic, part, product), reliability, and yield improvements. Controls software and prototype EE development for servoing systems.

## **PATENTS**

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US20220007656A1, US10936112B2, US10866642B2, US10891050B2, US10871848B2, US20200210026A1, US20210240296A1, EP3762808A4, WO2019245814A1, WO2020142311A1, USD816081S1, USD820842S1, USD842924S1, USD835181S1, USD813235S1, USD822033S1

## **EDUCATION**

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Stanford University, BS: Mechanical Engineering – Product Design

2013

Stanford Men's Water Polo - Division I Varsity Athlete

## **VOLUNTEER**

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2005-2011: coached special Olympics swim team, a junior high water polo team, JV high school water polo team, and two summer water polo camps.

2013-2017: Outside of my role at Stanford, I ran a digital fabrication workshop at a local school and supported 5+ teachers who were using my open source designs

2022 – present: Outside of my lecturing at Stanford, I began volunteering for Youths of Africa Career Development exposing Ugandan youth to engineering and began volunteering for First Robotics.