Georgia Burr Crowther

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About Me

I am a hardware-focused robotics engineer passionate about sustainability, equity, and the potential of new technologies on and off planet Earth. I love to work across disciplines and bring projects with a tangible impact from concept to reality.

Education

Master of Science in Robotic Systems Development (MRSD)
Carnegie Mellon University – Robotics Institute, Pittsburgh, PA – GPA 4.00 – May 2019

B.S.E. in Mechanical Engineering
Cornell University – College of Engineering, Ithaca, NY– GPA 3.53 – May 2014
2013 Kessler Fellow

Professional Experience

Founder and Robotics Engineer — May 2023 – Present

The Reclamation Factory LLC

- Developing a scaled and automated plastic recycling pipeline to create a real, transparent, and accessible plastics circular economy
- Performing customer discovery interviews, developing recycling partnerships, and writing grant and funding applications
- Designing, manufacturing, and testing medium scale plastics recycling hardware components with a DFM approach

Lead Robotics Engineer — Feb 2022 – Apr 2023

Denizen, Inc

- Built, programmed, and managed an industrial robot arm and all peripheral hardware for an automated large format additive manufacturing (LFAM) cell
- Designed and manufactured 3D printed dwellings including a fully functional remote work “pod” and full composting bathroom unit
- Wrote and maintained build, operation, and debugging documentation and code base for LFAM cell

Robotics Hardware Engineer — May 2019 – Jan 2022

ProtoInnovations LLC

- Designed, built, and field-tested experimental rover wheels for NASA SBIR program in collaboration with NASA centers
- Developed innovative mechanisms and technologies for sensing wheel performance and actively adjusting wheel properties using shape memory materials
- Performed wheel testing and validation using custom hardware designed in-house for NASA centers

Mechanical Engineer — Summer & Winter 2013, May 2014 – Feb 2017

Social Bicycles/JUMP Bikes

- Designed and implemented mechanical and electrical systems for large-scale production
- Coordinated manufacturers, assembly houses, component supply chains, and customers to deploy outdoor POS kiosks and other bike infrastructure in over a dozen cities
- Prototyped secure and robust mechatronic locking and charging mechanisms for electric-assist transit products with a focus on DFM and modularity
- Collaborated with operators and interacted with users to improve products and customer experience
- Company sold to Uber in 2018 for US$200 million with over 15,000 deployed bikes and 5 million rides

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Projects and Research Cont.

Robotics Hardware Consultant – Various Start-Ups **2019 – Present**

Principle

- Managing documentation, budget, and schedules for one-off robotic prototyping projects for small companies
- **InMotion Systems** - Invented an add-on steering device for converting a conventional car to a remotely controlled vehicle
- **Magnify Biosciences** - Designed an automated robotic platform prototype for lab sample processing
- **Dashcam For Your Bike** – Prototyped unique adjustable phone-mount to pair with bicycle safety app

Carnegie Mellon University – Tensegrital Wheel for Enhanced Surface Mobility **2018 – 2019**

Robotics Researcher, Advisor: Dimitrios Apostolopoulos

- Explored unique wheel geometries that mimic the properties of variable pressure pneumatics through tensegrital design and minimal actuation for planetary exploration
- Researched analytical methods for devising and controlling actuated, stable tensegrity

Carnegie Mellon University – Multi-Modal Landmine Detection **Sep 2017 – May 2018**

Robotics Researcher, Advisors: Dimitrios Apostolopoulos, John Dolan

- Developed and tested low-cost, automated platform for detecting and classifying buried landmines
- Designed and built actuation hardware and power distribution electronics for multi-modal sensing system

Cornell University – Cornell Mars Rover Project Team **Sep 2011 – Jun 2014**

Team Lead, Systems Engineer, Advisor: Ephrahim Garcia

- Led interdisciplinary team of 40 students to compete in the University Rover Challenge
- Designed and manufactured robotic arm, claw, and chassis components
- Acted as team system engineer, coordinating efforts from hardware, software, and business sub-teams

Publications

- Crowther, G., Apostolopoulos, D., & Heys, S. (2022). Tensegrital wheel for enhanced planetary surface mobility: Part 1 – design and evolution. - https://doi.org/10.1016/j.jterra.2021.11.008
- Crowther, G., Apostolopoulos, D., & Heys, S. (2022). Tensegrital wheel for enhanced planetary surface mobility: Part 2 - performance assessment of a ruggedized, double-layer tensegrital wheel. *Journal of Terramechanics*, *100*, 87–101. https://doi.org/10.1016/j.jterra.2021.11.007

Skills

Hardware Design Tools: Fusion360 · SolidWorks · Rhino/Grasshopper · ANSYS · EAGLE

Manufacturing: Rapid Prototyping · MIG/TIG Welding · Manual/CNC Mill and Lathe · Blacksmithing

Programming: Python · MATLAB · RAPID · C · HTML/CSS · PLC, RPi, Arduino Experience

Other: Project Management · Hardware Documentation · Leadership

Extracurricular

Board Member at Prototype PGH · 23-24 Incubator Cohort at Ascender · Women's Health Volunteer · CMU Admissions Committee '21, '23, '24 · Protohaven Shop Tech

Interests & Hobbies

Metal Working · Comedy Writing · Cycling and Bike Repair · Gardening · Piano