MATT STOKES - Vancouver, BC Canada

Passionate about **purpose-driven** deep-tech development.
Main areas of research and exploration are problem-focused **robotics** and aerospace. [View Portfolio]

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EXPERIENCE

Rugged Robotics - Houston, TX

Mechanical Engineering Co-op
Co-op - *4 months (Jan. 2024 - April. 2024)*

- Redesigned an **entire subsystem** of the Mk1 platform, incorporating injection molded components to reduce **cost** of the sub-system by **83%** and drastically increasing usability in the field.
- Designed and implemented multiple high-precision measurement rigs, utilizing **Solidworks**, **SW FEA** and **GD&T**. Reduced localization error rooting from measurement sensor modules by several orders of magnitude.

Prosper Robotics - Remote

Mechatronics Engineer, Contractor
Contract (*June 3, 2024 - Present)*

- Designing custom **high-dexterity, low-DOF end-effector. Reduces** time to complete gripping operations **> 30%**. Incorporates **an additional, under-actuated digit** enabling gripping operations **previously impossible without aids/custom tools.**
- Mnf. includes machined, injection molded, sand-casted parts. Assembly designed for safe operation in human environments.

X: The Moonshot Company - Mountain View, California

Intern/Student
Sponsored Educational Experience - *3 months (Summer 2022)*

- Selected out of a pool of international applicants to participate in **3-months** of programming provided by **GoogleX**, culminating in an internship-style program on the **X campus.**
- Worked on the **Rapid Evaluation team** engaging in **R&D** in X's in-house **fabrication facility**. Ending the process with a V1 **physical product**.

TECHNICAL PROJECTS

- **Patch - Transdermal Hollow Body Microneedle Arrays for MDR Bacterial Infections**
  - Raised **$5k** from 1517 and other research based funds.
  - **Technical lead** in small student research team
  - Developed a novel approach to **medicinal drug administration** utilizing **3D-printed** hollow-body **transdermal microneedle arrays** and pressurized drug packets.
  - I designed **six iterations** of the microneedle arrays using principles derived from independent research into microfluidics as well as an **interchangeable drug-packet** and **dispensing** system.
- **Transradial Prosthetic Arm**
  - Raised over **$1k** from 1517 fund.
  - **Five years** of **experience** developing prosthetic arms, projects, projects include Elbow Actuated–non-powered prosthetic for children 9-13 yrs; **ECG**, Powered Prosthetic < $250; and **11-DOF** Myo-Electric Prosthetic.

EDUCATION

Honors Bachelors of Mechatronics Engineering
University of Waterloo, ON

2023-2028
Relevant Courses:

- MTE 121 (**C++, RobotC, ROS2**), MTE100 (**Solidworks**, Autocad, Drafting, **Microsoft Office**)

Alumni - prev. Innovate, Accelerate
The Knowledge Society

SKILLS

Technical Software

- CAD: Fusion 360, **Solidworks**, Autocad
- Programming: **C++,** Typescript, **Javascript** (Next.js, React.js), vanilla CSS, **ROS2,** CMake
- Version Control: **git** + Github

Hardware and Techniques

- 3D Printing (DLP, SLA, **FDM**)
- Soldering
- Technical Freehand Drafting

Current Projects

- **Serial-Parallelized Bipedal Research Platform**
  - 14 DOF Biped Platform based on disney research paper.
  - Designed fully in Solidworks with FEA.
  - Currently designing custom actuators with Cycloidal drives.
- **UWATERLOO HACKERFAB**
  - Building a semiconductor fab facility at Waterloo University.
  - Lithography and photoresist based, single layer integrated circuit fabrication.

OTHER LINKS

- Portfolio Website
- Hobby 3D Printing Account
- Twitter