

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

Sanctuary AI - Vancouver, BC

Mechanical Design Engineer Co-op

Co-op - 4 months (Sept. 2024 - Dec. 2024)

- Spearheaded the entire **testing campaign** for a new generation of highly dexterous hands, conducted mechanical **risk analysis**, designed **custom machined electromechanical rigs** to test all main high-risk aspects of new hand design, **summarized** and **modeled** all findings in an **executive facing report**.
- **Designed production components** to address problems identified during my testing campaign, used **GD&T** and **advanced manufacturing** to accomplish ideal cost-to-precision ratios variable on component/assembly requirements.
- Developed **spreadsheet-based mathematical models** for **force output**, **wear**, and **backlash** prediction over time for all major mechanical sub-assemblies of the new generation of hand.

Rugged Robotics - Houston, TX

Mechanical Engineering Co-op

Co-op - 4 months (Jan. 2024 - April. 2024)

- Redesigned a full **subsystem** of the Mk1 robot 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**.

PREVIOUS PROJECTS -- See my portfolio!

EDUCATION

Honors Bachelors of Mechatronics Engineering

University of Waterloo, ON

2023-2028

SKILLS

Technical Software

- CAD: Fusion 360, **Solidworks**, **Onshape**, 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**
 - ◆ V1 was a 14 DOF Biped Platform based on disney research paper.
 - ◆ Designed fully in Solidworks with FEA.
 - ◆ Currently working on fully custom Actuators for V2, >\$200 and configurable up to 120Nm
- **WMD 3d Printer (Wire-Metal Deposition)**
 - ◆ Traditional Cartesian-style 3d printer, with self-locking rotary-style head, switching between MIG welding head and CNC Spindle.
 - ◆ Solves typical costs associated with high-precision metal deposition by over depositing material and subtractively shaping each layer to required precision.
- **UWATERLOO HACKERFAB**
 - ◆ Building a semiconductor fab facility at Waterloo University.
 - ◆ Lithography and photoresist based, single layer integrated circuit fabrication.