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.

Next Decentrum Technologies Inc. - **Vancouver, BC**

Frontend/Web3 Developer
Contract - *5 months (Sept. 2022 - Jan. 2022)*
- ➔ **Architected** and **developed** SASS's entire **sign-up** and **login** process as well as individual account dynamic content retrieval system from the blockchain. Used **Javascript-**based frameworks, including **Next.js** and **Typescript**; styling through vanilla **CSS** and TailwindCSS, and **Cadence** for interacting with the Flow Blockchain (**learned** and became **proficient** within **two weeks**).

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**