

# Mukund Mauji

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## Experience

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### Software Engineer, Self Employed

*Remote | April 2024 – Present*

- Worked with clients in bioinformatics and cyber insurance

### Search Software Engineer, Brave Software

*Remote | April 2022 – Sept 2023*

- Maintained [search.brave.com](https://search.brave.com), handling 20M queries/day with a team of 12 across EST and CET
- Reduced disk usage by up to 90% by identifying and cleaning domains in the index (**Kafka**)
- Built automated data generation pipelines to support key features like suggestions, spell correct, ranking (**Rust**)
- Decreased system load by 12% in all services by using rendezvous hashing in client-side load balancers (**Python**)
- Optimized bottlenecks in critical services to scale the system without increasing hardware expenses

### Firmware Developer, Mosaic Manufacturing

*Toronto, Canada | Mar 2021 – April 2022*

- Wrote firmware using **C++14** and **mbedOS** for Cortex M4 microcontrollers ATSHA204A
- Implemented cryptographic authentication of hardware accessories using the Microchip ATSHA204A
- Optimized build scripts, reducing firmware compilation times by 80%
- Supported containerized backend services running on Raspberry Pi (**JavaScript, Docker**)
- Conducted code reviews and worked with other team members using version control (**Git**)

### Slicer Software Developer, Mosaic Manufacturing

*Toronto, Canada | Sept 2020 – Mar 2021*

- Increased print quality by 50% of all multi-material models by implementing seam hiding
- Optimized infill density algorithm to allow more granular control, expanding the range of options by 3x
- Maintained 3D slicer that powers Canvas ([canvas3d.io](https://canvas3d.io)), the world's first multi-material slicer (**C++11**)

## Projects

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### Sandwich Bot

*Apr 2025*

- Taught a robot arm to make a sandwich, using an imitation learning policy (**LeRobot, SO-100**)
- Trained a decoder-only ACT policy for pick+place of the bagel and spreading the jam
- Used IK + PID control policy for acquiring the jam onto the end effector
- Orchestrated the actions with a Grok3 powered agentic framework (**CrewAI**)

### Pneumonia Detection in Chest X-Rays

*Oct 2020 – Dec 2020*

- Built a CNN to detect pneumonia in chest x-rays (**TensorFlow, Python**)
- Created a data input pipeline with built-in preprocessing using the TFRecord module
- Implemented a custom Spatial Pyramid Pooling layer to allow for images varying sizes

## Education

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### B.A.Sc. Mathematics and Engineering, Queen's University

*Kingston, Canada | 2020*

- Specialization in Systems and Robotics
- Thesis: Optimizing Brain-Controlled Prosthetic Arm Motion
- Awards: 125th Anniversary Engineering Excellence Award, Excellence Scholarship, Science '68 Scholarship

## Skills

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**Languages:** Hindi, French, Spanish

**Programming:** Rust, Python, JavaScript, Bash, C++

**Technologies:** Git, Docker, AWS, FastAPI, Protobuf, gRPC