

PAARTH PASARI

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Education

University of Waterloo (3.98 GPA)

Sep. 2025 – May 2030

Bachelor of Computer Science

Waterloo, Ontario

Technical Skills

Languages: C++, Python, C, Ruby.

Domain: AWS, Machine Learning, Robotics (ROS), Computer Vision, TCP/IP programming, Testing.

Tools & Frameworks: Pytest, ReactJS, OpenCV, Berkeley Sockets, , Bash, Linux, Git, NumPy.

Experience

Robotics Simulation Engineer | *WAT.ai - Design team @ UWaterloo*

Jan. 2026 - Present

- Using Preference-based Reinforcement Learning (PbRL) to build and teach a robotic arm complex manipulation skills.
- First stage includes training the algorithm in a simulation environment, followed by physically building the robot.

Business Development Intern | *Taskflows & Linktern*

Dec. 2025 - Jan. 2026

- Expanding brand presence for Taskflows and Linktern through targeted market research and strategic outreach.
- Driving platform growth by providing creative input and suggestions to improve the user experience.

Projects

Personalised Marketing Email Engine ([GitHub](#)) | *Python, AWS (Lambda, DynamoDB, Bedrock), Boto3*

Jan. 2026

- Built an automated cloud system to generate personalised marketing emails and increase customer acquisition.
- Implemented DynamoDB-triggered AWS Lambda function to extract customer interests/hobbies and generate an email using Amazon Bedrock.

Group Chat System ([GitHub](#)) | *C++, Berkeley Sockets API, Mutex*

Dec. 2025

- Architected a cross-platform (Linux/Windows) client-server group chat application using Berkeley Sockets API.
- Supported 10+ concurrent client connections, preventing zero race conditions by implementing Mutex locking and threading.
- Ensured 100% payload delivery by eliminating TCP stream fragmentation with a custom Length-Prefix framing protocol for variable-length messages.
- Achieved data integrity across different network byte order (endianness) by implementing manual memory serialisation.

Creator of Drawbie ([GitHub](#)) | *React Native*

Present

- Developed a 13-screen mobile application allowing users to digitise their clothing items and visualise their outfits.
- Integrated a 'virtual canvas' feature enabling users to layer clothing items and save outfit combinations for future reference.
- Added a social layer, allowing users to follow profiles and view their friends' publicly visible outfits in a feed format.
- Uses a hybrid backend infra with Google Firebase Auth, Database, and Local Emulators for Data storage that can handle 100+ assets
- Embedded custom fonts, linear gradients, and modern UI elements for a better experience.

Robotics Distributed System ([GitHub](#)) | *C++, ROS 2 (RCLCPP), Linux*

Dec. 2025

- Built a distributed simulation of a nuclear reactor core with a ROS 2 pub-sub model that streams real-time sensor data to warn of safety protocol violations.
- Detected anomalies by implementing a sliding window algorithm to calculate moving averages with O(1) efficiency.
- Used C++ smart pointers for memory management, and 2Hz asynchronous wall-timers for consistent data broadcast.
- Learnt how to use CMake for dependency management and automatic program executables creation.

Real-Time Object Tracker ([GitHub](#)) | *C++, OpenCV, Computer Vision*

Dec. 2025

- Developed a 30 FPS object detection system that processes raw video feeds to track targets via contour analysis.
- Applied Gaussian blurring, Canny edge detection, and morphological operations to reduce noise and optimise edge detection accuracy in varying lighting conditions.