Jasmehar Kaur

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UWaterloo Software Engineering '29

EXPERIENCE

Trexo Robotics- **Software Developer Intern** Jul - Sep 2022

SQL, JavaScript, Postman, AirTable, Tooljet

- Designed and developed 3 production-deployed web apps to streamline database changes
- Saved the Customer Success team significant hours originally spent on manual edits
- Enhanced efficiency by automating manual processes involving multiple Postman requests
- Mitigated errors by providing a controlled interface for database changes
- Improved data traceability through logging mechanisms

Absolute Robotics- **Head of Strategy and Scouting** 2022 - 2024
FIRST Robotics Competition Team 4308

JavaScript, React Native, ReactJS

- Led the team's strategy development and robot design process
- Taught new members about app development, robot mechanics, and strategy development
- Designed and built a user-friendly mobile app to collect data and track teams' performances
- Developed a web-based app to collect and analyze scouting data through QR code scanning
- Implemented data processing for scoring and strategy analysis

PROJECTS

Braillinator: **Python**, **OCR**, **Tesseract, WebSocket, Raspberry Pi, React Native, JavaScript**

- Developed a technology pipeline to convert printed text into Braille
- Built a mobile app to capture images of text and send them to a Raspberry Pi via WebSocket
- Processed images with Python and extracted text using Tesseract OCR
- Played translated text letter by letter on a built-from-scratch tablet by moving pistons for each tactile dot
- Designed the system to enable real-time text-to-Braille conversion, enhancing accessibility for users

Breast Cancer Prediction Model: **Python**, **PyTorch**, **Machine Learning, Deep Learning**

- Built a neural network in PyTorch to classify breast cancer tumors with 96% accuracy
- Preprocessed data using scikit-learn (standardization, train-test split)
- Optimized model performance with binary cross-entropy loss and Adam optimizer

Road Traffic Simulation: **Java**, **Object-Oriented Programming, Multi-threading, Java AWT Graphics**

- Developed a simulator for road traffic at a 4-way intersection to optimize traffic light durations for maximum efficiency using multi-threading for concurrent execution
- Attained realism through driver behaviours such as varying reaction times, driving speeds, and lane changes modeled from real-world data

Recipe Finder: **Python, Web Scraping, webbrowser, googlesearch, Anvil, Beautiful-Soup**

- Developed a web application to find food recipes based on ingredients and preferences
- Used web scraping techniques to extract recipe information like ingredients and instructions from various online sources
- Ensured data quality by implementing filters to verify the relevance of scraped recipes

EDUCATION

University of Waterloo, Waterloo, ON- **Honours Software Engineering** Sep 2024 - May 2029
(5 year program)

- 4.0 GPA (94% aggregate)
- Awards: University of Waterloo President's Scholarship of Distinction, Mofizur Rahman Memorial Scholarship
- Notable courses so far:
  - **Programming Principles** in C
  - **Introduction to Data Abstraction and Implementation** in C++ (currently enrolled)