GURMUKH KHAROD

SOFTWARE ENGINEER

CONTACT

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EDUCATION

May 2022 - Present
SIMON FRASER UNIVERSITY

- BCs. Computer Science - Software Systems

Sep 2018 - Sep 2021
DOUGLAS COLLEGE

- Diploma in Computer Science & Information Systems

SKILLS

- **OOP Languages:** Java, C, C++, C#, JavaScript, Python, Haskell, Rust
- **Web Development:** ReactJS, NodeJS, NextJS, ExpressJS, HTML5, CSS3
- **Database:** MySQL, SQLite, PostgreSQL, MongoDB
- **Testing & QA**: GoogleTest, Selenium, Hypothesis, libFuzzer, Unit Testing
- **IDE:** Visual Studio, Visual Studio Code, Eclipse, IntelliJ, Android Studio
- **Embedded Systems:** I2C, GPIO, ADC, MCU R5, SPI, PWM, PCM, UART
- **ML & CV:** Python (Pandas, NumPy, scikit-learn), OpenCV, MediaPipe
- **Additional Tools:** APIs, JSON, Git, Gitlab, VMs, CI/CD Pipelines.
- **Operating Systems:** Windows, macOS, Linux (Ubuntu/Debian)

WORK EXPERIENCE

Product Tester Oct 2021 - May 2022
Best Buy Distribution Center, Langley, B.C.

- Collaborated with an 8-member team managing Canada's inflow of 250+ television units daily, ensuring smooth distribution.
- Diagnosed and resolved software issues on electronics using technical expertise, restoring products to a sellable state.
- Optimized testing workflows and directed 100+ units daily to storage, repair, or disposal using Excel and based on testing outcomes, minimizing downtime and maintaining quality standards.

PROJECT EXPERIENCE

Multiplayer Gesture Embedded System Jan 2025 - April 2025
Embedded Systems, SFU

- Built a full-stack multiplayer service using C++ on the BeagleY-AI Embedded System and Node.js with React.js for the Web Client, allowing unlimited active game sessions via HTTP WebSockets.
- Implemented hand gesture recognition using MediaPipe landmark detection cross-compiled with Bazel, achieving ~95% accuracy.
- Utilized 5 embedded hardware components, using I2C, GPIO, ADC, SPI, and NFS, to monitor, test, and control the gesture recogniton.

Dynamic Social Gaming Platform Service Sep 2024 – Dec 2024
Software Development Methods, SFU

- Collaborated with 6 team members using Git and automated GitLab CI/CD pipelines to implement a C++ JSON-based gaming platform leveraging API and OOP design patterns.
- Developed 7 robust server-side APIs with client-side connections, for parsing unlimited JSON game specifications into 12 actionable components, allowing for dynamic game session management.
- Designed 50+ unit and integration tests using Google Test and Google Mock, to verify API behavior and ensure correctness.

Package Management Server-Side App May 2022 – Aug 2023
Object Oriented Design in Java, SFU

- Developed a web server using the Java Spring Boot framework to create an API for manipulating JSON objects, accessible via dynamic endpoints or using a Java Swing desktop app.
- Automated the conversion of Java Objects into JSON using GSON, so that runtime data could be stored locally and on a web server.

VOLUNTEER EXPERIENCE

Lead Programmer of FRC Team - Robotics May 2017 - Jul 2018
North Surrey Secondary School, Surrey, BC

- Served as Lead Programmer for the 2018 FRC year, using C++ to build competition-ready machines, winning the Canadian Pacific Regional and competing at the FIRST Championship in Houston.