GURMUKH KHAROD

SOFTWARE ENGINEER

CONTACT

778 - 798 - 8293

gsk13@sfu.ca

Surrey, BC V4N 2V1

gurmukh-kharod-portfolio.netlify.app/

github.com/GurmukhSKharod

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.
- **Development Environments:** VS Code, IntelliJ, RobotC, Eclipse, Visual Studio IDE, Jupyter, Android Studio
- **Embedded Systems:** I2C, GPIO, ADC, MCU R5, SPI, PWM, PCM, UART
- **ML and CV:** Python (Pandas, NumPy, scikit-learn), OpenCV, MediaPipe
- **Additional Tools:** APIs, JSON, Git, Virtual Machines, Unit Testing.
- **Operating Systems:** Windows 10/11, MacOS X, Linux Ubuntu, Linux Debian, Unix.

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 30+ units daily to storage, repair, or disposal 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 and control the gesture recogniton.

Dynamic Social Gaming Platform Service Sep 2024 – Dec 2024

Software Development Methods, SFU

- Collaborated with 6 team members with Git, to implement a C++ JSON parsing application that utilizes API and OOP design patterns, to manage an unlimited number of active users and game sessions.
- Developed 7 robust server-side APIs with client-side connections, for parsing JSON game specifications into 12 actionable components, allowing for dynamic game session management.
- Designed 50 unit tests using Google Test, to ensure code reliability and correctness across server and client components.

Package Management Server-Side App May 2022 – Aug 2022

Object Oriented Design in Java, SFU

- Developed a Web Server using the Java Spring Boot Framework, to create an API that allows the manipulation of JSON Objects.
- Converted Java Objects into JSON using GSON, so that objects generated during runtime can be stored both 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.