Keerath Singh

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Education

McMaster University — Hamilton, ON
Bachelor of Mechatronics Engineering — *Sept. 2023 – April. 2027*

Technical Skills

Languages: Java, Python, C/C++, Kotlin, Swift, Matlab, Maple, JavaScript, HTML/CSS,
Developer Tools: Git, Inventor, Ansys Granta Edu, Arduino IDE, Android Studio, Visual Studio, IntelliJ, Eclipse, Next.js, Linux, Bash/Zsh, Multisim, AutoCAD

Projects

RC HoverCraft | *Arduino IDE, Arduino C++*, HTML, CSS

- Designed a wiring schematic for the RC hovercraft, ensuring accurate connections between the Arduino, motors, fans, and other components.
- Programmed the Arduino to control the hovercraft's movement, integrating wireless communication through an online server.
- Constructed a custom frame to house the electronics and maintain balance during operation.

Robotic Arm | PyCharm, Python, Raspberry Pi

- Automated sorting tasks by developing Python code for the Quanser Q-arm robotic system, increasing sorting speed by 40% and reducing error rates by 20%.
- Designed and tested robotic system workflows in a digital environment using PyCharm for code development and simulation
- Integrated sensor feedback and motion planning to ensure precise and accurate robotic arm movements in a real-time environment

Mocha | *Android Studio, Kotlin, Jetpack Compose, Room DB*

- Developed an Android to-do list application using Kotlin in Android Studio, focusing on efficient task management and a user-friendly interface.
- Leveraged Room Database to optimize data storage and retrieval
- Designed the user interface using Jetpack Compose, enabling a modern and responsive user experience.
- Gained a thorough understanding of the Android activity life-cycle, achieved smooth transitions and resource management within the app.

Digital Display Circuit Design | Breadboard, Flip-Flops, K-Maps, Multisim

- Designed and implemented a digital circuit using J-K flip-flops to display student number on a 7-segment display.
- Utilized excitation tables, Karnaugh maps (K-maps), and Multisim for sequential logic design and optimization.
- Developed and tested the circuit on a breadboard to validate performance and functionality.

Experience

Our Wave Hub — June 2022 – August 2022
High School Internship

- Developed proficiency in Swift programming to design and build iOS applications
- Achieved a comprehensive understanding of the app development life cycle, from concept to deployment
- Created wire-frames and UI/UX designs for app interfaces, ensuring user-friendly experiences.

FRC Robotics Team Mentor — Sep. 2019 – June 2023
Team 4992 — *Milton, ON*

- Led design and assembly of a provincial champion robot using Autodesk Inventor for CAD modelling.
- Conducted safety training sessions for 40+ team members, covering workshop best practices.
- Collaborated with students in-game strategy and robot functionality development.

Relevant Coursework

Data Structures and Algorithms for Mechatronics, Programming in C/C++, Embedded Systems Design, Analog and Digital Circuits, Dynamics, Statics, Thermodynamics