Software Engineer: Rayan Isran

Quebec, Canada | rayan.isran@mail.mcgill.ca | (+1) 438 933 0049

https://rayanisran.github.io/ | **https://www.linkedin.com/in/rayan-isran/**

Synopsis

Versatile engineer and researcher with 7 years of experience in software, electronics, and UX. **Open to relocation**.

Computer Skills

Languages: PHP, C, C++, C#, Java, Kotlin, TypeScript, JavaScript, Python, HTML/CSS, Shell Scripting
Software Topics: Linux, Android, Git, Jira, Bitbucket, Jenkins, CI/CD Workflows, System Design, Scrum-style Agile, Full-Stack Web Services & Development, Rest APIs, SQL, Firebase, Microcontrollers, Networking

Engineering Experience

Lead Software Engineer, OTA, Bombardier Recreational Products – Valcourt, QC   2024 - Present

- **Designed, built and deployed Android-based** software update system at 3000 dealers worldwide and inhouse BRP vehicle production facilities with foolproof single click process
- **Developed parallel reflashing** system to simultaneously update multiple vehicles, cutting production time eightfold
- **Coordinated** with **internal teams** and **international suppliers** to build over-the-air (OTA) update functionality from the ground-up in < 1 year
- **Lead architectural decisions**, presented technical demos, and reviewed proposals with stakeholders to align efforts with project objectives, priorities, and deliverables
- **Drafted requirements and test cases** for multiple vehicle platforms. Scoped and prioritized features. Triaged work issues using **agile methods and Jira Kanban board**
- **Authored** and actively maintain **productivity add-on tools** used by internal teams across the world to accelerate vehicle testing

Embedded Software Engineer, AAVAA – Montreal, QC   2023 – 2024

- Part of a 6-person team building **smart BLE medical wearables** (headsets, etc.) for **accessible** control
- **Built drivers** for analog and digital sensors on bare-metal/RTOS microcontrollers in C/C++
- Wrote **unit tests, scripts** and developed **GUIs** to streamline testing of modules
- **Developed IMU-based head-tracking system** in devices for backend mouse control
- **Diagnosing firmware** and fixing bugs through software and electronic equipment
- **Documenting** and maintaining SOPs for building and testing software
- Performing **code reviews, pull/merge requests, and OTA updates** to firmware
- **Leading decision-making process** for user interface and interaction paradigms
- Implemented workflow to **benchmark filtering algorithms** to minimize delay and jitter by 40%
- Collaborating with industrial designers and hardware engineers to **ship products to clients**

Research Software Engineer, Shared Reality Lab – Montreal, QC   2021 - 2023

- Collaborated with 20+ researchers and developers on a web accessibility project.
- Participated in **system architecture design** and developed audio-haptic renderings of web graphics in Java
- **Built TypeScript API** to integrate haptic devices into web extension
- **Lead development** of tools to prototype touch-based audio-haptic experiences with Braille device
- Wrote algorithms to quantify and minimize jitter in time-sensitive **haptic control loop** by 10%
- Participated in **code reviews, design evaluations**, and brainstorming sessions
- Demoed tools to **industry partners** for collaboration

Electrical Engineer, Avery Dennison – Karachi, Pakistan   2017 - 2019
- Performed onsite electrical maintenance and repair of **PCBs** for RFID and thermal-printing machines
- Provided **equipment installation and training** to clients across Pakistan. Led to **16% growth** in sales
- Provided **maintenance support on ad-hoc basis** by phone, remote software, and on-site visits
- Wrote scripts to **automate tasks** for sales team to save 10 man-hours/week of manual data wrangling
- Collaborated with product engineers and cross-functional teams across Asia to develop solutions for clients
- **Supervised** in-house production processes to improve **performance by 15%**

Electronics Designer, Capstone Research – Karachi, Pakistan   2016 - 2017
- Led **design**, assembly, and construction of **coastal ocean buoy device** with 2 other researchers
- Ideated and **built dual-purpose design** for power generation or data collection
- **Developed telemetry system** to transmit sensor data through radar to remote station with **ZigBee** radio links

Education

McGill University, Montreal, Canada, MSc in Computer Engineering   Sep 2020 - Aug 2023
- Courses in Digital Signal Processing, Machine Learning, Haptics, Human-Computer Interaction.
- GPA: 3.81/4.00

SZABIST, Karachi, Pakistan, BE in Mechatronics Engineering   Aug 2013 - Aug 2017
- GPA: 3.66/4.00. Silver Medalist. 4x Merit Scholarship Recipient. Outstanding Student Award.

Selected Projects

Personal Professional Gaming Website
- **Full-Stack Web Development**: Designed and implemented a custom blogging platform with dynamic content management, rich-text editing, image upload, and admin authentication, hosted 24/7 on a Raspberry Pi
- **Interactive Web Features**: Developed interactive sidebar polls, real-time live camera streaming (HLS), and weather/AQI integration, providing users with dynamic, data-driven experiences
- **Cloud & API Integration**: Integrated Firebase Firestore for data storage and EmailJS for contact forms, combining local hosting with cloud services for persistent and interactive features

ProofMate: Automated C# Data Processing Tool
- **Saved 20+ hours per month** by automating video compilation and identification of proof-worthy speedrun record times on gaming leaderboard site through webscraping. Link.
- **Implemented object-oriented design** to create modular and scalable solution, using structured data model for levels, players, and records

HandsUp: Integrating Real-World Gestures into Digital Meetings.
- Designed C# tool aimed at **improving interactiveness in online classrooms.** Link.
- **Created wearable** that translates **hand gestures** into highly visible indicators for videoconferencing tools

Watchface for Garmin Devices
- **Developed and deployed** watchface for Persona 4 using Monkey C and Garmin SDK. GitHub Link.
- Features automated weather using OWM API, heartrate, steps, distance, icon and background effects depending on season and temperature

4 DoF Robotic Arm
- Constructed 4-degree-of-freedom **jointed-arm robotic structure** mounted with servo motors
- Implemented **GUI in C#.NET to parse Arduino instructions** to control servos using **PID control system**

Mentoring Experience

Teaching Assistant, McGill University – Montreal, QC   2021 - 2022
- Supervised and mentored students on robotic-systems project with Python for Design Principles course.
- Instructed on embedded systems topics; data protocols, finite-state machines, I/O, interrupts, control systems.
- Created test bank of questions, assignments, and conducted oral quizzes for students.

Mechatronic Laboratory Engineer, SZABIST – Karachi, Pakistan   2019 - 2020

- Performed demonstrations on sensors, microcontrollers, and industry-grade equipment and software
- Designed weekly experiments, exams, and lab-based projects for 150+ students in mechatronic courses.
- Conducted technical evaluations of equipment and maintained item inventory.

Additional Experience And Awards

Scholarship Recipient, McGill University: Awarded $57,000 CAD in funding from ISED & NSERC grants.

Globally Certified Service Engineer, Avery Dennison: Awarded for clearing theoretical and hands-on tests.

Presenter, PyCon Pakistan 2019: Presented on data visualization techniques using Python.

Publications

R. Isran, K. Sepehri, K. Theivendran and A. Anwar, "Towards More Effective Data Visualization Methods Using Haptics," 2021 IEEE World Haptics Conference (WHC), Montreal, QC, Quebec, 2021, pp. 590-590, `https://ieeexplore.ieee.org/document/9517255`.