

RAYAN ISRAN

Montréal, Quebec, Canada

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MSc student, researcher (haptics, UX), engineer, and software developer, with five years of multidisciplinary experience. I am looking to foster my skills in an exciting and challenging workplace with a dedication to building novel technology.

EDUCATION

MSc Electrical and Computer Engineering, McGill University

- **Thesis:** Designing Audio-Haptic Systems to Render Charts for Blind Individuals
- **Courses:** Human-Computer Interaction, Haptics, Machine Learning, Natural Language Processing, Digital Signal Processing

2020-2023

GPA: 3.81/4.00

Montréal, Canada

BE Mechatronics, Shaheed Zulfiqar Ali Bhutto Institute of Science & Technology (SZABIST)

- **Major Courses:** Computer Programming, Machine Design, Mechatronic System Design, Robotics, Data Structures, Control Systems, Digital Image Processing

2013-2017

GPA: 3.66/4.00

Karachi, Pakistan

RESEARCH EXPERIENCE

Shared Reality Lab, McGill University

Montréal, Canada

Haptics Designer, IMAGE Project¹

Mar 2021 - Present

IMAGE aims to make internet graphics accessible through rich audio and touch.

- Brainstormed, designed, and prototyped audio-haptic renderings for web graphics (maps, charts, photographs).
- Designed, conducted, and thematically analyzed user studies with blind users to evaluate feasibility of using low-cost force-feedback device.
- Created TypeScript API to integrate force-feedback device into web extension and implemented end-to-end audio-haptic experience.
- Developed prototyping tool in TypeScript to rapidly create, edit, and distribute interactive audio-haptic experiences through touch gestures. Created framework to support automatic generation of renderings for targeted types of graphics. Demoed tool to prospective industry-partner for collaboration.

Haptic Perception Researcher

Mar 2021 - Aug 2022

- Designed experiment to evaluate vibrotactile acuity on the forearm.
- Developed hardware and software, and conducted user studies to test hypotheses.

BE Capstone Project, SZABIST

Karachi, Pakistan

Mechatronics Engineer, Coastal Ocean Data Buoy

Aug 2016 - Aug 2017

Led design and construction of coastal ocean data buoy with two other researchers.

- Ideated and developed dual-purpose design, which can be used for wave-energy power generation, or wave-data measurement collection for long-term coastal analysis.
- Developed telemetry system to acquire, store, and transmit sensor data through Xbee radio links in C using Arduino software.

PROFESSIONAL EXPERIENCE

Avery Dennison

Karachi, Pakistan

Techno-Service Commerical Engineer

Feb 2018 - Oct 2018

- Provided on-site system and equipment installation and training of thermal printing machines to 20 clients throughout Pakistan. Led to 16% growth in sales.
- Provided maintenance support on ad-hoc basis by phone, remote software assistance, and on-site visits.
- Created and maintained contracts for clients. Performed audits at client venues on periodic basis.
- Wrote Excel macros to automate sales tasks for customer service department to reduce hours of manual data entry and wrangling.

¹<https://image.a11y.mcgill.ca/>

TEACHING EXPERIENCE

Teaching Assistant, Design Principles and Methods , McGill University	Jan - Apr, Sep - Dec 2022
• Supervised and mentored students creating robotic systems using Raspberry Pi for course-based project.	
• Graded and provided feedback to students on weekly lab exercises.	
Teaching Assistant, Embedded Systems , McGill University	Jan 2021 - Mar 2021
• Designed and graded Arduino-based lab assignments.	
• Created test bank of questions and conducted oral quizzes for students.	
Laboratory Engineer , SZABIST	Oct 2018 - Jan 2021
• Conducted labs, and designed and graded exams for Thermodynamics, Fluid Mechanics, Heat Transfer, and Mechatronic System Design to 100+ students.	
• Taught students to create mechatronic systems using Arduino, Raspberry Pi, PLC software, and analyze data using Data Acquisition software.	

SKILLS

Programming: Python, TypeScript, Java, C, MATLAB, C#

Tools: Jupyter Notebook, LATEX, Git, Adobe Photoshop (graphic design), Sony Vegas (video editing)

Research Methods: Prototyping, usability testing, semi-structured interviews, thematic analysis, data visualizations

Hardware / DIY: Arduino, Raspberry Pi, Leap Motion, Laptop Repair

PROJECTS

HandsUp: Integrating Real-World Gestures into Digital Meetings Montréal, Canada	2020
• Designed tool aimed at improving interactivity in online classrooms.	
• Developed hardware and software system that automatically translate gestures into indicators on videoconferencing software.	
Automation & Analysis Tools remote	2017
• Developed console application tool for a gaming website to scrape, clean, parse, and export data into required format for further analysis, minimizing manual work and reducing daily incidence rate of overlooking important records.	
• Generated data visualizations (heatmaps, charts, infographics) to explore statistical trends of video game records.	
• Co-developed SMS-based alert system using the Twilio API service to send notifications when new world records are achieved.	

AWARDS AND SCHOLARSHIPS

Scholarship Recipient , McGill University (CAD 53,333 in funding)	2020 - 2023
Globally Certified Service Engineer , Avery Dennison	2018
Teamwork , Avery Dennison	2018
Dean's Honor Roll , SZABIST	2017
4x Scholarship Recipient , SZABIST	2015 - 2016
Outstanding Student Award , SZABIST	2015

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, Canada, 2021, pp. 590-590, <https://ieeexplore.ieee.org/document/9517255>.

SERVICE

- **Co-reviewer**, World Haptics Conference 2021
- **Co-reviewer** (meta-review), Haptics Symposium 2022
- **Co-reviewer**, World Haptics Conference 2023

HOBBIES

- Hiking • Volleyball • Badminton • Speedrunning. I am a professional speedrunner for the Nintendo 64 games GoldenEye 007 and Perfect Dark. My achievements have been covered in videos that have amassed millions of views.