

# Asha Roy

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Third-year Computer Systems Engineering student at Carleton University with hands-on experience in **Python, Java, C, REST APIs, test automation, and embedded systems**. Proven ability to independently design and deliver end-to-end software solutions, reverse-engineer undocumented systems, and create measurable business impact. Seeking a co-op/internship in software engineering, embedded systems, or test automation.

## EDUCATION

**Carleton University**, *Bachelor's in Computer Systems Engineering (Third Year)* - Ottawa, ON, Canada

**West Carleton Secondary School**, *Specialist High Skills Major - IT Strand* - Ottawa, ON, Canada

## SKILLS/COURSES

**Programming Languages:** Python, Java, C, Embedded C, JavaScript, HTML

**Frameworks & Libraries:** Flask, Node.js, scikit-learn

**APIs & Data:** REST APIs, JSON, SQL, SQL Server

**Systems & Embedded:** Linux (Raspberry Pi OS), Arduino, FPGA, Verilog, Microcontrollers, Circuit Design

**Development Tools:** Git, Bash/Shell, PowerShell, MATLAB, AutoCAD, Keil IDE, Cursor (AI Pair Programming)

**Engineering Concepts:** Object-Oriented Programming (OOP), Test Automation, Unit Testing, Debugging, Reverse Engineering, Data Analysis, AI/ML Basics, Agile Methodologies, DevOps Concepts

## EXPERIENCE

### Bank of Canada

*Software Developer Intern* - Ottawa, Ontario  
2025

Sept 2025 - Dec

- Designed and implemented an **automated REST API-driven migration pipeline** to move test cases from qTest to Allure TestOps, reverse-engineering undocumented APIs and data structures to enable **reliable, repeatable bulk migration** across platforms.
- Built the solution using **Python, JSON parsing, PowerShell scripting, and SQL Server**, eliminating manual migration effort and reducing licensing and external consulting costs.
- Presented project outcomes and recommendations to **senior management and cross-department stakeholders** following strong interest from other teams to implement the tool.

### Bank of Canada

*Test Automation Developer Intern* - Ottawa, Ontario

May 2025 - Aug 2025

- Independently developed an **integrated test reporting and visualization platform** aggregating automated test data across multiple tools, domains, and platforms to support managers and non-technical stakeholders reducing need for individual tool licenses.
- Implemented data ingestion via **REST APIs, JSON processing, SQL queries, and report downloads**, with backend aggregation in **Node.js** and a unified **JavaScript/HTML** interface.

### Canadian Air Traffic Security Authority

*Innovation and Reporting Intern* - Ottawa, Ontario

Oct 2023 - April 2025

- Analyzed cross-department KPI validation workflows, identified inefficiencies, and implemented process improvements that enhanced data reliability and operational performance.
- Built Operational Performance Reports, including KRA and KPI metrics and consolidated quarterly reports.
- Led technical research for an **AI Oversight Trial on applying Computer Vision to monitor screening officer performance**. Evaluated real-time activity detection tools and contributed to a successful trial using existing CCTV infrastructure and AI software.

## Zighra Inc.

*Business Analyst Intern - Ottawa, Ontario*

May 2023 - Aug 2023

- Conducted a comprehensive evaluation of organizational cybersecurity practices against industry benchmarks.
- Identified gaps in digital asset protection and regulatory compliance.
- Designed a structured roadmap to implement industry best practices and strengthen cybersecurity posture.

## Founding Minds Inc.

*High School Co-op Student - Ottawa, Ontario*

Feb 2022 - Aug 2022

- Designed and developed front-end pages for an HR application for a client of Founding Minds.
- Used Angular, JavaScript, CSS, and HTML.

## PROJECTS

**Senior Monitoring System – Active Semester Project, Carleton University**

2026

- Designing a **non-intrusive senior safety monitoring system** to detect falls and behavioral anomalies using **computer vision**, sensor data, and edge-based processing.
- Defining the architecture for a **distributed 4-node IoT system** using Raspberry Pis, Arduino devices, and smartphones, with real-time data ingestion through a cloud-based backend.
- Planning the use of **MediaPipe for privacy-preserving 3D skeletal tracking** and **TensorFlow Lite for on-device ML inference** to classify movement patterns and identify potential health-related irregularities.

**Home Theater Remote control - Hobby Project**

2025

- Developed a **Flask/Progressive Web App (PWA)** that unified controls for an EPSON projector, NVIDIA Shield, home theater receiver and room lighting into a single remote control interface.
- Used an **IR blaster** to capture device-specific IR codes and integrated them into the app for seamless control using **Broadlink IR** device.
- **Android Debug Bridge (ADB)** was used for low-level access to NVIDIA Shield to control the device.
- Hosted the application on **Raspberry Pi**

**Robotic Arm Remote Control - West Carleton Secondary School**

2022

- Designed and developed an **IR-based remote control** for a robotic arm as part of my Grade 12 Computer Engineering course.
- This project involved **PCB design** and building of the IR-based remote-control hardware using **KiCad**, software programming, as well as 3D design of the remote-control case using **SolidWorks**.

**Arduino Based Greenhouse Monitoring System - Hobby Project**

2021

- Designed and built an **Arduino**-based system to optimize growing conditions in an indoor winter greenhouse along with my dad.
- **Automated grow light operation** and **implemented sensors** to monitor temperature, humidity, and soil moisture, triggering a heater as needed for ideal growth.
- Integrated a **cloud-based dashboard** to enable **real-time monitoring** of greenhouse performance.

**Aquasaver - Technovation Competition**

2020

- Competed at Technovation 2020 as part of a team from my high school where our project was to create a way for households to reduce water consumption by monitoring usage.
- Created a progressive web application (PWA) using JavaScript and HTML to show various consumption details to users and provided tips on how to reduce usage.

## AWARDS & CERTIFICATIONS

**Golden Key Award of Distinction, Carleton University**

2023

**Award of Distinction Technological Design Course TDJ3M, West Carleton Secondary School**

2021

**2nd Place at Debate Camp, Debate Canada**

2018

**Certified Gymnastics Coach, Ontario Gymnastics Association**

2019+