ILYAAS HUSSEIN

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EDUCATION

Carleton University Bachelor of Engineering in Software Engineering Sep. 2021 – Present Ottawa, ON

TECHNICAL SKILLS

Languages: Java, Python, C, C++, C#, JavaScript, HTML, CSS, Ruby, Go, SQL, MongoDB Frameworks: React, Ruby on Rails, Django, Springboot, Flask, NUnit, JUnit, Selenium Developer Tools: Git, AWS, Docker,VS Code Libraries: Pandas, NumPy, Matplotlib, SciPy, SkLearn Working Environments: Linux Other: Machine Learning, AI, L4 Networking (TCP, UDP), Bash Scripting, CI/CD

PROJECTS

CU ARival (2025 Carleton SCE Casptone Project Winner) | C#, Unity, Google ARCore

- Designed and built a mobile AR navigation app for Carleton University using Unity and Google ARCore
- Integrated 3D spatial mapping and virtual paths anchored to real-world positions for accurate guidance
- Reduced average student navigation time by over 50% in complex buildings like Mackenzie

Amazin Bookstore | Java, Springboot, Maven, PostgreSQL, HTML, CSS, JavaScript

- Designed a modern online bookstore application, using Spring Boot, enabling users to browse, search, and securely purchase books, with full shopping cart and order management functionality.
- Implemented RESTful APIs for secure checkout, dynamic book filtering, and session-based cart handling across multiple user sessions
- Processed over **150** simulated transactions during load testing to evaluate performance and ensure consistent user experience

CIFAR-10 Image Classification | Python, Pytorch, Torchvision, NumPy, Matplotlib, SkLearn

- Developed a convolutional neural network (CNN) in PyTorch for multi-class image classification on the CIFAR-10 dataset, achieving ~87% test accuracy without pre-trained models
- Applied data normalization, random cropping, and horizontal flipping to augment training data and improve generalization

Client Server Elevator Controller | Java, UDP, Multithreading

- Engineered and maintained a Java-based client-server application using UDP and socket programming to control a group of elevators remotely, ensuring efficient and reliable communication between the control system and elevator units.
- Implemented multithreading to manage concurrent elevator requests, significantly enhancing the system's responsiveness and reducing wait times by 30%.

Authenticated Encryption System | Python, Pycryptodome

- Developed a secure message encryption pipeline implementing AES-CBC with HMAC-SHA256 and validated message integrity through Encrypt-then-MAC and MAC-then-Encrypt constructions
- Simulated attacks and verified cryptographic robustness by testing tampered ciphertext and invalid MAC scenarios, demonstrating understanding of modern secure communication protocols
- Evaluated the security implications of different authenticated encryption schemes, analyzing why Encrypt-then-MAC is preferred over alternatives in real-world cryptographic protocols

AWARDS AND ACHIEVEMENTS

• Lester Bowles Pearson Scholarship.