IBTASAM RASOOL

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EDUCATION

B.Eng. Software Engineering, Carleton University — Ottawa, ON, Canada
4th Year, $12,000 Scholarship Recipient — *Sep 2020 – Apr 2025*

- **Related Coursework**: Algorithms and Data Structures, Databases, Networking, Software Architecture, Programming Paradigms, Software Security, Software Testing, Discrete Math, Operating Systems, Object-Oriented Programming.
- **Capstone**: Intrusion Detection using AI for IoT devices.

EXPERIENCE

Software Engineering Intern | Canadian Bank Note Company — Ottawa, ON, Canada
ID Systems Back End Developer — *May 2024 – Sep 2024*

- Enhanced system design of a driver's license and ID management application by increasing system maintainability and scalability through the implementation of design patterns at the middle-tier (Java Spring) and persistence (PostgreSQL) layers, while utilizing test-driven development and Agile (Scrum) methodologies.
- Improved **efficiency and accuracy** of the ID system's facial recognition feature, meeting client speed and accuracy requirements by implementing utility methods in the middle-tier to optimize parameter calibration.

Front-End Software Developer Intern | Health Canada — Ottawa, ON, Canada
Front End Developer — *Sep 2023 – Jan 2024*

- Increased user satisfaction by **25%** by ensuring accurate data exports and meeting impairment and bilingual standards on web pages designed using Angular for medical and drug regulation form submissions.
- Improved security on exported web page data by implementing the **primary security measure**: a cryptographic checksum system that auto-checks form data, protecting against data tampering and corruption.

Software Engineering Intern | Canadian Bank Note Company — Ottawa, ON, Canada
ID Systems Back End Developer — *Jan 2023 – Sep 2023*

- Configured dependency management and builds with Maven and automated builds for CI/CD through DevOps practices for the middle-tier (Java Spring) of a driver's license and ID management application.
- Modified design of temporary license cards using XHTML, ensuring all card fields were rendered to client standards.
- Automated configuration file checks, reducing verification time by **30 minutes**, by designing a Python script that implemented abstract data types and algorithms to ensure required features were present within files.

PROJECTS

Student Management System | Java Spring Boot, Angular, PostgreSQL, REST

- Developed a full-stack application with a 3-tier architecture to manage students in educational institutions.
- Built a simple front-end user interface using Angular 17.
- Developed a RESTful API using Spring Boot to handle all data requests efficiently.
- Designed and normalized a PostgreSQL database for effective student data management.

Elevator Control System and Simulator | Java, JUnit, Swing, Real-Time, Multithreaded

- Collaborated in a team of five to develop a real-time multithreaded elevator management system and simulator.
- Designed and implemented an elevator scheduler that manages elevators by executing remote procedure calls on multiple threads (each elevator being a thread) by sending requests over UDP with an ACK (to prevent data loss).
- Developed state machines for elevator and scheduler using the State design pattern.

Scrabble Game | Java, JUnit, Swing

- Worked in a team of four to develop a Mock 'Scrabble' game played on a 15x15 grid. Supports human and AI players.
- Applied the Model-View-Controller design pattern and OOP to create a loosely coupled yet highly cohesive application.
- Designed and implemented a pathfinding algorithm that utilizes backtracking and depth-first search to detect valid word combinations on the board.

Handwritten Digit Recognition App | Python, PyTorch, Machine Learning

- Built a lightweight digit recognition application enabling real-time drawing and classification of handwritten digits.
- Developed a machine learning model using a Convolutional Neural Network trained on the MNIST dataset.
- Designed a simple and efficient GUI which allows users to draw and view the model's prediction.

SKILLS

Languages: Java, Python, C, HTML, CSS, JavaScript, TypeScript, SQL, Go, Racket
Frameworks/Tools: Angular, PyTorch, Flower AI, Spring Boot, REST, PostgreSQL, JUnit, Swing, Git, Maven, Linux
Soft Skills: Communication, Time management, Teamwork, Adaptability, Detail-Oriented