# SADMAN KABIR

Brooklyn, New York | (718) 593 2041 | kabirs@bu.edu | https://linkedin.com/in/mdskabir | https://github.com/corndog-overflow |

## EDUCATION

### BOSTON UNIVERSITY

**B.S**, **Computer Engineering**. Expected May 2025

Concentration in **Machine Learning.**
**Dean's List, Fall 2024.**

## EXPERIENCE

**Research Intern**
*Boston University, China Historical Christian Database (CHCD)* (Sept 2024 – Present)

- Focusing as technical intern on **migrating backend** from **neo4j database to PostgreSQL.**
- Translated legacy codebase in cypher language to SQL.
- Reworked legacy queries to implement more accurate data retrieval.
- Currently working toward implementing **custom API** and later integrating into production.

**Software Engineering Teaching Assistant** (May 2023 – August 2023)
*Giant Machines Software (now part of Deloitte Digital)*

- Mentored and instructed externs and fellows representing **Citadel Securities, Bank of America and MasterCard.**
- Lectured students on **python, web development using HTML, CSS, Flask, MongoDB, and Bootstrap.**
- Fostered good interview etiquette, taught essential **algorithms, data structures and computer science theory.**

## PROJECTS

**Semi-Autonomous Robotic Ground Convoy**
*Capstone project for Boston University and The Charles Stark Draper Laboratory.*

- **Co-led robotic perception** team for the automatic detection and tracking of designated field targets.
- Leveraging **SLAM algorithms for obstacle avoidance**, working toward **swarm behavior.**
- Programming **ROS2** perception nodes in python, with various computer vision methods from **semantic segmentation** to **neural nets**.
- Utilized **transfer learning** on existing object detection architectures like **yolov8** to retrain model to detect designated classes.

**ResNet Convolutional Neural Network**

- Built ResNet neural network with **pytorch** to classify images from Cifar-10 Dataset.
- Ultimately achieved **~90% classification accuracy** on cifar-10, through **standard optimization techniques**.
- Used understanding to create PerryNET, a convolutional network that classifies images of Perry the Platypus with 96% accuracy.

**FPGA Video Game**

- **Designed RTL circuit** in **Verilog**; integrated 7 Segment Displays, switches, and buttons to create 2 Player FPGA game.
- **Wrote numerous testbenches** in Xilinx Vivado, and fit to FPGA, passing **100% of test cases on board.**
- Demonstrated proficiency in implementing **FSMs**, **behavioral, and structural Verilog**, and **verification techniques**.

## SKILLS

**Languages, design abilities:**

- C++, C, C#, SQL, Verilog, Electronic/Digital Circuit Design, Python, JavaScript, Java,
- UI/UX Design, Full-stack Application Development, Embedded Systems development.

**Tools/Libraries:**

- TensorFlow, PyTorch, OpenCV, ROS2, Xilinx Vivado, .NET Frameworks, OnShape,
- MATLAB, Jupyter Notebooks, WireShark, UNIX, Bootstrap, REACT Native, Electron,
- Visual Studio, Flask, NodeJS, Express JS, MongoDB, PostgresSQL, SQLite, Figma.

## RELEVANT COURSEWORK

- Electric Circuits, Digital Logic Design, Embedded Systems, Robotics, Machine Learning, Deep Learning, Cybersecurity.
- Calculus I, II, III; Physics I, II; Statics; Probability and Statistics; Signals and Systems; Computer Organization; Algorithms and Data Structures.