SADMAN KABIR

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EDUCATION

Boston University Boston, MA
B.S, **Computer Engineering** Expected May 2025
Concentration in Machine Learning.

WORK EXPERIENCE

Computer Science Teaching Assistant
Giant Machines Software (now part of Deloitte Digital) ***(May 2023 - August 2023)***

- Acted as teaching assistant for Citadel Externs during a 3-week program sponsored by Citadel Securities.
  Instructed another 4 weeks for Bank of America Fintech Focus students and another 2 weeks for Mastercard's Girls4Tech technical interview Bootcamp.
- Taught and aided students in the python programming language, web development using HTML, CSS, Flask, MongoDB, and Bootstrap.
- During Mastercard's technical interview bootcamp, fostered good interview etiquette, taught essential algorithms, data structures and CS principles.
- Encouraged collaboration, teamwork, creative thinking and fostered good programming practices in our students.

SKILLS

TECHNICAL SKILLS: C++, C, MATLAB, Python, Machine Learning, Verilog, JavaScript, HTML, CSS, CAD, Verilog, MIPS AL, Socket programming.
TOOLS: UNIX, Git, ROS2, VSCode, Flutter, NumPy, scikit-learn, MongoDB, Flask, Jinja3, Bootstrap, Xilinx Vivado, Electron.
LANGUAGES: Fluent in Bengali. Conversational proficiency in Japanese.
BEHAVIORAL: Responsibility delegation/management, team communication, time management, teaching ability.

ENGINEERING PROJECTS

Automated Course Registration Application
Designed and programmed the front-end of an application that registers students for classes in advance.

- Implemented Flutter SDK for front-end development of Desktop Application.
- Used web-scraping with Selenium to obtain course registration information and catalog numbers.
- Integrates Flask microframework with pure python backend to send and receive requests.

FPGA Number Guessing Game
A two-player number guessing game written and designed with Verilog.

- Hardware description written and designed in Verilog.
- Demonstrates understanding in finite state machines, Boolean algebra, analysis and design of combinatorial and sequential circuits.
- Developed and synthesized with Xilinx Vivado and tested on FGPA, passing 100% of test cases.

Homemade Neural Network
A neural network made with just NumPy and scikit-learn.

- A multi-layer perceptron algorithm that correctly identifies samples from the MNIST dataset with greater than 97% accuracy.
- Implements backpropagation, ReLU and sigmoid activation functions, and plots performance with confusion matrix.
- Uses only scikit-learn, NumPy, and Keras API for dataset importation.

Command Line Interface Pokémon
A video game run through CLI focusing on demonstrating master of OOP principles.

- Written in C++ and run as a robust CLI application.
- Utilizes mastery of OOP principles, including inheritance, polymorphism, abstraction, and encapsulation.

RELEVANT COURSEWORK

- Machine Learning, Computer Networking, Computer Organization, Signals and Systems, Robotics.
- Software Engineering, Algorithms and Data Structures, Computer Organization, Electric Circuits, Digital Logic Design

INVOLVEMENT

Boston University Mars Rover Club **(Fall 2022 - Present)**

- Member of the Control Systems sub team, focusing on programming robotic arm behavior with ROS2 and Moveit 2.
- Leverages understanding of Machine Learning algorithms and libraries such as OpenCV for purposes of autonomous navigation.