SAMIN BIN KARIM

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EDUCATION

Illinois Institute of Technology, Chicago, IL — AUG 2023 – MAY 2025
M.A.S. in Artificial Intelligence, GPA, 4.00

Independent University Bangladesh, Dhaka, Bangladesh — MAY 2022
B.Sc. in Computer Science and Engineering, GPA, 3.86

SKILLS

- **Programming Languages:** C/C++, Python, MATLAB/Simulink, Embedded C
- **Hardware:** Speedgoat, Autera, ARM Cortex
- **Software & Tools:** ROS, TensorFlow, OpenCV, Docker, Git, Linux, RTMaps
- **Algorithms:** Model Predictive Control (MPC), PID Control, Kalman Filter, Sensor Fusion
- **AI/ML:** Vision Transformers, CNNs, Reinforcement Learning, Machine Learning Security
- **Protocols & Standards:** CAN, AUTOSAR

WORK EXPERIENCE

TECHNICAL SPECIALIST
EcoCAR EV Challenge Team, Illinois Institute of Technology — JUNE 2024 – Present

- Led development of torque pathway and regenerative braking systems for PCM
- Designed lateral controllers for lane centering using a Stanley controller.
- Developed Autopark using 2D grid occupancy maps from simulated ultrasonic sensors
- Integrated IMD into PCM powermoding system and tested in VIL to ensure safe closure of vehicle contactors.
- Led integration of Magna Motor and PCM controller, including startup, ETRS and cybersecurity.
- Developed and implemented pre-processing scripts for CAN data analysis.
- Led design and development of the PCM and CAV controller interface for torque control.
- Created a MIL testing pipeline for PCM controllers.

CAV Co-Lead
EcoCAR EV Challenge Team, Illinois Institute of Technology — SEPT 2023 – MAY 2024

- Led the development and testing for Adaptive Cruise Control (ACC) into the 2023 Cadillac LYRIQ.
- Implemented sensor fusion algorithm utilizing radar, and camera data to detect lead vehicle
- Developed and tested Model Predictive Control (MPC) and Proportional-Integral-Derivative (PID) based controllers for Cruise Control.
- Developed simulation and testing pipeline for CAV features using Simulink and Roadrunner.
- Developed testing and evaluation pipeline for CAV features using recorded vehicle CAN data.

Leadership and Professional Experience

Lead Developer, H2.0 Resilience – AI-based Urban Flood Mitigation
IIT Startup Accelerator, Chicago, IL — JANUARY 2024 – Present

- Designed an interpretable Vision Transformer-based model for flood prediction, utilizing real-time data to aid city planning and disaster management.
- Oversaw system architecture, including the design and deployment of edge devices for environmental monitoring and decision-making.
- Partnered with government agencies MWRD and flood insurance companies like Floodflash to deliver AI-driven solutions for flood prevention and sustainable infrastructure.
- Awarded 3rd place for project in Grainger Computing Innovation Prize – 2023.