ASLAMAH RAHMAN

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EDUCATION

University of Pennsylvania
M.S. in Mechanical Engineering (Mechatronics)
May 2020
GPA 3.73*/4.00

Indian Institute of Technology Madras
B.Tech.
May 2018
GPA 8.94/10.00; Rank 2/45

SKILLS

Programming Languages
C, C++, Python, Javascript
Robotics & Embedded
FreeRTOS, Mbed OS, Arduino, MQTT, UPPAAL, ROS*, UART/I2C/SPI/UDP
Design
SolidWorks, Mathematica, MATLAB, Altium
Full-stack Development
Django, SQL, NodeJS
Data-modeling
TensorFlow, Pandas, Scikit-learn, Tableau
Other:
Linux, Git, Docker

COURSEWORK

Mechanical/Systems
Advanced Mechatronics
Aerial Robotics*
Nonlinear Control
Product Design
Engineering Economics
Computing/Modeling
Embedded Software for Life-Critical Systems
Data-Driven Modeling
Probabilistic Scientific Computing

ACADEMIC PROJECTS

Real-time Deep Reinforcement Learning on Microcontrollers *Spring 2019*
- Built autonomous obstacle tracking bot with Deep Policy Gradients; ~10s for training
- Created platform independent deep learning library in C++ for MCUs with 32-bit float
- Optimized for real-time hardware wrt memory management & concurrent execution

Smart Intersection for Connected Autonomous Vehicles (CAV) *Fall 2019*
- Developed algorithm for safe motion of CAVs in intersections with minimal to no wait-time
- Verified model for correctness & safety using UPPAAL; Intersection throughput up by 80%
- Built & simulated model with cloud-based controller communicating using MQTT protocol

Animatronic Head & Eyes with Person & Eye Tracking & Audio Behaviour *Spring 2019*
- Performed face detection with OpenCV & precise tracking with custom control algo
- Designed PCB & optimal firmware architecture; created C++ Stepper Library for ESP MCU utilizing hardware timers for PWM for non-blocking control

Wireless Battle Bot with Attacking & Light Sensing Capability *Fall 2018*
- Designed, wired & programmed WiFi bot with multi-pronged & precise attacking powers
- Integrated autonomous mode, noise-shielding & robust hardware, software & electronics

Physics Informed Deep Learning Framework for Assimilating Flow Data *Fall 2018*
Graduate Research Assistant, Predictive Intelligence Lab, SEAS, UPenn
- Built DL model capable of learning fluid dynamics laws for credible & reliable predictions
- Collaborated with Penn Medicine for estimating blood pressure in umbilical cord w/o probes

WORK EXPERIENCE

School of Engineering & Applied Sciences, University of Pennsylvania *Philadelphia PA*
Teaching Assistant - Design of Mechatronic Systems *Fall 2019*
- Managed & assisted class of 100+ students with 10 TAs
- Lead lab recitations & office-hours, developed course material & supervised projects
- Built central server & communication architecture for class final project (MOBA robot battle)

Health Language Processing Lab, UPenn Perelman School of Medicine *Philadelphia PA*
Student Researcher / Full Stack Developer *Spring 2019*
- Developed, tested & maintained full-stack web application for labelling natural language
- Awarded funding by National Institute on Drug Abuse, NIH, US DoHHS

General Electric Global Research (Aviation) *Bengaluru India*
Machine Learning Intern *Summer 2018*
- Investigated & assembled Ni super alloys dataset (~90% alloy space, 200+ publications)
- Designed Random Forest model for composition-processing-property relations (error~5%)
- Pioneered proof of concept for Alloy Development Using Machine Learning diminishing R&D time by ~90%

HONOURS

- Top 50 in USA, Moody's Analytics Women in Engineering (Algorithmic) CodeSprint 2018
- Steel Scholarship 2017, for academic excellence by Ministry of Steel, Gov. of India
- KVPY Scholarship 2014, awarded to top 0.2% high-school students by DoST, Gov. of India

VOLUNTEERING

Tutor & Content Developer, DeltaWomen (United Nations Online Volunteer) *Summer 2019*
- Taught Python & algorithmic thinking to 25+ women & men aged 18-40 in Nigeria

Tutor, Penn Educational Studies Program (Splash at Penn) *Fall 2018*
- Taught data modeling & machine learning course for 30+ students in grades 6-12

*Registered/Ongoing