

ASLAMAH RAHMAN

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Philadelphia PA 19104

EDUCATION

University of Pennsylvania

M.S. in Mechanical

Engineering (Mechatronics)

May 2020

GPA 3.73*/4.00

Indian Institute of Technology Madras

B.Tech. in Metallurgical &

Materials Engineering

Minor in Industrial

Engineering

May 2018

GPA 8.94/10.00; Rank 2/45

COURSEWORK

Computing

Data-driven Modeling

Machine Learning

Computational Fluid Dynamics

Computational Materials

Design

Embedded Software for

Life-Critical Systems

Mechanical

Advanced Mechatronics

Aerial Robotics*

Nonlinear Control

Micromechanics of Materials

Heat & Fluid Flow

Physical Metallurgy

Phase Transformations

SKILLS

Programming Languages

C, C++, Python, Javascript

Robotics & Embedded

FreeRTOS, Mbed OS, Arduino,

MQTT, UPPAAL, ROS*,

UART/I2C/SPI/UDP

Full-stack Development

Django, SQL, NodeJS

Data-modeling

TensorFlow, Pandas,

Scikit-learn, Tableau

Other:

Linux, Git, Docker

WORK EXPERIENCE

General Electric Global Research (Aviation)

Bengaluru, India

Structural Materials Intern

Summer 2018

- Investigated & assembled Ni super alloys dataset (~90% alloy space, 200+ publications)
- Designed Random Forest to predict composition-processing-property relations (error ~5%)
- Pioneered proof of concept for Alloy Development Using Machine Learning

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, Perelman School of Medicine UPenn

Philadelphia PA

Student Researcher

Spring 2019

- Developed & maintained full-stack web application for annotating natural language
- Designed framework for creating & sharing learning ready datasets with version control
- Awarded funding by National Institute on Drug Abuse, NIH, US DoHHS

ACADEMIC PROJECTS

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

Modeling & Simulation of Nanoparticle Formation in Biopolymer Spraying

2017-2018

Bachelor Thesis, Indian Institute of Technology Madras

- Analysed & developed Phase Field code in C to simulate biopolymer droplet evaporation
- Applied in modelling of drug carrier design to reduce experimentation time by ~80%

Multi-scale Modelling of Thermosolutal Dendritic Solidification

Summer 2017

Summer Intern, Indian Institute of Science

- Developed C code modeling microstructure evolution(Phase Field, Diffusion Monte Carlo)
- Reduced computational load (~96%) & increased accuracy (~80%) of simulation across multiple resolutions using Random Walk Algorithm; Implemented dynamic linked lists for tracking walkers

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

HONORS

- 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 graduates by DoST, Gov. of India

LEADERSHIP & VOLUNTEERING

Tutor & Content Developer, DeltaWomen (United Nations Online Volunteer)

Summer 2019

- Taught Python & algorithmic thinking to 25+ women & men aged 18-40 in Delta, 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

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