
EDUCATION

The Ohio State University

PhD in Mechanical Engineering

Columbus, OH

Aug. 2018 – 2023 (expected)

Bangladesh University of Engineering & Technology

B.Sc. in Mechanical Engineering

Dhaka, Bangladesh

May 2010 – Sep. 2015

EXPERIENCE

Graduate Research Associate

The Ohio State University

Aug. 2018 – Present

Columbus, OH

- Development of learning algorithms for environments with expensive data
- Building autonomous additive manufacturing system with in-situ printing and characterization unit
- Supervising undergraduate students

Lecturer

Shahjalal University of Science & Technology

Mar. 2016 – July 2018

Sylhet, Bangladesh

- Teaching theoretical courses and taking laboratory sessions
- Taught courses: C programming, MATLAB, Engineering Mechanics, Measurement and Instrumentation

Intern

Electricity Generation Company of Bangladesh

May. 2015 – July 2015

Dhaka, Bangladesh

- Working on control and operation of gas turbine power plant

PROJECTS

OptKit | *Python, jax, git*

Aug. 2020 – Present

- An open-source mathematical optimization library written in python
- Implementing first order, second order, gradient free, Bayesian optimization algorithms
- Visualizing optimization problems in 1D/2D and exporting animations

Applied machine learning tutorials | *Python, scikit-learn, git*

Aug. 2018 – Dec. 2018

- Implementation of classical Machine Learning algorithms (Regression, LDA, QDA, PCA, SVM etc.)
- Statistical data analysis

TECHNICAL SKILLS

Languages: Python, C/C++, MATLAB/Simulink

Libraries: Pytorch, Google Tensorflow, scikit-learn

Developer Tools: Git, PyCharm

CAD software: SolidWorks, AutoCAD

RELEVANT COURSES

Machine Learning/Optimization: Statistical Machine Learning, Reinforcement Learning, Advanced Nonlinear Optimization, Optimization in Mechanical Design, Probability and random variables, **Control/Dynamical System:** Linear System Theory, Optimal Control theory, Robust Control, Random Dynamical System, Design and Control of Mechatronics system, Digital Signal Processing, **Certification:** Deep Learning Specialization (DeepLearning.AI)

KEY PUBLICATIONS

- [Md Ferdous Alam](#), Max Shtein, Kira Barton & David J. Hoelzle, “Accelerated online learning using inaccurate physics model and temporal abstraction”, (to be submitted at CDC 2021)
- [Md Ferdous Alam](#), Max Shtein, Kira Barton & David J. Hoelzle, “A physics guided reinforcement learning framework for an autonomous manufacturing system”, (accepted at ACC 2021)
- [Md Ferdous Alam](#), Max Shtein, Kira Barton & David J. Hoelzle, “Autonomous Manufacturing Using Machine Learning: A Computational Case Study With a Limited Manufacturing Budget”, (MSEC 2020)
- Please visit google scholar for full list of publications

ADDITIONAL EXPERIENCE AND AWARD

- Reviewer: ACC, Mechatronics (Elsevier journal), MSEC, NAMRC
- **Best Paper award (MSEC 2020)**, Undergraduate academic excellence (2011, 2014)