

# FAZLA RABBI

Instructor of Engineering Management Program

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## Education

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**Arkansas State University, Jonesboro, AR** **2022 – 2024**  
M.Sc. in Engineering Management **CGPA: 4.0/4.0**  
**Thesis:** *The Application of Process Mining Algorithms to Surgical Training in Healthcare Settings*

**Ahsanullah University of Science & Technology, BD**, B.Sc. in Mechanical Engineering **2015 – 2020**  
**Thesis:** *Study of Heat Enhancement Using Minimum Quantity Lubrication (MQL) in Horizontal Milling Machine*

## Academic Experience

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**Instructor**, *Department of Engineering Management* **August 2024 – present**  
College of Engineering & Computer Science, Arkansas State University

**Graduate Research Assistant**, *Department of Engineering Management* **August 2022 – August 2024**  
College of Engineering & Computer Science, Arkansas State University

**Adjunct Lecturer**, *Secondary Section* **January 2017 – November 2018**  
T & T Ideal High School

## Industrial Experience

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**Senior Assistant Engineer**, *Mechanical Maintenance Section* **August 2021 – March 2022**  
Sharaf Washing & Dying Ltd., Sharmin Group

**Trainee Engineer**, *Mechanical Maintenance Section* **October 2020 – August 2021**  
Sharaf Washing & Dying Ltd., Sharmin Group

**Administrative Analyst**, *Administration Section* **March 2020 – September 2020**  
AponGhor Real Estate Ltd.

## Research Experience

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**Research Group** *Research Assistant* **August 2022 – present**  
↔ Dr. Niamat Ullah Ibne Hossain *Arkansas State University*

- Implement a robust process mining framework of Central Venous Catheter surgical training for hospital residents.
- Develop a secure and loss-preventive Machine Learning model to detect cyber-malware attacks.
- Performed network analysis from 200K+ Twitter followers, gained insights on the market trend of digital twin and industry 5.
- Design maternal health risk, cardiovascular, and liver cirrhosis disease detection machine learning model.

*Currently working voluntarily on two different projects*

**Research Lab** *Research Team Leader* **January 2019 – April 2020**  
↔ Prof. Dr. Dewan Hasan Ahmed *Ahsanullah University of Science & Technology*

- Conducted over 30 heat transfer experiments on Mild Steel, Stainless Steel, and High Carbon Steel using Dry, Flooded, and MQL methods.
- Analyzed machining parameters, optimizing heat transfer efficiency by up to 25% and improving surface quality by 15% in MQL processes.
- Collected and compared data on temperature, tool life, and surface roughness, reducing tool wear by 20% and enhancing overall machining performance.

## Courses Taught

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### Arkansas State University, US:

- **EGRM 6063 Engineering & Computer Science Law & Ethics:** since Fall 2024 – ongoing
- **EGRM 4003 Engineering Management Design I:** since Fall 2024 – ongoing

### T & T Ideal High School, BD:

- **General Science:** Every Fall & Spring since Spring 2017 – Fall 2018
- **English Literature:** Every Fall & Spring since Spring 2017 – Fall 2018
- **Astronomy:** Every Fall & Spring since Spring 2017 – Fall 2018

## Research Interests

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Machine Learning,  
Process Mining,  
Network Theory Analysis,  
Deep Learning,  
Computer Vision & Image Processing,

Infrastructure & Disaster Resilience,  
Optimization,  
Healthcare Analytics,  
Bioinformatics

## Awards and Grants

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### A-State Professional Development Grants

*College of Engineering & Computer Science, Arkansas State University, 2024*

### A-State Travel Assistance Award

*Dean of Graduate School, Arkansas State University, 2023*

### A-State M.Sc Scholarship Award

*Department of Engineering Management, Arkansas State University, 2022*

### Eco Friendly Participation Award Team AVIJATRIK

*Shell Eco Marathon, Singapore 2018*

### District Science Fair Award 1st position

*Bangladesh Academy of Science, 2016*

### Divisional Science Olympiad Award 5th position

*Bangladesh Academy of Science, 2015*

## Publications

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11 Publications in peer-reviewed journals & conference proceedings / 9 citations according to Google Scholar as of August 2024.

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### Publications in refereed journals

- **F Rabbi**, D Banik, NUI Hossain, A Sokolov, *Using Process Mining Algorithms For Process Improvement In Healthcare*, Healthcare Analytics, 5, 100305, 2024. [doi.org/10.1016/j.health.2024.100305](https://doi.org/10.1016/j.health.2024.100305)
- **F Rabbi**, NUI Hossain, S Das, A Sokolov, *A Comparative Analysis of Machine Learning Techniques in Detecting Probing Attack*, (Manuscript submitted to Expert Systems with Applications 05/12/2024)
- MA Islam, **F Rabbi**, NUI Hossain, R Fleming, A Sokolov, *Disaster detection from social media data using a deep learning approach: Application of NLP and CNN*, (Revision in Progress at Social Network Analysis and Mining 09/07/2024)
- N Sadik, **F Rabbi**, NUI Hossain, A Sokolov, *Using the Twitter network to analyze market segment of Digital Twin*, (Manuscript Ready for Submission)

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## Publications in refereed conference proceedings

- **F Rabbi**, NUI Hossain\*, A Sokolov, *A Machine Learning Ensemble Approach for Sustainable Economic Development*, Conference Proceedings, IISE Annual Conference & Expo, New Orleans, LA 2023. Available on [ResearchGate](#)
- **F Rabbi**, N Sadik, NUI Hossain\*, A Sokolov, *Twitter Network Analysis of Industry 5.0 Leveraging Graph Theory Simulation Approach*, Conference Proceedings, IISE Annual Conference & Expo, New Orleans, LA 2023. Available on [ResearchGate](#)
- **F Rabbi**, NUI Hossain\*, A Sokolov, J Chidester, *Predicting Maternal Health Risk by Utilizing Different Machine Learning Classifiers*, American Society for Engineering Management 2023 International Annual Conference and 44th Annual Meeting, Denver, CO 2023. Available on [ResearchGate](#)
- **F Rabbi**, NUI Hossain\*, Omar Ashur, A Sokolov, *Predicting Management Skills of Undergraduate Students by Leveraging Different Machine Learning Classifiers*, Montreal 2023. Available on [ResearchGate](#)
- **F Rabbi**, S Raut, NUI Hossain\*, A Sokolov, *Cardiovascular Risk Prediction through Stacked Boosting Ensemble Algorithms*, (International Conference on Industrial, Manufacturing and Process Engineering (ICIMP) Regina, SK 2024) Available on [ResearchGate](#)
- A Madamanchi, **F Rabbi**, A Sokolov, NUI Hossain\*, *A Machine Learning-Based Corrosion Level Prediction in the Oil and Gas Industry*, (International Conference on Industrial, Manufacturing and Process Engineering (ICIMP) Regina, SK 2024) Available on [ResearchGate](#)
- **F Rabbi**, NUI Hossain\*, A Sokolov, J Chidester, *Study of Primary Biliary Cirrhosis Prediction Using Machine Learning Algorithms*, American Society for Engineering Management 2024 International Annual Conference and 45th Annual Meeting, Virginia Beach, VA 2024. Accepted

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## Presentations

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### Conference Oral Presentations

- *A Machine Learning Ensemble Approach for Sustainable Economic Development*, Conference Proceedings, Institute of Industrial & System Engineering Annual Conference & Expo, New Orleans, LA, May 22nd 2023.
- *Twitter Network Analysis of Industry 5.0 Leveraging Graph Theory Simulation Approach*, Conference Proceedings, Institute of Industrial & System Engineering Annual Conference & Expo, New Orleans, LA, May 23rd 2023.
- *Cardiovascular Risk Prediction through Stacked Boosting Ensemble Algorithms*, International Conference on Industrial, Manufacturing and Process Engineering (ICIMP), Regina, SK, June 29th 2024.
- *A Machine Learning-Based Corrosion Level Prediction in the Oil and Gas Industry*, International Conference on Industrial, Manufacturing and Process Engineering (ICIMP), Regina, SK, June 29th 2024.
- *Study of Primary Biliary Cirrhosis Prediction Using Machine Learning Algorithms*, American Society for Engineering Management 2024 International Annual Conference and 45th Annual Meeting, Virginia Beach, VA, November 7th 2024.

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### Poster Presentations

- *Probe Attack Detection Using Machine Learning Classifier*, 2024 Create@State Student Research and Creativity Symposium, Arkansas State University, AR, April 17th 2024.
- *A Machine Learning Ensemble Approach for Sustainable Economic Development*, 2023 Create@State Student Research and Creativity Symposium, Arkansas State University, AR, April 19th 2023.
- *Predicting Maternal Health Risk by Utilizing Different Machine Learning Classifiers*, 2023 Create@State Student Research and Creativity Symposium, Arkansas State University, AR, April 19th 2023.

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## Technical Reviewer

**American Society for Engineering Management 2024 International Annual Conference and 45th Annual Meeting**

Reviewed **two** technical papers for the conference proceedings.

**2024**

## Projects & Technical Reports

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- Setting Up Medical Camp utilizing Project Management Principle **Report**
- Digitalization of Impact Testing Machine **Report**

## Internship Experience

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**Maintenance Intern, Printing Section**  
DB-Text, Mymun Textile Ltd.

**November 2018 – January 2018**

**Industrial Intern, Combine Cycle PowerPlant**  
Bangladesh Power Development Board (BPDB)

**September 2018 – November 2018**

## Certificates

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Certificate in **Supply Chain Logistic, Sourcing, Planning, Operation & Strategy** , Rutgers the State of New Jersey, 2020

## Technical Skills

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<b>Programming Languages</b>	Python, R & R Markdown, $\LaTeX$ & $\TeX$
<b>Libraries</b>	NumPy, Pandas, Matplotlib, Scikit-Learn, TensorFlow, Keras, PyTorch, Pm4py, NetworkX, Snsrape, Gurobi Optimization
<b>Tools &amp; Technologies</b>	AutoCAD (2D & 3D), SolidWorks, SigmaPlot, Xflr5g

## Other Departmental Services

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- Implementing Undergraduate Engineering Management System & Construction Management Degree Certificate Programs
- Advising Undergraduate Students on Academic Pathways & Course Selection