Solayman Hossain Emon

Doctoral Research Assistant
Data Science, UTEP

Portfolio: https://solayman-cs.github.io/
ORCiD: https://orcid.org/0009-0007-4762-1727
Email: semon@miners.utep.edu
Mobile: +1(915)-279-3647

Skills Summary

- **Relevant concepts**: Data Analytics, Data Structure & Algorithms, Computational Statistics, Generative AI
- **Computing abilities**: C++, C#, Java, Python, Assembly, JavaScript, R, Mathematica, Julia, SQL
- **Frameworks**: PyTorch, TensorFlow, LlamaIndex, Minitab, BootStrap, 3D Slicer

Education

- **The University of Texas at El Paso (UTEP)** — Texas, USA
  Ph.D. in Computational Science — *Jan 2022 – Present*
  GPA: *3.88*
  Advisor: *Dr. Tzu-Liang (Bill) Tseng*

- **Ahsanullah University of Science and Technology (AUST)** — Dhaka, Bangladesh
  B.Sc. in Computer Science and Engineering (CSE) — *Sept 2016 – Jan 2021*
  CGPA: *3.544*

- **The University of Texas at El Paso (UTEP)** — Texas, USA
  Graduate Certificate in Big Data Analytics — *Jan 2024 – Present*

Research Experience

- **Doctoral Research Assistant** — Texas, USA
  Research Institute for Manufacturing and Engineering Systems (RIMES) — *Jan 2022 - Present*
  - **Projects**: 3D visualization of dental bone loss, Traumatic brain injuries (TBI), Volumetric analysis of intracranial hemorrhage (ICH)

- **Research and Development (R&D) Intern** — Dhaka, Bangladesh
  Psycure Organization — *Aug 2020 – Nov 2020*
  - **Project**: Explore the possible factors which impact the workplace productivity of the employee
  - **Findings**: Flakiness, linguistic discrimination are two crucial factors affecting workplace productivity

Publications

[1] S. H. Emon, A. Annur, A. H. Xian, K. M. Sultana, and S. M. Shahriar. "Automatic video summarization from cricket videos using deep learning". In: *2020 23rd International Conference on Computer and Information Technology (ICCIT)*. IEEE. 2020, pp. 1–6.

[2] S. H. Emon, M. A. H. Mridha, and M. Shovon. "Automated recognition of rice grain diseases using deep learning". In: *2020 11th International Conference on Electrical and Computer Engineering (ICECE)*. IEEE. 2020, pp. 230–233.

[3] M. F. Rabbi, S. H. Emon, M. F. Rahman, and B. Tseng. "A Novel Approach for Defect Detection of Wind Turbine Blade Using Virtual Reality and Deep Learning". In: *Proceedings of the IISE Annual Conference & Expo 2023*. Manufacturing and Design Division, IISE. 2023.

[4] S. H. Emon, T.-L. B. Tseng, M. Pokojovy, P. McCaffrey, S. Moen, and M. F. Rahman. "Automatic hemorrhage segmentation in brain CT scans using curriculum-based semi-supervised learning." In: *Medical Imaging 2024: Image Processing*. Vol. 12926. SPIE. 2024, pp. 644–650.

[5] S. H. Emon, M. F. Rahman, B. Tseng, and M. Pokojovy. "Uncertainty-Guided Semi-Supervised (UGSS) Mean Teacher Framework for Brain Hemorrhage Segmentation and Volume Quantification". In: *Biomedical Signal Processing and Control Journal*. ScienceDirect. 2024 (Under Review, 2nd Round).

Peer Review

- Applied Soft Computing Journal, Elsevier
- International Journal of Automation, Artificial Intelligence and Machine Learning (IJAAIML)
- The 6th International Conference on Machine Learning and Intelligent Systems (MLIS 2024)

Related Experience

- **Lab Manager** — Texas, USA
  Intelligent Systems Engineering Lab (ISEL) — *November 2022 - Present*
- **WebMaster** — Texas, USA
  Systems Modeling and Simulation (SMS) Website — *January 2023 - Present*
- **Instructor** — Texas, USA
  High School's Workshops — *June 2022 - Present*
  - **Sessions**: Applications of Machine Learning, Python Hands-On Coding Session

Selected Projects

- **Dental bone loss estimation (UTEP & Texas-Tech Collaboration)**: Tech: Python & VTK (Ongoing); project demo
- **Intracranial hemorrhage estimation(Deep learning, Medical Image Processing)**: Tech: Python, PyTorch, Tensorflow (February '22); project demo, demo video
- **University Management System (UMS)**: Tech: C#, JavaScript & SQL. (January '20); project link
- **Reinforcement Learning based Video Summarization (Reinforcement Learning, Computer Vision)**: Tech: PyTorch & OpenCV. (September '19)
- **Microcontroller Based System Design (Facilitated Smart Dustbin)**: Tech: C++, Arduino (March '19); project link
- **Programming Challenge**: HackerRank, CodeMarshal; code1, code2
- **Generative AI (Ongoing)**: Python, Langchain, OpenAi Embeddings; demo project

Honors and Awards

- Best Research and Development (R&D) Intern Award in Psycure Organization - Sept, 2021
- Best Track Paper by the Manufacturing and Design (M&D) division at the IISE 2023 Conference - February, 2023
- Conference Travel Grant (Amount: $1300), SPIE Medical Imaging, San Diego - February 2024
- Travel Grant, NCKU AISSM Semiconductor Summer School, Taiwan - Summer, 2024
- UTEP College of Science Dean's Office Research Scholarship (Amount: $4200) - Summer, 2023
- Bangladesh Government Scholarship in Junior and Primary Schooling Level
- 1st Prize winner (Bangladesh Student Association) - International Food Fair at UTEP, USA

Volunteer Experience

- **Logistic Secretary** — UTEP, USA
  Bangladesh Student Association (BSA), UTEP — *August 2023*
- **UTEP IMSE Day 2023, 2024** — UTEP, USA
  Team Leader, IT Management — *March 2023, 24*
- **Executive Member at Department of Olympiad** — Dhaka, Bangladesh
  Dhaka College Science Club — *August 2015*

Collaborations

- UTEP-UTMB (The University of Texas Medical Branch) Collaboration
- UTEP-Drexel Collaboration - Minority Science and Engineering Improvement Program (DoEd-MSEIP)
- Collaborating with Texas Tech School of Dental Medicine (TTUHSC EL PASO)

References

Dr. Tzu-Liang (Bill) Tseng
Professor & Chair
Industrial, Manufacturing, and Systems Engineering
The University of Texas at El Paso
Engineering Bldg., Room A-130
☎ +1 (915) 747-7990
✉ btseng@utep.edu

Dr. Md Fashiar Rahman
Assistant Professor
Industrial, Manufacturing, and Systems Engineering
The University of Texas at El Paso
Engineering Building, A-243
☎ +1 (915) 730-1007
✉ mrahman13@utep.edu