Mirza Farhan Bin Tarek

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Education

2022 – Present	**Ph.D. in Computer Science**, University of Delaware, USA
2017 – 2018	**Individual Modules under Erasmus+ KA1 Mobility Program**, Staffordshire University, United Kingdom Thesis title: *Spatio-temporal analysis of large air pollution data.*
2014 – 2018	**BSc in Computer Science and Engineering**, United International University, Dhaka, Bangladesh

Employment History

08/2022 – Present	**Graduate Teaching Assistant,** Department of Computer and Information Sciences, University of Delaware, USA.

- Assisted students in undergraduate courses such as Machine Organization and Assembly Language and Introduction to Computer Programming II. Responsibilities included facilitating learning, grading exam scripts, and proctoring exams.

- Contributed to developing a web-based application to streamline and automate processes such as TA offer letter generation, office hours scheduling, and other functionalities, utilizing HTML, CSS, JavaScript, FastAPI, Jinja2, and Python.

06/2023 – 08/2024	**Instructor (On Contract),** Department of Computer and Information Sciences, University of Delaware, USA.

- As the instructor of CISC181- Introduction to Computer Science II, offered in Summer 23 and 24, I was responsible for giving lectures to students, grading the assessments, and designing and updating the curriculum.

05/2019 – 08/2022	**Lecturer,** Department of Computer Science and Engineering, Brac University, Dhaka, Bangladesh.

- Instructed and mentored junior and senior year undergraduate students.

- Led a team of faculty members for the *CSE340: Computer Architecture* and the *CSE360: Computer Interfacing* labs, ensuring smooth and efficient coordination.

- Improved the quality of the curriculum for CSE340 by modifying it to align with outcome-based education principles.

- Contributed to the development of the *CSE461: Intro to Robotics* curriculum, ensuring that it met the highest academic standards as well as following the OBE principles.

Research Publications

1 M. F. B. Tarek, R. Poulain, and R. Beheshti, *Fairness-optimized synthetic ehr generation for arbitrary downstream predictive tasks*, 2024. arXiv: 2406.02510 [cs.LG]. URL: https://arxiv.org/abs/2406.02510.

2 R. Poulain, M. F. Bin Tarek, and R. Beheshti, "Improving fairness in ai models on electronic health records: The case for federated learning methods," in *Proceedings of the 2023 ACM Conference on Fairness, Accountability, and Transparency*, ser. FAccT '23, Chicago, IL, USA: Association for Computing Machinery, 2023, pp. 1599–1608, ISBN: 9798400701924. DOI: 10.1145/3593013.3594102.

3 M. F. B. Tarek, M. Asaduzzaman, and M. Patwary, "Spatio-temporal analysis of large air pollution data," in *2018 10th International Conference on Electrical and Computer Engineering (ICECE)*, IEEE, 2018, pp. 221–224.

Skills

Languages	Strong reading, writing, and speaking competencies in English, and Bengali.
Coding	Python, C, Java
Databases	MySQL, Oracle.
Web Dev and Software Engineering	HTML, CSS, FASTAPI, JINJA2.
Artificial Intelligence and Machine Learning	scikit-learn, PyTorch, prompt engineering in LLMs
Misc.	Academic research, teaching, LaTeX typesetting and publishing.

Projects

2023- **Development of Machine Learning Models and a Product Predictor to Identify Patients at Risk for Diabetic Retinopathy in a Veteran Population** : In this ongoing project, we are developing a machine learning (ML) model to classify patients into low- and high-risk categories for DR, allowing personalized screening intervals to optimize resource use and focus on high-risk individuals.

2021 **Skin Cancer Classification with Ensemble of Deep Convolutional Neural Networks**: In this work, deep convolution networks, such as VGG-16, Efficient NetB3, and ResNet-50, were used to identify skin cancer from dermoscopic images.

Awards, Achievements and Certifications

Awards and Achievements

2018 **Summa Cum Laude**, BSc in CSE, United International University, Dhaka, Bangladesh.

2017 **Participated in the Erasmus+ KA1 mobility program (Funded by Erasmus+ EU)** to study for 6 months at Staffordshire University, Stoke-on-Trent, the United Kingdom in 2017-2018.

Certifications

2020 **Deep Learning Specialization**. Awarded by Coursera.

2017 **Web development using ASP.NET** . Awarded by CDIP (Centre for Development of IT Professionals) ,United International University, Dhaka, Bangladesh.

References

Rahmatollah Beheshti, PhD

Assistant Professor, University of Delaware

      Department of Computer and Information Sciences

      Epidemiology Program (Joint)

      Data Science Institute

Research Faculty, Nemours Children's Health

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