Yeasir Rayhan

CONTACT INFORMATION

Lecturer
Department of Computer Science and Engineering
East West University, Dhaka
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RESEARCH INTEREST

Interpretable AI, Spatio-temporal Data Mining, AI for Healthcare, Graph Representation Learning, Spatial Database

EDUCATION

B. Sc. in Computer Science and Engineering July 2014 - October 2018
Department of Computer Science and Engineering (CSE)
Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh.
CGPA: 3.81/4.00 (Last 4 terms: 3.91/4.00)
Ranked 21^{st} in a class of 126 students

PUBLICATIONS

Yeasir Rayhan, Tanzima Hashem, Roksana Jahan, Muhammad Aamir Cheema. Efficient scheduling of generalized group trips in road networks. In *ACM Transactions on Spatial Algorithms and Systems (TSAS)*, 5(2): 10:1-10:24 (2019)

RESEARCH EXPERIENCE

Interpretable Spatio-temporal Model for Long-term Epidemic Prediction
Supervisor: Dr. Tanzima Hashem
Status: Ongoing

We aim to forecast long-term infection rate of infectious diseases such as COVID-19 at county-level of USA based on different spatio-temporal aspects such as inter-county human mobility, intra-county human mobility, different POIs, connectivity of counties, demographics along with traditional historical COVID-19 cases and deaths in an interpretable manner

AIST: An Interpretable Attention-based Deep learning Model for Crime Prediction
Supervisor: Dr. Tanzima Hashem
Status: Under Review in ACM TIST

We developed AIST, a novel attention-based interpretable spatio-temporal deep learning architecture that combines spatial, temporal and semantic information to predict crimes of a particular region at future time steps. Extensive experiments show the superiority of our model in terms of both accuracy and interpretability using real datasets.

MinMax Location Selection and Facility Relocation Queries in Indoor Spaces
Collaborators: Dr. Tanzima Hashem, Muhammad Aamir Cheema
Status: Ongoing

We designed two novel algorithms based on the nearest neighbor and shortest distance computation algorithms of VIP-tree for both these queries, adapted the state-of-the-art solution in road networks to indoor spaces and ran extensive experiments on Melbourne Central and Chadstone Shopping Center dataset to prove the efficiency of the developed algorithms.

Efficient Scheduling of Generalized Group Trips in Road Networks (Undergraduate thesis)
Supervisor: Dr. Tanzima Hashem
Status: Published in ACM Transactions on Spatial Algorithms and Systems (**TSAS**), 2019

Awards: Regional Winner (Asia), The Global Undergraduate Awards, 2019

We introduced generalized group trip scheduling (GGTS) queries that enable friends and families to perform activities at different points of interest (POIs). We proposed an optimal, two heuristic solutions and run experiments on California road dataset to show that optimal algorithm is preferable for small parameter settings, and the heuristic solutions are preferable for larger settings in return for sacrificing the accuracy slightly.

Selected Course-work

Artificial Intelligence, Simulation & Modeling, Computer Graphics, Computational Geometry

Employment History

Lecturer — January 2019 - Present
Department of Computer Science and Engineering
East West University

Lecturer — October 2018 - December 2018
Department of Computer Science and Engineering
Eastern University

Courses Instructed

Structured Programming Language, Object-Oriented Programming Language, Discrete Mathematics, Structured Programming Language Sessional, Object-Oriented Programming Language Sessional

Scholarships, Awards, and Grants

- Regional Winner(Asia) in Computer Science
  The Global Undergraduate Awards, 2019 (World's largest academic awards program for undergraduates)
- Dean's Honor List, BUET
- University Merit Scholarship, BUET

Community Services

- Reviewer: NSysS (2020), APWEB-WAIM (2019 - 2020), ICASERT (2019)
- Organizing Committee Member (ICASERT 2019)