Ahnaf Munir

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Research Interest

Computer Vision, 3D Vision, Deep Learning

Education

- **PhD in Computer Science** August 2024 - Present
  University of Central Florida
  Supervisor: Dr. Mubarak Shah
- **Master of Science - Informatics: Games Engineering** 2022
  Technical University of Munich; ***CGPA: 2.0 out of 5.0 (German grading system)***
  Thesis: *Learning Neural Surface Representation from Prominent Objects in Video Sequences*
  Supervisor: Prof. Dr. Rüdiger Westermann
- **Bachelor of Science - Computer Science & Engineering (CSE)** 2015
  Islamic University of Technology; ***CGPA: 3.85 out of 4.0***
  Thesis: *Cellular Automaton Based Motion Planning for Mobile Wireless Sensor Network*
  Supervisor: Dr. Muhammad Mahbub Alam

Experience

- **Fellow** April 2023 - December 2023
  Fatima Fellowship
  Working on openable part detection and motion estimation techniques under the supervision of a current PhD student from the Georgia Institute of Technology
- **Assistant Professor** August 2022 - Present
  Islamic University of Technology, Bangladesh
  Relevant courses taught: 'Deep Learning' and 'Artificial Intelligence'
- **Lecturer** August 2016 - July 2022
  Islamic University of Technology, Bangladesh
  Relevant courses taught: 'Introduction to Programming', 'Discrete Mathematics' and 'Digital Signal Processing.
- **Graduate Research Student** May 2021 - April 2022
  Fraunhofer IIS, Germany
  Experimented with the application of deep learning-based video super-resolution techniques for video encoding.
- **Student Assistant** December 2020 - March 2021
  Technical University of Munich, Germany
  Worked under the chair of Information Systems in TUM to develop a business modeling tool using Java.
- **Research Assistant (Remote)** December 2015 - July 2016
  Algoma University, Cananda
  Worked under the supervision of Dr. Salimur Choudhury in the field of Mobile Sensor Networks (MWSN) and Radio Frequency Identification (RFID) networks which resulted in 1 journal paper and 1 conference paper.
- **Software Development Intern** October 2014 - December 2014
  Nilavo Technologies Limited, Bangladesh
  Dealt with front-end and back-end development and optimization of the in-house developed project management tools for the company.

Publications

Conference:

3. Sabbir Mollah, Rohit Gupta, Sirnam Swetha, Qingyang Liu, **Ahnaf Munir**, Mubarak Shah. The Telephone Game: Evaluating Semantic Drift in Unified Models. The telephone game: Evaluating semantic drift in unified models. arXiv. https://doi.org/10.48550/arXiv.2509.04438

2. Tasnim Ahmed, **Ahnaf Munir**, Sabbir Ahmed, Md. Bakhtiar Hasan, Md. Taslim Reza, and Md. Hasanul Kabir. Structure-Enhanced Translation from PET to CT Modality with Paired GANs. In Proceedings of the 2023 6th International Conference on Machine Vision and Applications (ICMVA '23). https://doi.org/10.1145/3589572.3589593

1. **Ahnaf Munir**, Md. Sakhawat Hossen, and Salimur Choudhury. Localized Load Balancing in RFID Systems. In Proceedings of the 2016 5th International Conference on the Theory and Practice of Natural Computing (TPNC '16). https://doi.org/10.1007/978-3-319-49001-4_3

Journal:

3. Tasnim Ahmed, Shahriar Ivan, **Ahnaf Munir** and Sabbir Ahmed. Decoding depression: Analyzing social network insights for depression severity assessment with transformers and explainable AI. Natural Language Processing Journal (2024). https://doi.org/10.1016/j.nlp.2024.100079

2. **Ahnaf Munir**, Md. Tahmid Rahman Laskar, Md. Sakhawat Hossen, and Salimur Choudhury. A Localized Fault Tolerant Load Balancing Algorithm for RFID Systems. Journal of Ambient Intelligence and Humanized Computing (2018). https://doi.org/10.1007/s12652-018-1114-7

1. **Ahnaf Munir**, Shihabuzzaman, Md. Sakhawat Hossen, Salimur Choudhury, and Muhammad Mahbub Alam. Localized Motion Planning Algorithm for Mobile Wireless Sensor Networks. International Journal of Unconventional Computing (2016). Paper Link

Skills

- **Languages:** Python, C, C++, C#, Java, SQL
- **Deep Learning and Machine Learning:** Pytorch, Tensorflow
- **Web Development:** HTML, CSS, Javascript
- **Others:** Unity, Oracle, OpenCV, Linux Environments

Selected Projects

- **IMU and Bundle Adjustment**
  A fast and accurate estimation of the smartphone camera trajectory using the IMU sensor data and camera RGB data of the smartphone.
  Repository: github.com/jacobsjo/IMUBundleAdjustment

- **Table League AR**
  An AR-based multiplayer android game that takes inspiration from traditional tower defense and football games.
  Repository: github.com/Bone008/table-league-ar
  Demo: youtube.com/watch?v=ECbSs9UTHH0

- **Tetris 360**
  A Tetris game developed for Virtual Reality (VR). The game was developed to collect data for Advanced Realtime Tracking (ART) sensors which were fitted to the VR controller.
  Repository: github.com/ahnaf1393/360-Tetris

- **Physician Interest Predictor**
  Application of popular machine learning-based business analysis tools on real-world data to predict whether physicians have interest in different pharmaceutical companies.
  Repository: github.com/ahnaf1393/PhysicianInterestPrediction

Scholarships and Achievements

- Selected as one of the fellows for the 2023 Fatima Al-Fihri Predoctoral Fellowship program that helps Ph.D. applicants of computer science and machine learning to work with current Ph.D. students or researchers on research projects to gain research experience and strengthen their applications.

- OIC Full Free Scholarship for 3 years of undergraduate study period, awarded by the Islamic University of Technology

- 4 years' scholarship awarded by Bangladesh Govt. for obtaining high grades in Higher Secondary School Certificate examination

References

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