Md Maklachur Rahman

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Education

Texas A&M University (TAMU) — College Station, Texas
Pursuing **PhD** in Computer Science — Jan 2022–**Current**
Current **CGPA:** 4.0/4.0
Qualifying Exam: Passed (99^{th} *Percentile*)

Kyungpook National University (KNU) — Daegu, South Korea
MS in Computer Science & Engineering — Sep 2018–Aug 2020
CGPA: 3.98/4.30 [95.8 % Marks]
Thesis: "Siamese Stacked Channel-Spatial Attention Learning for Visual Tracking," under Dr. Soon Ki Jung
Award: CSE Outstanding Master's Thesis Award-2020

Chittagong University of Engineering & Technology (CUET) — Bangladesh
BS in Computer Science & Engineering — Mar 2009–Sep 2013
CGPA: 3.51/4.0 [**Position:** $\mathbf{7}^{th}$ *out of* 58]
Thesis: "Digital Watermarking for Image Authentication based on Combined DCT, DWT, and SVD Transformation," under Dr. Muhammad Ibrahim Khan

Work Experience

Sketch Recognition Lab — Texas A&M University, USA
Graduate Research Assistant — Jan 2022–**Current**

Center for Embedded Software Technology — Kyungpook National University, South Korea
Researcher — Sep 2021–Dec 2021

Virtual Reality Lab — Kyungpook National University, South Korea
Researcher — Sep 2020–Aug 2021
Research Assistant — Sep 2018–Aug 2020

Samsung R&D Institute Bangladesh, Samsung Electronics — Dhaka, Bangladesh
Software Engineer — Oct 2013–Jul 2016

Publications

1. **MM Rahman**, "**Target Focused Shallow Transformer Framework for Efficient Visual Tracking**", Doctoral Consortium, AAAI 2024. [**Under Review**]
2. **MM Rahman** and T Hammond, "**Learning Random Noise Salient Feature Fusion Siamese Network for Low-Resolution Object Tracking**", Student Abstract and Poster, AAAI 2024. [**Under Review**]
3. **MM Rahman** and SK Jung, "Siamese-Based Attention Learning Networks for Robust Visual Object Tracking", Intech Open, Book chapter, DOI: 10.5772/intechopen.101698, 2022. [**Book Chapter**]
4. AS Tak, **MM Rahman**, M Sultana, and SK Jung, "Visual Object Tracking: Datasets and Related Information", The 18th International Conference on Multimedia Information Technology and Applications (MITA 2022), South Korea.
5. L Laishram, **MM Rahman**, and SK Jung, "Challenges and Applications of Face Deepfake", The 27th International Workshop on Frontiers of Computer Vision (IW-FCV 2021), South Korea, Springer. [**Citation: 05**]

6. **MM Rahman**, MR Ahmed, L Laishram, SH Kim and SK Jung, "Siamese High-Level Feature Refine Network for Visual Object Tracking" MDPI Electronics, 2020. [**Citation: 08**]
7. **MM Rahman**, M Fiaz and SK Jung, "Efficient Visual Tracking with Stacked Channel-Spatial Attention Learning", in IEEE Access, vol. 8, pp. 100857-100869, 2020, Doi:10.1109/ACCESS.2020.2997917.[**Citation: 19**]
8. M Fiaz, **MM Rahman**, A Mahmood, SS Farooq, KY Baek, and SK Jung, "Adaptive Feature Selection Siamese Networks for Visual Tracking" The 26th IW-FCV 2020,Japan, Springer. [Citation: 08] [**Best Student Paper Award**]
9. **MM Rahman**, SK Jung, "Modeling a Secure Image Authentication with a Robust Hybrid Watermarking Approach", The Journal of Korean Institute of Information Scientists and Engineers, pp. 968-970, 2018.
10. **MM Rahman**, MS Ahmmed, MR Ahmed, and MN Izhar, "A Semi-Blind Watermarking Technique for Copyright Protection of Image-based on DCT and SVD Domain", Global Journal of Engineering Research, USA, GJRE-F. Vol 16 (7), 2016. [**Citation: 20**]
11. **MM Rahman**, "A DWT, DCT and SVD Based Watermarking Technique to Protect the Image Piracy", International Journal of Managing Public Sector Info. and Comm. Tech., Vol. 4, No. 2, pp 21-32, 2013. [**Citation: 70**]
12. MI Khan, **MM Rahman**, and MIH Sarker, "Digital Watermarking for Image Authentication Based on Combined DCT, DWT, and SVD Transformation", International Journal of Computer Science Issues, Vol. 10 (3), pp. 223-230, 2013. [**Citation: 63**]

Research Interests

• Visual Object Tracking and Segmentation • Computer Vision • Deep Learning • Machine Learning
• Visual Question Answering • Natural Language Processing • Activity Recognition

Selected Projects

- Visual Object Tracking - Efficient Tracking over Challenges [Mar 2019 –**Current**] - Developing efficient Visual Object Trackers that can track any arbitrary object in the scene irrespective of challenges.
  Tools & Skills: PyTorch, Python, Machine Learning, Deep Learning, Computer Vision, Object Tracking
- Outcrop Sketch and Segmentation [Sep 2022 –May 2023] - Working to develop machine learning tools to automatically segment and interpret outcrop images and build a community tool for labeling outcrop images.
  Tools & Skills: Python, PyTorch, Tensorflow, Deep Learning, Machine Learning, Semantic Segmentation
- The Squad-Select [Jan 2023 –May 2023] - Developed an optimal pipeline for Group Recommendation
  Tools & Skills: Python, NLP Libraries, PyTorch, Group Recommendation, Recommender Systems
- **Multi-Evidence Natural Language Inference for Clinical Trial Data** [Oct 2022 –Dec 2022] - Explored several BERT-based models to infuse medical knowledge, particularly for clinical trial data, and compare our performance in terms of accuracy and F1-score with the state-of-the-art (SOTA) models.
  Tools & Skills: BERT and RoBERTa models, PubMedBERT, BioElectra, InferSent,NLI datasets, Similarity Model
- SiamFRN - Real-time Object Tracking [Sep 2019 –Nov 2020] - Developed feature refined end-to-end tracking framework with real-time tracking speed and considerable performance.
  Tools & Skills: PyTorch, Python, Machine Learning, Deep Learning, Computer Vision, Object Tracking

Awards and Scholarships

- CSE Thesis Award-2020, KNU, South Korea — Aug 11, 2020
- Best Student Paper Award, 26th IW-FCV2020, Japan — Feb 27, 2020
- Brain Korea 21 Plus (BK21) Scholarship — Sep 2018 – Aug 2020
- KNU International Graduate Scholarship (KINGS) [Full] — Sep 2018 – Aug 2020
- University Merit Scholarship, Department of CSE, CUET — Mar 2009 – Sep 2013

Journal and Conference Reviewer

Neurocomputing | | Pattern Recognition Letters | | IEEE Access | | MDPI: Electronics, Entropy | | Display| | Graphics Interface 2023 Conference