Md Tanvirul Alam

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Google Scholar Github Stack Overflow

Research Interests

Deep Learning, Computer Vision, Natural Language Processing, Unsupervised Learning, Explainable AI

Education

Bangladesh University of Engineering & Technology *Dhaka, Bangladesh*
B.Sc in Electrical and Electronics Engineering *2016*

Publications

[1] **T. Alam** and A. Khan, "Lightweight CNN for Robust Voice Activity Detection," in *International Conference on Speech and Computer(SPECOM)*. Springer, 2020, pp. 1–12. [DOI]

[2] **T. Alam**, A. Khan, and F. Alam, "Punctuation Restoration using Transformer Models for High-and Low-Resource Languages," in *Proceedings of the 6th Workshop on Noisy User-generated Text (W-NUT 2020)@EMNLP*. 2020. [PDF]

[3] F. Alam, F. Ofli, M. Imran, **T. Alam**, and U. Qazi, "Social Media Image Classification Benchmarks for Various Disaster Response Tasks," in *2020 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*. IEEE, 2020

[4] [**Under Review**] **T. Alam**, A. Khan, and F. Alam, "Bangla Text Classification using Transformers," in *International Conference of Computer and Information Technology (ICCIT)*. IEEE, 2020.

Professional Experience

Senior Software Engineer (AI), **BJIT Limited** *May 2018 - present*

Deep Learning Researcher, **Semion Limited** *December 2016 - April 2018*

Selected Professional Projects

SemInfer[2017]: Desktop Application to Run Inference on Captured Screenshot(*C++)*
– Developed a dependency free deep neural net inference library using C++
– Supported layers: Conv, Pool, Dense, Batch Norm, Activation, NMS, RoI Pool, Depthwise, LRP
– Added data parallelism support with OpenMP and SIMD (SSE, AVX) instructions
– Implemented CNN models (VGG, ResNet, DenseNet, MobileNet, Faster RCNN etc.) in C++

Machine Log Data Analysis for Fault Prediction [2017] (*C++, Python*)
– Trained DNN model for fault prediction from log history
– Implemented layer-wise relevant propagation to identify trigger phrases for future fault

SemRad: A Teleradiology Solution[2018] (*Java, JavaFX)*
– Developed client app for radiologist to communicate with server and report studies
– Implemented drawing and image analysis tools for assisting radiologists

DNN Based Web Filtering Application for Windows [2018] *(C++, Python)*
– Trained a multilingual (English and Japanese) text based website classification model using CNN
– Developed a windows app using C++ for monitoring and controlling outbound traffics

Voice Activity Detection using CNN [2019] *(Python, Android)*
– Designed and trained a lightweight CNN model for voice activity detection on Android

POC on Level Crossing Safety using Deep Learning [2019] ***(C++, .NET)***
– Developed a POC for detecting and tracking pedestrian and vehicles near level crossing
– Applied heuristics to identify potentially dangerous situations
– Selected as the best POC among multiple competitors by Japan Railways Group

Facial Attribute Recognition and Rendering on 3D Avatar [2019] ***(python)***
– Defined data collection strategy for mapping facial expression to 3D model
– Trained ML model combining geometric and appearance features

Pedestrian Attributes Recognition [2020] ***(Python, C++)***
– Developed a unified pedestrian attributes recognition application
– Supported features: pose estimation, gender detection, face blurring, smartphone usage detection

Selected Academic Projects

- Pedestrian Detection using Wavelet Transformed HOG features *B. Sc. Thesis*
- Vehicle Number Plate Recognition and Speed Estimation *(MATLAB, C)* *Microprocessor Lab*
- Pitch Estimation using Cepstral Analysis *(MATLAB)* *Digital Signal Processing Lab*
- Employee Attendance Management System *(C#)* *Numerical Methods Lab*
- Item Sorting Based on Weight *(Microcontroller)* *Control System Lab*
- MinMax Algorithm for Prey and Predator Behavior Simulation *(MATLAB)* *Numerical Technique Lab*

Computer Skills

Programming Languages	C++, Python, Java, MATLAB, C#
Deep Learning Frameworks	PyTorch, TensorFlow, Keras, OpenVINO
Python Packages	NumPy, Pandas, Scikit-learn, OpenCV, Matplotlib, Pandas
IDEs	Visual Studio, PyCharm, Jupyter Notebook, Android Studio
Other Expertise	Git, Latex, Gerrit, Redmine, Proteus, PSpice

Accomplishments

Paper Presentation	SPECOM, 2020 (Virtual)
Reviewer	6th Workshop on Noisy User-generated Text (W-NUT), 2020
Programming Contests	Advanced to Round 2 in Google Code Jam 2016(Top 7% globally)
	Top 10 in country rank in TopCoder
AI contest	Finalist in Russian AI Cup 2016 — CodeWizards
Training	Worked as the lead instructor in AI training organized by LICT, BCC
	Conducted a two week long training in Thailand on introductory DL
Employment	Awarded employee of the year in Fintech & AI department in 2020
Scholarships	Admission Test Excellency Scholarship, BUET, 2011
	Education Board Scholarship, Government of Bangladesh, 2008 & 2010
	Primary & Junior Scholarship, Government of Bangladesh, 2002 & 2006

References

Dr. Mohammed Imamul Hassan Bhuiyan
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Dr. Firoj Alam
Scientist, Qatar Computing Research Institute
E-mail: fialam@hbku.edu.qa