Syed Tousiful Haque

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Research Interest

Semantic Segmentation, 3D Pose Estimation, Medical Image Segmentation and Classification, Machine Translation, Sentiment Analysis, and Anomaly Detection.

Education

Bachelor of Science Jan 2016- Dec 2019
Electrical and Electronic Engineering
Islamic University of Technology
Gazipur, Bangladesh
CGPA: 3.45 out of 4.00

Test Scores

- **GRE** – 323 (Quantitative – 162, Verbal -161, AWA -3.0)
- **IELTS –** 7.0 (Listening – 8.0, Reading – 7.0, Speaking – 6.5, Writing – 6.0)

Research Experience

Skin Lesion Segmentation Using Convolutional Neutral Network

- Developed a convolutional neural network algorithm with an attention mechanism attached to the skip connection.
- Focal Tverksy loss function to provide more focus to small lesion sections.
- The dice score was **82.5%** for ISIC-2018 training data and **80.06% f**or the validation data after running the model only for 10 epochs, significantly better than the existing U-net and U-net++ architectures.

Experience

Junior Software Engineer - iViveLabs, **June 2021 - Present**
Dhaka, Bangladesh.

- Build performant and responsive React components.
- Write tests for the components with Jest and Testing Library.

Data Scientist – Omdena, **March 2021 –Present**
Dhaka, Bangladesh.

- Designed a scraping tool to scrape information from university websites in Bangladesh.
- Volunteered in 'Al for Road Safety' and 'Machine Learning for Food Security' Projects.
- Built an automated scraper able to navigator to multiple pages and scrap data from news articles.

Skills

- **Programming:** Python, Matlab, C/C++, Assembly Language.
- **AI / ML Tools**: SckitLearn, Tensorflow, Pytorch, Keras, OpenCV
- **Frontend**: Html, CSS, JavaScript
- **JavaScript Frameworks**: React.js, Vue.js
- **Data Analysis and Visualization**: Numpy, Pandas, Matplotlib
- **Document Creation**: Microsoft Office
- **Database Management**: MySQL
- **Version Control**: Git
- **Operating System**: Linux, Windows

Projects

Bangla Written Number Classification

- Implemented mobilenetv2 to execute the classification accurately.
- Boosted the model's accuracy to **98%** using fine-tuning**.**

Autonomous Driving - Car Detection

- Implemented the YoloV3 Model to detect 80 road-object with high confidence.
- Used non-max suppression technique to select boxes with high probability.

Trigger Word Detection

- Engineered synthesized audio clips by adding background noise and trigger words to them.
- Developed a model of one 1-D convolution and two GRU layers to be able to detect the trigger word in the train sets with 94% accuracy.

Fraudulent Credit Card Transaction Detection

- Resolved the dataset's imbalance using the SMOTE algorithm.
- Used a voting classifier with an ensemble of Randomforest, SVC, and Logistic Regression, but the f1_score was 14%.
- Boosted f1_score to 81% by using only Randomforest and searching for best parameters using GridSearchCV

Honors and Awards

Full Tuition Waiver and OIC Scholarship at the Islamic University of Technology	2016 – 2019
Bangladesh Government Education Board scholarship	2013 – 2014
Champion in Math Olympiad at the regional level	December 2007
1st Runner up in BIZNATION, a business case competition	August 2018

Extracurricular Activities

Organizer of ESONANCE at the Islamic University of Technology	October 2019
Vice-Captain of the Islamic University of Technology cricket team	2019