

Rafid Abyaad

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EDUCATION

Islamic University of Technology, Dhaka, Bangladesh

B.Sc. Engg., Computer Science and Engineering(CSE)

November, 2017

CGPA: 3.65 / 4.00

STANDARDIZED TESTS

Graduate Record Examinations (GRE)

Score : 319

International English Language Testing System (IELTS)

Band Score : 8.0

RESEARCH

**Wastage-Aware Routing in Energy-Harvesting Software Defined Wireless
Sensor Networks**

Oct 2017

The paper explores different proposed protocol architectures for software defined wireless networks, effective ways for implementing energy efficient WSNs and some of the shortcomings of the approaches. It discusses some of the challenges facing IOT paradigm and major design requirements as well; with the intention to merge SDN and energy reservation approaches for better performance in terms of network lifetime and latency.

EXPERIENCE

Samsung R&D Institute : Software Engineer

Jan 18 - Current

- Framework engineer for Tizen Web Platform.
- Contributed to multiple commercialized projects.
- Contributing to Chromium and Chromium-efl open source projects.

Samsung R&D Institute : Software Development Intern

Nov 16 - Jan 17

PROJECTS

Unix Host and Terminal for embedded systems

Nov 2016

A Unix host and a GNOME-like terminal for the host using only system calls. The Unix host uses the terminal to interface with users. Networking module was implemented using socket programming for HTTP compatibility. The terminal was implemented using system pipes. The host server was less than a Megabyte in size and perfect to be deployed on embedded systems.

AI and ML Projects

2019

Kaggle Competitions

- **Recursion Cellular Image Classification**

Top 14%

This solution was implemented using the state-of-the-art ArcFace algorithm with an EfficientNet backbone. Cosine embedding layer was introduced after feature extraction by CNN and trained for minimizing cosine distance between the same classes of samples.

- **APTOS Blindness Detection**

Top 25%

Transfer learning was used with a DenseNet201 architecture. Weights of pre-trained imagenet was first trained on an older dataset. The Neural network was then fine-tuned as an ordinal regression problem for the current dataset.

- **Aerial Cactus Identification**

Top 8%

Utilizing transfer learning and image augmentation on a resnet50, this solution achieved the perfect score in classifying images of cacti taken from satellites.

- **Quora Insincere Question Classification**

Insincere questions dataset from quora was classified with an RNN/CNN hybrid neural network. The model used word embedding and LSTM/GRU backbone with Attention to extract features from text. Statistical features extracted from metadata were further enhanced using a CNN. A linear regressor with sigmoid was applied on the features to produce probabilities. Finally, a decision threshold was chosen based on F1 scores.

Contribution to ULMFiT implementation for Bengali

Using FastAI library, an AWD_LSTM language model was trained to serve as a pre-trained model for further NLP tasks. The text corpus was collected from Bengali wikipedia and Newspaper articles. The model weights was made open source on kaggle.

Other Deep Learning Projects

- Performance analysis of Tabular vs Vision models on Digits-MNIST dataset
- Facial Expression Detection
- Authorship Attribution

Academic Projects

2014-2017

- A car game with the taste of football via LAN using UNREAL ENGINE 4.
- A first person shooter on UNREAL ENGINE 4.
- Music Library project using PL/SQL & JAVA.
- Java RMI Banking System
- Simple CRUD systems using C/C++ and C#

TECHNICAL SKILLS

Languages : C/C++, Python, Shell

Open Source : Chromium, Chromium-efl, Linux

Frameworks : Pytorch, FastAI

Development Tools : Git, Netbeans, Blender, Unreal Engine 4

PERSONAL SKILLS

- Well conversant in both English & Bengali.
- Good communication skills gained through work experience.
- Amicable, team player and persistent.