Hee Hwang

https://www.heehwang.com

heehcs@gmail.com
413-406-0991

Experience

Azena (Bosch Security Systems) Pittsburgh, PA
Software Engineer *Oct 2021 - Present*

Responsibility

- Worked in an agile environment with daily scrum. Ironed out feature details and implement features from web frotend to backend. Reviewed and tested team members' code. Developed POCs for ambiguous problem/solution. Got alignment with teammates and cross-functional teams including product, design, OS, and cloud.

Achievements

- Integrators' ToolKit: Engineered and built customer-facing app that connects Azena platform to external VMSes. Saw a team need and took initiative to learn front end from scratch. Completely took over the role in a month.
- Improved performance of the computer vision object detection app **from 15 to 30 FPS** by removing bottleneck. Analyzed excution path and split the program into multiple parts, including image preprocessing, inferencing, rendering, and bitmap compression.
- Spearheaded ML model performance analysis on Azena platform. To evaluate the performance, deep dived into TensorFlow open source repository and ported Model Benchmark library to Azena platform.
  Completed implementing proof of concept.
- Took initiative to improve CI build by reducing pipeline duration **from 16 to 8 minutes**.
  Noticed simple Shell script takes 5 minutes. Investigated the docker image and remove modules that took up 10GB.

Samsung Electronics South Korea
Software Engineer, Android *Feb 2017 - May 2019*

- Developed and hardened Android SDK framework libraries including AccountManager and SyncManager.
- Revamped Android accessibility library by modifying touch duration and preventing extra input.
- Nice Catch: Built Android app that tracks toasts, vibration, and screen wakeup messages.

Skills

Languages: C++/Java(2 years), Python(1 year), Typescript/Rust(< 6month)
Technologies: GNU/Linux, Android, Numpy, PyTorch, TensorFlowLite, Vue.js, Retrofit, Git, Docker

Education

University of Massachusetts Amherst
Master of Science in Computer Science; GPA: 3.94/4.0 *Aug 2019 – May 2021*

University of California, Los Angeles(UCLA)
Bachelor of Science in Computer Science *Sep 2012 – Jun 2015*

Coursework: Compiler Construction, Operating Systems, Machine Learning, NLP, Intelligent Visual Computing

Data/ML Projects

Neural Data Augmentation
Augments text data automatically to improve accuracy by collecting similar sentences in Common Crawl.

- Preprocessed Common Crawl dataset composed of **252 billion** tokens and **14.3 billion** sentences into JSON.
- Assembled full data augmentation pipeline including indexing, dense vector encoding, and clustering.
- Improved F1 scores for ACL Citation Intent and Hyperpartisan News using BERT, Apache Solr, DPR, and FAISS.

Seasonality of Online Legal Issues
Classifies legal category of Reddit submissions in /r/legaladvice and analyzes pattern from 2011 to 2020.

- Preprocessed **900K** Reddit submissions and trained statistical model based on Learned Hands data.
- Predicted legal demands and found seasonality for each legal category using TF-IDF and GLoVe.

Publication

Word-based Neural Prosody Modeling with ToBI
Hwang, H., Yu, K. (2020) Word-based Neural Prosody Modeling with ToBI. Proc. Speech Prosody 2020, 1019-1023

- Designed discrete speech embedding and trained prosody labeling model with LSTM and BERT.
- Achieved 80.5% and 90.7% F1 scores in detecting pitch accent and phrase boundaries.