Zhiming LI

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https://github.com/unclebob7
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Education

China University of Geosciences

- Senior undergraduate, Communication Engineering — *Sep. 2016 – Present*
- "Siguang Li" Innovative Program (**35** students selected from **4500** students in 2016)
- **Overall GPA:** 86.5/100
- **Math**: *Advanced Calculus*(90), *Linear Algebra*(88), *Probability Theory*(81), *Complex Analysis*(89)
- **EECS Courses:** *C++ Programming*(93), *Data Structure*(91), *Computer Networks*(91), *Pattern Recognition*(95), *Communication Theory*(87) *Digital Signal Processing*(87)
- **Research Interests**: Computational Linguistics, Machine Learning, Program Synthesis, Information Theory

Research & Development Experience

China University of Geosciences - Wuhan, China — *Dec. 2018 – Present*

Adabot - Fault-Tolerant Java Decompiler (submitted to **AAAI 2020**)

- Traditional Abstract Syntax Tree(AST) based Java reverse engineering tools are strictly rule defined, thus are not fault-tolerant, which pose serious problem when noise and interference were introduced into the system.
- ***Proposed framework depends on attention-based NMT and Transformer models*** whose key essence is to view reverse engineering as a statistical, machine translation task. To evaluate the robustness and fault-tolerance of the framework, I tested on datasets crawled from Oracle.
- Experimental results demonstrated that the framework is more robust and fault-tolerant compared to traditional Abstract Syntax Tree(AST) based reverse engineering tools. Specifically, the performance has achieved 92.3 and 3.48% in terms of BLEU and minimum word error rate which is the state-of-the-art.

University of Michigan, Ann Arbor — *Jun. 2019 – Present*

Advisor: Prof. Carol Flannagan

Thinking in the same basis

- Efficiency and Accuracy alone are not enough for AI, we need better understanding and interpretability so that we can better manipulate our models, which is nontrivial for areas like traffic security and medical science.
- Inspired by Inceptionism and the Information Bottleneck Principle, we propose a mechanism that constrains the direction of information flow in the Neural Network to bypass trivial and uninformative computation which would potentially fasten the inference process to a significant extent.

IFLYTEK AI developer competition - Beijing, China — *Apr. 2018 – Aug. 2018*

Fancy Voice -- an ASR community (Top **30** out of **1210** teams)

Fancy Voice aims at infiltrating ASR in app controlling details, building up a community for a series of ASR related applications that not only makes ASR entertaining, but also genuinely helps people in real life. It mainly consists of the following 4 components:

- ***Lisinterest***: a lyrics extraction plugin that combines Acapella-CNN from UW and IFLYTEK Speech Recognition API. Implementing JSSRC for resampling, then use Acapella-CNN to weaken background music before downstream recognition task.
- ***Handfree-Browser***: incorporate IFLYTEK Voice Trigger into browser to automate traditonal controlling events, aiming to build a user-friendly environment for the disabled and to excavate ASR's capability in controlling details.
- ***Bob's secret***: introduce Voice Trigger into quiz game, trigger the answer solely with voice, offering brand new gaming pattern and experience.
- ***Skypeech***: real-time captioning in Skype, offering accessible and satisfying Skype experience for the hearing-disabled.

Honors and Awards

- 2017 National Scholarship — *Dec. 2017*
- 2018 IFLYTEK "AI Developer Competition" Semi-finalist — *Aug. 2018*

Copyright

- "AP smart ASR browser" (2017SR617386) — *Nov. 2017*
- "Fancy Voice" (2018SR1041935) — *Dec. 2018*

Open Source Projects

- **Adabot - Deep Learning based Decompilation**
- **CMISST of University of Michigan**
- **Forward Error Correction(FEC) with Hamming Code and Application in ASR**
- **Fancy Voice -- an ASR community**

Languages and skills

- **Programming Language:** Java(proficient), Python(proficient), C++
- **TOEFL**: 104 (R27, L28, S26[1]/23[2], W26) **GRE**: V162, Q164, AW3.5