Shangru Li

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Education

- **Columbia University in NYC** — New York, US
  Master of Eng. and A.S. - Electrical and Computer Science ; GPA: 3.4 — *August 2021 - Expected Dec 2022*
  Courses: Operating Systems, Artificial Intelligence, Machine Learning, Embedded AI, Digital Signal Processing, UI Design, Speech Recognition, Analog and Digital Interface in VLSI.
- **Beijing Jiaotong University** — Beiing, CN
  Bachlor of Eng. - Electrical Engineering ; GPA: 3.78 — *August 2017 - June 2021*
  Courses: Automatic Control Theory, Electrical and Electronic Design, Program in C, Power system Analysis, Digital Circuit Basis, Analog Circuit Basis, Computer Network.

Skills Summary

- **Languages**: Python, C, JAVA, JavaScript, SQL, Shell, Makefile, XML, HTML, CSS.
- **Frameworks**: TensorFlow, Keras, Flask, NodeJS, MySQL, SQLite.
- **Platforms**: Linux, Windows, Arduino, GCP, Cadence, SolidWork,Android Studio, Kaldi.
- **Soft Skills**: Leadership, Event Management, Time Management, Commercialization.

Experience

- **Wave Audio In Ear Monitor (IEM) Inc.** — Beijing
  Founder and Tech. Support — *October 2017 - May 2021*
  - **R&D**: Manufactured hundards of customized IEM shell and designed several earphone shell for massive product with patent ZL-2019-3-0710231.5.
  - **Material study**: Invented a ceramic based air balancing subassembly which will increase the comfort of wearing earphones but not kill the noise cancelling feature.
  - **Teamwork and AD**: Engaged ten student employees in Beijing Jiaotong University and built a channel in "bilibili.com" for broadcasting and advertising. Sales increased 50% during COVID-19 impacted China.

Projects

- **Android App Building - Optimal Recommendation System** — Columbia University in NYC
  *Individual; Accomplished; Public; Free to download ** — *Feb 2022 - Present*
  This project is based on the most popular media game - "Genshin Impact" and its artifacts system. CTPN, CRNN, CTC and etc CV techniques are equipped to identify users' artifacts' name and property. Edit distance and Regularized matching algorithms are used to increase the matching latitude. According to the complexity of this game, data loading methods, optimization method and the whole system architecture have a extraordinary malleability and reusability. Intuitive design philosophy and proper animations make this App a monolithic design.
- **Speech Recognition - Acoustic Modeling with Pitch Information** — Columbia University in NYC
  *Individual; Accomplished; The first author; Free to download ** — *Sep 2021 - Jan 2022*
  This method is delighted by original TDNN acoustic model. By extension MFCC characteristic matrix dimension (from 39 to 42), pitch typed language recognition accurate rate is increased about 3% in general. Utilizing base frequency least square estimation (BF0NLS), pitch information will be extracted without mathematical error. This state-of-art algorithm evade traditional gradient descent approach, which goes to the final answer less rapidly and straightly.
- **Stochastic Deep Neural Network Optimization** — Columbia University in NYC
  *Group work; Accomplished; The first author; Free to download ** — *Spe 2021 - Jan 2022*
  This study is based on one significant research goal produced at Cornell. RNN with stochastic depth could improve complex regression problem by applying even thousand layers neural network but also maintains great linearity and performability. We make another step forward to find the best distribution topology of Id-layers and Conv-layers. By applying a non-uniform distribution, we decreased the training time three second but not hurt the linearity too much.
- **Ultra-short term Prediction Model Construction for PV System** — BJTU & UCAS in Beijing
  Project in University of Chinese academy of Sciences; Private for commercial purpose — *Aug 2019 - Jun 2020*
  When implementing time series predictions, prediction value always has one time unit delay. I have utilized a LSTM model but modified the inner feedback loop to weaken the adjacent data influence and reinforce the second derivative smoother, which perfectly solve this problem. SPSS is used to calibrate gathered meteorological information.

Publications

- **SCI Journal: A power loss minimization strategy based on optimal placement and sizing of distributed energy resources**:
  As 2nd author published in INT J NUMER MODEL EL URL: https://onlinelibrary.wiley.com/doi/10.1002/jnm.3000
- **SCI Journal: Reinforcement of Power System Performance Through Optimal Allotment of Distributed Generators Using Metaheuristic Optimization Algorithms** :
  As 2nd author published in JEET URL: https://link.springer.com/article/10.1007/s42835-022-01080-9

* all meterial can be found in my personal website : http://shangruli.tk