
INTRODUCTION

I am a Senior Speech Algorithm Engineer at Mobvoi AI Lab(Beijing). My working area is text-to-speech(TTS), in which I primarily focus on NLP(TN/G2P/Prosody/Stress/Style/Emotion), model optimization(NLP/TTS), Emotional TTS, and online server application, all of this based on cross-lingual domain. Personally, my biggest motivation is using the world's multi-modal information to improve our lives.

EDUCATION**Master Student Software Engineer (M.Sc.)****Oct. 2016 – Jan. 2019***Beijing University of Technology BJUT; overall grade: 86 (max. 100) between "Very Good" and "Good"**Beijing, China*

- **Thesis:** "Research on multi-scene video intelligent processing system and scheduling management algorithm"
- **Advisors:** Dr. [Zhangqin Huang](#)

Bachelor Student Computer Science (B.Eng.)**Sep. 2012 – Jul. 2016***Southwest Minzu University SMU; overall grade: 3.66 (max. 4.0), "Top 5" of 154 students**Chengdu, China*

- **Thesis:** "Research on Intelligent Laboratory Management System"
- **Advisors:** Dr. [JianYin Chen](#)

PROFESSIONAL EXPERIENCE**Senior Speech algorithm Engineer****July. 2019 – Present***Mobvoi AI-Platform**Beijing, China*

- **Summary:** focus on TTS(TextToSpeech)/NLP, lead some independent projects
- **As mentor:** working with 5 interns
- **As researcher:** NLP of TTS(G2P/TN/Prosody/Stress), Unified-Frontend of TTS(e2e), Emotional-TTS
- **As developer:** optimize/develop most modules of frontend of tts, develop/co online/portable server to support toB/toC projects(block/streaming/concurrent/http/grpc), all of this based on cross-lingual domain.
- **Involved techniques:** Language: C/C++, Python, Bash; Algorithm: Cache, FST, CRF, LSTM, WordEM, Pretrain, Bert, Emotional Analysis, Contrastive Learning, Semantic Analysis, Knowledge Distillation, Multi-Task; Tools: Linux, Tensorflow, Pytorch, Redis, Mysql, Docker, gRPC, XML, AWS, MicrosoftCloud, GoogleCloud, AlibabaCloud, TencentCloud, etc.
- **Best results:** [tech-website: voice maker](#), [DupDub\(oversea\)](#); one co-paper for NLP2022 + three patents(published); one co-paper + two patents(on-going)

Algorithm Engineer(Intern)**Aug. 2018 – Dec. 2018***TAL AI Lab**Beijing, China*

- **As researcher:** Knowledge Tracking : data analysis , feature engineering , graph embedding , model of TF , train and ablation analysis etc. (co- with Dr.Wang)
- **Involved techniques:** Language:Python, Bash; Algorithm: Feature Engineering, Graph Embedding, Word embedding, LSTM, GNN etc.; Tools: Tensorflow, AliCloud, Google Codelab, Seaborn, etc.
- **Best results:** Best Intern of 10 members , one co-paper for AIED2019 , regularization opportunity

DeeCamp AI Lab (Member)**Jun. 2018 – Aug. 2018***DeeCamp - co with Peking University**Beijing, China*

- **As researcher:** Movie Recommendation based on Knowledge Graph: data analysis , feature engineering , strategy of sample generation , knowledge extractor and link prediction of KG , model of Keras , ablation analysis , presentation(co with two Ph.D. three MS.)
- **Involved techniques:** Language:Python, Bash, JavaScript; Algorithm: Feature Engineering, Data Mining, Recommendation, etc.; Tools: Keras ,Seaborn, Ucloud, Google Codelab, etc.
- **Best results:** excellent team of 20 groups, internship opportunity

Ali Big Data Competition (Competitor)

Sep. 2017 – Dec. 2017

TianChi - co with CCF

Bwijing, China

- **Subjects** : User Location Prediction: Based on the mass data provided on user consumption, determine the current store location of the user.
- **As researcher**: data analysis、feature engineering、strategy of sample generation、model ensemble、ablation analysis
- **Involved techniques**: Language:Python, Bash, sql; Algorithm: Data Mining, Feture Engineering, Decision Tree, LR, XgBoost, GBDT, RF, ensemble learning etc.; Tools:Seaborn, MySQL, AliCloud, etc.
- **Best results**: Preliminary contest: 52/2845、Finals: 19/2845

Own Projects

Sep. 2016 – Aug. 2018

IOT-Lab

Beijing, China

- **Ali Tianchi Competition**: e.g.O2O coupon usage predictions: code research retrieval
- **TextCNN**: Methods are implemented based on TF-IDF, xgboost, lgb, textcnn, etc.
- **Dialogue predictions**: simmc2 task: Methods are implemented based on Bert、GPT、Multimodal, etc.
- **TAL AI Lab**: FutrueCamp: Based on knowledge tracking;best member and get an internship
- **IoT Bus HD Intelligent Video Surveillance**: programming and development of application algorithms
- **IOT-AI Video Analyser**: programming and structure development of application algorithms
- **Involved techniques**: Python, Bash, C++; Linux, Mysql, WebSocket; CV, NLP, Data, MLDL; etc.
- **Best results**: system release、thesis experiment

EXPERTISE AND SKILLS

Expertise is context- and comparison-dependent. Here states the years of experience in terms of use, also indicates a subjective estimation of the level of expertise (either *elementary*, *intermediate*, *experienced*, or *expert*):

- **Text To Speech**: *NLP Analysis* (text normolization, segmenter, polyphone, g2p, prosody, unified-frontend *experienced*); *Emotion-TTS* (style tag, stress, emotion analysis, contrastive learning, unsupervised learning *experienced*); *Backend Model* (Acoustic models、Vocoder *elementary*);
- **Machine/Deep learning**: *Basic Knowledge* (continuing: stanford's courses, Andrew Ng's Deep Learning, tech- blog, github, huggingface, open-source projects etc.*intermediate*); *Data analysis* (5 years of study and work, numpy/seaborn/pandas/t-sne/etc., *experienced*); *Service Development* (3 years of industrial c++ server engineering, good at logic/structure, using C++/Python/etc., *experienced*).
- **Language**: *C/C++* (3+ years, *experienced*); *Python* (5+ years, *experienced*); *Writing* (3+years, good writing habits.) I speak native Mandarin; elementary English.

SCHOLARSHIPS AND AWARDS

CCF-Ali Big Data Competition

Good,19/2845

Sep. 2018

Beijing, China

China National Scholarship

Southwest Minzu University

Sep. 2016

Chengdu, China

Outstanding secretary of Youth League branch Scholarship

Southwest Minzu University

May 2014

Chengdu, China

Annual Excellent Student Innovative Project

Southwest Minzu University, 2nd Award

Sep. 2013

Chengdu, China

Outstanding Student Scholarship

Southwest Minzu University

Jun. 2013,Jun. 2014

Chengdu, China

TEACHING EXPERIENCE

Lecture - Embedded System Design Practice

2018

Winter

As teaching assistant at BJUT, for M.Sc. students, approx. 80 students each year.

Company - Speech & NLP

2021-2022

Annual

As a mentor at Mobvoi, for interns (students), avg. 3 students each year.

PUBLICATIONS

Proceedings

- **Feng X**, Xie R, Sheng J, et al. *Population statistics algorithm based on MobileNet*. Journal of Physics: Conference Series. IOP Publishing, 2019(ICSP'19), 6 pages. <https://iopscience.iop.org/article/10.1088/1742-6596/1237/2/022045/pdf>.
- Wang Z, **Feng X**, Tang J, et al. *Deep Knowledge Tracing with Side Information*. International conference on artificial intelligence in education. Springer, Cham, 2019(AIED'19), 5 pages. <https://arxiv.org/pdf/1909.00372.pdf>.
- Rong Xie, **Feng X** *A method of quick edge detection based on Zynq*. International Conference on Cloud Computing and Internet of Things, 2018(CCIOT'18), 5 pages. <https://ieeexplore.ieee.org/document/9032641>.
- Sheng J, **Feng X** *Research on the Internet of Things Platform for Smart and Environmental Protection*. International Conference on Cloud Computing and Intelligence Systems, 2018(CCIS'18), 5 pages. <https://ieeexplore.ieee.org/document/8691352>.
- Zhang J, **Feng X**, Chen Y, et al. *Prosody Prediction With Discriminative Representation Method*. International Conference on Pattern Recognition and Machine Learning, 2022(PRML'22), 5 pages. <https://ieeexplore.ieee.org/abstract/document/9882251>.

Patents

- **FENG XIAOQIN**, LEI XIN, LI ZHIFEI. *Polyphone labeling method and device, and computer readable storage medium*. Mobvoi(algorithm), 2019, CN111078898A.patent.pdf
- **FENG XIAOQIN**, LEI XIN, LI ZHIFEI. *Speech synthesis method and device and computer readable storage medium*. Mobvoi(algorithm), 2020, CN110970013A.patent.pdf
- **FENG XIAOQIN**, LI NA, LEI XIN, LI ZHIFEI. *Polyphone labeling method and device, and computer readable storage medium*. Mobvoi(application), 2020, CN111145724A.patent.pdf
- **other 2 co-patents published**: [CN111079428A.patent.pdf](#) [CN111178042A.patent.pdf](#)

Theses

- **Xiaoqin Feng**. 2019. *Research on multi-scene video intelligent processing system and scheduling management algorithm*. In the Institute of Software Engineering. Beijing University of Technology. 78 pages. **Master Thesis**. https://kns.cnki.net/master_thesis.pdf
- **Xiaoqin Feng**. 2016. *Intelligent Laboratory Management System*. In the Institute of Computer Science and Engineering. Southwest Minzu University. 37 pages. **Bachelor Thesis**.