

## INTRODUCTION

I am currently a Senior Speech Algorithm Engineer at Mobvoi AI Lab, with a working focus on text-to-speech (TTS). Specifically, my area of expertise is in text information extraction based on cross- and multi-lingual aspects. My research interests lie in natural language processing(NLP), with a particular emphasis on natural language understanding, semantic analysis, knowledge acquisition, information extraction, information representation, robust learning, data mining, and their practical application.

## EDUCATION

### Master Student Software Engineer (M.Sc.)

*Beijing University of Technology BJUT; overall grade: 86 (max. 100) between "Very Good" and "Good"*

**Oct. 2016 – Jan. 2019**

*Beijing, China*

### Bachelor Student Computer Science (B.Eng.)

*Southwest Minzu University SMU; overall grade: 3.66 (max. 4.0), "Top 5" of 154 students*

**Sep. 2012 – Jul. 2016**

*Chengdu, China*

## PROFESSIONAL EXPERIENCE

### Senior Speech algorithm Engineer

*[Mobvoi] [出门问问开放平台]*

**Jul. 2019 – Present**

*Beijing, China*

- **As mentor:** working with 3 interns (annual) in NLP and Text-to-speech(TTS)
- **As researcher:** tokenization, text normalization, polyphone, prosody, stress, spoken events, speaking style, emotion, unified-model.(**text information extraction**)
- **As developer:** develop and optimize algorithms of TTS and NLP, online and portable server to support toB/toC services.
- **Involved techniques:** \*Language\*: C/C++, Python, Bash; \*Knowledge\*: data mining, semantic analysis, contrastive learning, knowledge distillation, pre-training, multi-task; semi-supervision;  
\*Tools\*: Linux, TensorFlow, PyTorch, Redis, MySQL, Docker, gRPC, XML etc.
- **Key results:** [tech-website: VoiceMaker](#), [DupDub](#); (\*)regular staff opportunity; one co-author submission to [PRML 2022](#); one first-author submission to [INTERSPEECH 2023](#) + 9 patents.

### Algorithm Research(Intern)

*TAL AI Lab*

**Aug. 2018 – Dec. 2018**

*Beijing, China*

- **As researcher:** knowledge tracing : **network representation learning**(NE/NRL), **relation information**(co- with Dr.Wang)
- **As developer:** develop a deep knowledge tracing(DKT) pipeline to verify different methods: data mining, weight graph building, graph embedding, metric distance
- **Involved techniques:** \*Language\*: Python, Bash; \*Knowledge\*: data mining, graph embedding, LSTM, GCN etc.; \*Tools\*: TensorFlow, AliCloud, Google Codelab, t-SNE, etc.
- **Key results:** Outstanding Intern of 10 members; one co-author submission to [AIED2019](#); (\*)regular staff opportunity

### DeeCamp AI Lab (Member)

*DeeCamp - co with Peking University & Sinovation Ventures*

**Jun. 2018 – Aug. 2018**

*Beijing, China*

- **As researcher:** Movie Recommendation based on knowledge graph(KG) (co- with two Ph.D. & three M.Sc.)
- **As developer:** data mining, knowledge graph building, verify RS methods(CF, FM, PNN, etc.), API
- **Involved techniques:** \*Language\*: Python, Bash, JavaScript; \*Tools\*: Keras, Ucloud, Google Codelab, etc.
- **Key results:** [github project](#), Excellent Team of 20 groups, (\*)internship opportunity

### Ali Tianchi Competition (Competitor)

*Tianchi - co- with CCF*

**Sep. 2017 – Dec. 2017**

*Bwijing, China*

- **Subject:** User Location Prediction: predicting user's current store location based on user consumption data.
- **As researcher:** data mining, boosting learning, ensemble learning, ablation analysis

- **Involved techniques:** \*Language\*: Python, Bash, SQL; \*Knowledge\*: data mining, random forest(RF), LR, XgBoost, GBDT, LightGBM, etc.; \*Tools\*: MySQL, AliCloud, etc.
- **Key results:** Primary: 52/2845 , Final: 19/2845

## Personal Projects

### *IOT-Lab*

- - **Ali Tianchi Competition:** O2O coupon usage predictions e.g.
- - **TextCNN:** Methods are implemented based on TF-IDF, xgboost, lgb, textcnn, etc. [code](#)
- - **Dialogue Generation:** Simmc2 task: Methods are implemented based on BERT、GPT、Multimodal, etc.
- - **TAL AI Lab:** FutrueCamp: Research on Recommendation Systems, after that I got an internship
- - **IoT Bus HD Intelligent Video Surveillance:** Programming and development of application algorithms
- - **IOT-AI Video Analyser:** Programming and development of application algorithms

**Sep. 2016 – Aug. 2018**

*Beijing, China*

## 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*):

- **NLP/Speech Synthesis:** Semantic Analysis(tokenization, text normolization, polyphone, g2p, prosody, unified-frontend, spoken events *experienced*); Emotion Analysis (speaking style, stress, emotion analysis, contrastive learning *experienced*); Knowledge Information (knowledge tracking, knowledge representation, etc. *intermediate*); TTS Backend Model (acoustic models, vocoder *elementary*);
- **Programming:** Data Mining (5 years of study and work, numpy/pandas/seaborn/t-sne/etc., *experienced*); Backend Development (4 years of industrial c++ server engineering, good at logic/structure, using C++/Python/etc., *experienced*).
- **Language:** *C/C++* (4+ years, *experienced*); *Python* (5+ years, *experienced*); *Writing* (4+years, good writing habits.) I speak native Mandarin; elementary English.

## SCHOLARSHIPS AND AWARDS

### Ali Tianchi Competition

*Good, 19/2845*

**Sep. 2018**

*Beijing, China*

### National Scholarship

*Southwest Minzu University*

**Sep. 2016**

*Chengdu, China*

### Outstanding Secretary of the Youth League 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

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

**2018**

*Winter*

### Company - Speech & NLP

*As a mentor at Mobvoi, for interns (students), annual. 3 students.*

**2021-present**

*Annual*

## PUBLICATIONS

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### 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. [CCIoT'2018](#)
- 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. [CCIS'2018](#)
- 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 [PRML'2022](#)
- Chi W, **Feng X(\*euqal contribution)**, Chen Y, et al. *Multi-granularity Semantic and Acoustic Stress Prediction for Expressive TTS*. Conference of the International Speech Communication Association, 2023(INTERSPEECH'23), 5 pages. *reviewing*.

### Patents

- **FENG XIAOQIN**, et al.. *Polyphone labeling method and device, and computer readable storage medium*. Mobvoi(*algorithm*),2019,[CN111078898A](#)
- **FENG XIAOQIN** et al. *Speech synthesis method and device and computer readable storage medium*. Mobvoi(*algorithm*),2020,[CN110970013A](#)
- **FENG XIAOQIN**, et al. *Polyphone labeling method and device, and computer readable storage medium*. Mobvoi(*application*),2020,[CN111145724A](#)
- **FENG XIAOQIN**, et al. *Construction method and device of rhythm model, rhythm labeling method and electronic equipment*. Mobvoi(*algorithm*),2022,[CN115470351A](#)
- **FENG XIAOQIN**, et al. *Construction method and device of rhythm model, rhythm labeling method and electronic equipment*. Mobvoi(*algorithm*),2022,[CN115470350A](#)
- **FENG XIAOQIN**, et al. *Voice synthesis method and device, electronic equipment and storage medium*. Mobvoi(*algorithm*),2022,[CN115547289A](#)
- **other 3 co-patents:** [CN111079428A](#) [CN111178042A](#) [CN115578998A](#)

### 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](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**.