Xiaoqin Feng (冯小琴)

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Online version: https://xqfeng-josie.github.io/resume/cv

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Curriculum Vitae

Google Scholar

XqFeng-Josie

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(English, Mandarin, etc.). 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 **Jul. 2019 – Present**

[Mobvoi AI Lab] [出门问问开放平台] *Beijing, China*

- **As mentor**: working with 3 interns (avg.) in NLP and text-to-speech(TTS)
- **As researcher**: tokenization, text normalization, polyphone, prosody, unified-frontend(semantic NLP of TTS); stress, style, emotion(emotional NLP of TTS); AudioBook; all of this based on cross-lingual domain.
- **As developer**: develop and optimize algorithms of tts(80% is nlp), online and portable server to support toB/toC services(block/streaming/concurrent/http/grpc), all of this based on cross-lingual domain.
- **Involved techniques**: *Language*: C/C++, Python, Bash; *Algorithm*: design pattern, data mining, data crawling, FST, CRF, LSTM, semantic analysis, dialog analysis, word embedding, pre-training, emotional analysis, contrastive learning, knowledge distillation, multi-task; *Tools*: Linux, Tensorflow, Pytorch, Redis, MySQL, Docker, gRPC, XML, AWS, MicrosoftCloud, GoogleCloud, AlibabaCloud, TencentCloud, etc.
- **Best results**: tech-website: VoiceMaker、DupDub(oversea); one co-author conference submission to *NLPAI2022* + five patents; one first-author conference submission to *ICASSP2023* + two patents(reviewing)

Algorithm Engineer(Intern) **Aug. 2018 – Dec. 2018**

TAL AI Lab *Beijing, China*

- **As researcher**: Knowledge Tracking : network representation learning(NE/NRL)(co with Dr.Wang)
- **As developer**: develop a deep knowledge tracking(DKT) pipeline to verify different methods: data analysis, weight graph building, graph embedding, metric distance, model construction
- **Involved techniques**: *Language*:Python, Bash; *Algorithm*: data mining, graph embedding, LSTM, GCN etc.; *Tools*: Tensorflow, AliCloud, Google Codelab, t-SNE, etc.
- **Best results**: Best Intern of 10 members; one co-author conference submission to *AIED2019*; (*)regular staff opportunity

DeeCamp AI Lab (Member) **Jun. 2018 – Aug. 2018**

DeeCamp - co with Peking University *Beijing, China*

- **As researcher**: Movie Recommendation based on Knowledge Graph(KG)： recommendation system(RS), information extraction(IE) for KG, knowledge representation(co with two Ph.D. three M.Sc.)
- **As developer**: data analysis, knowledge graph building, link prediction, graph embedding, metric distance, verify RS methods(CF, FM, PNN, etc.), recommendation reason generation(RippleNet), API

- **Involved techniques**: *Language*: Python, Bash, JavaScript; *Algorthm*: data mining, Trans*, GCN, etc.; *Tools*: Keras, Ucloud, Google Codelab, etc.
- **Best results**: *github project*, Excellent Team of 20 groups, (*)internship opportunity

Ali Tianchi Competition (Competitor) **Sep. 2017 – Dec. 2017**

Tianchi - co with CCF *Bwijing, China*

- **Subject**: User Location Prediction: predicting user's current store location based on user consumption data.
- **As researcher**: data analysis, boosting learning, ensemble learning, ablation analysis
- **Involved techniques**: *Language*: Python, Bash, SQL; *Algorithm*: data mining, random forest(RF), LR, XgBoost, GBDT, LightGBM, etc.; *Tools*: MySQL, AliCloud, etc.
- **Best results**: Preliminary: 52/2845 、Final：19/2845

Personal Projects **Sep. 2016 – Aug. 2018**

IOT-Lab *Beijing, China*

- **- 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
- **Involved techniques**: Python, Bash, C++; Linux, MySQL, WebSocket; CV, NLP, RS, Data Mining, ML, DL; 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*):

- **Speech Syntheis**: *NLP* (tokenization, text normolization, polyphone, g2p, prosody, unified-frontend *experienced*); *Emotion-TTS* (style, 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 Mining* (5 years of study and work, numpy/pandas/seaborn/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

Ali Tianchi Competition **Sep. 2018**

Good,19/2845 *Beijing, China*

China National Scholarship **Sep. 2016**

Southwest Minzu University *Chengdu, China*

Outstanding secretary of Youth League branch Scholarship **May 2014**

Southwest Minzu University *Chengdu, China*

Annual Excellent Student Innovative Project **Sep. 2013**

Southwest Minzu University, 2nd Award *Chengdu, China*

Outstanding Student Scholarship **Jun. 2013,Jun. 2014**

Southwest Minzu University *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-present**

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.
- **Feng X**, Chi W, Chen Y, et al. *Stress Prediction Based on Multi-Granularity Linguistic Knowledge.* IEEE International Conference on Acoustics, Speech and Signal Processing International Conference on Pattern Recognition and Machine Learning， 2023(ICASSP'23), 5 pages. *reviewing.*

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**.