Xiaoqin Feng (冯小琴)

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

Last updated: March 11, 2023

Curriculum Vitae

Google Scholar

XqFeng-Josie

Introduction

I am currently a Senior Speech Algorithm Engineer at Mobvoi AI Lab. My working area is text-to-speech(TTS), in which I primarily focus on text information extraction(NLP of TTS) based on cross- and multi- lingual. My research interests lie in natural language processing(NLP) and I'm particularly interested in natural language understanding, semantic analysis, knowledge acquisition, information extraction, information representation, robust learning, data mining and application.

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*

- **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*

- **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, spoken events, stress, speaking style, emotion.(**text information extraction on multi- and cross- lingual domain**)
- **As developer**: develop and optimize algorithms of tts(80% is nlp), online and portable server to support toB/toC services(http/gRPC)
- **Involved techniques**: *Language*: C/C++, Python, Bash; *Knowledge*: design pattern, data mining, data crawling, FST, CRF, LSTM, semantic analysis, dialog analysis, name entity recognition, language embedding, pre-training, emotional analysis, lingustic, contrastive learning, knowledge distillation, multi-task; semi-supervision; *Tools*: Linux, TensorFlow, PyTorch, Redis, MySQL, Docker, gRPC, XML, AWS, MicrosoftCloud, GoogleCloud, AlibabaCloud, TencentCloud, etc.
- **Key results**: tech-website: VoiceMaker、DupDub(oversea); one (*)regular staff opportunity for intern; one co-author submission to *PRML 2022* + five patents; one first-author submission to *ICASSP 2023* + two patents(reviewing)

Algorithm Research(Intern) — **Aug. 2018 – Dec. 2018**

TAL AI Lab — *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, model construction
- **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 ten members; one co-author conference submission to *AIED2019*; (*)regular staff opportunity

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

DeeCamp - co with Peking University & Sinovation Ventures — *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 mining, 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; *Knowledge*: data mining, Trans*, GCN, etc.; *Tools*: Keras, Ucloud, Google Codelab, etc.

- **Key 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 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 **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.
- **Key results**: system release, thesis experiment, open-source projects

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 Syntheis**: *Semantic Analysis*(tokenization, text normolization, polyphone, g2p, prosody, unified-frontend, spoken events *experienced*); *Emotion Analysis* (speaking style, stress, emotion analysis, contrastive learning, unsupervised learning *experienced*); *Knowledge Information* (knowledge tracking, knowledge representation, etc. *intermediate*); *TTS Backend Model* (acoustic models、vocoder *elementary*);
- **Machine/Deep learning**: *Basic Knowledge* (continuing： online courses, tech-blog, github, huggingface, open-source projects, research news etc.*intermediate*; *Data Mining* (5 years of study and work, numpy/pandas/seaborn/t-sne/etc., *experienced*); *Backend 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*

National Scholarship **Sep. 2016**

Southwest Minzu University *Chengdu, China*

Outstanding Secretary of the Youth League 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.
- Chi W, **Feng X(*euqal contribution)**, Chen Y, et al. *Multi-granularity Semantic and Acoustic Stress Prediction for Expressive TTS.* , INTERSPEECH2023(INTERSPEECH2023'23), 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**.