

Bozhong Liu

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Profile Summary

Bozhong Liu is a **Senior AI Engineer** currently working at **MediaTek**. He possesses a **Master's degree in AI from Nanyang Technological University** and an undergraduate degree in Electrical and Electronic Engineering from the University of Nottingham. Bozhong has professional experience working at various well-known companies, including **Alibaba** and **Robert Bosch**, and has done an internship at **Tesla Automobile**. Bozhong's areas of expertise include Deep Learning, Computer Vision and Speech Processing, and he's proficient in several programming languages and machine learning tools like Python (LangChain, PyTorch, TensorFlow, Scikit-Learn, NumPy, Pandas, OpenCV, Matplotlib, Seaborn), R, Matlab.

Apart from his professional experience, Bozhong has shared his insights and knowledge through LinkedIn posts and his Medium blog, which contains a collection of AI projects he has completed. He is **recognized by OpenAI as an early developer of ChatGPT plugins** and has completed Deep Learning Specialization and ChatGPT Prompt Engineering for Developers certification by Andrew Ng, DeepLearning.AI. He is also a **keynote speaker at the National Library Singapore** where he discussed the future of tech, focusing on AI-powered tools.

Education

Nanyang Technological University

M.Sc. Artificial Intelligence | School of Computer Science and Engineering | Singapore, January 2020 – June 2021

Supervisor: Professor Chng Eng Siong | Speech and Language Laboratory of NTU & Alibaba Group

Master's Thesis Research: Wake-Up Keywords Detection Using End to End Deep Learning Frameworks

- Reproduced and compared popular computer vision neural networks in the speech fields, such as VGG, ResNet, WideResNet, DenseNet, DPN, and Multi-Head Attention-based networks, for model accuracy and storage efficiency
- Proposed a novel idea of "centroid of keyword" in speech domain, which compares the cosine similarity between keywords and non-keywords using a centroid-based loss function
- Implemented the novel loss function on an end-to-end multi-head attention model, which outperformed state-of-the-art performance in accuracy while maintaining a relatively small model size and explored how different model topologies can improve accuracy and make keyword spotting models more interpretable
- Developed a local real-time keyword detection system

University of Nottingham

B.Eng. (Hons) Electrical and Electronic Engineering | Faculty of Science and Engineering | United Kingdom, September 2015 – July 2019

- [2019 Vice-Chancellor Global Graduate Prize \(0.1%\) featured in the university's website](#)
- 2019 Nottingham Advantage Award (5%)
- 2015-2019 Outstanding Students (10%)
- 2018 Guo-Hua Xing-Zhi Scholarship (0.1%)

Publications & Certifications

- [Liu, Bozhong, Xiaoxi Yu, and Hantao Huang. "Adaptive Speech Quality Aware Complex Neural Network for Acoustic Echo Cancellation with Supervised Contrastive Learning." arXiv preprint arXiv:2210.16791 \(2022\)](#)
- Recognized by OpenAI as an early developer of ChatGPT plugins
- Deep Learning Specialization by Andrew Ng, DeepLearning.AI
- ChatGPT Prompt Engineering for Developers by by Andrew Ng, DeepLearning.AI

Professional Experience

MediaTek

Senior AI Engineer | Computation and AI Department | Permanent Contract

Supervisor: Dr.Hantao Huang | Singapore, November 2021 – Present

Projects: AI Speech Enhancement, Text to Speech Acoustic Model Quantization, Fine-tuning Large Language Models

- Conducted research on voice AI in speech enhancement and developed a novel supervised contrastive learning pre-training and adaptive speech-aware fine-tuning framework in speech field, which can compensate for speech distortion and suppress residual echo in speech and outperform existing state-of-the-art models
- Authored 1 academic paper and filed 4 AI patents as the primary contributor with the USPTO
- Compressed text-to-speech acoustic AI models such as HiFiGAN to 8-bit weight and activation quantization models
- Collaborated closely with clients, providing AI landing solutions and converting models to TF Lite on the AI accelerator of mobile devices for their product application
- Conducting research on identifying expert units in transformers through fine-tuning large language models such as **LLaMA**, aiming to publish findings as a conference paper at ICLR 2023

Robert Bosch

Research Intern in Internet of Things (IoT) Solution

Supervisor Dr. Hui XIE | Shanghai China, June 2018 – September 2018

Bachelor Thesis Project: Real-Time Volume Detection in Cabinet Based on Ultrasonic Sensor Array

- Developed a real-time volume detection system using an Arduino microcontroller and a combination of infrared laser and ultrasonic sensors, optimizing their trade-off capabilities for enhanced measurement accuracy of goods inside a cabinet during transportation
- Utilized IoT technologies and Python programming for data management and visualization, incorporating a GSM module to upload sensor data to 'Thingsboard' platform, which enabled both local and remote monitoring including GPS location tracking
- Reviewed project requirements, conducted surveys on available technologies, and assessed feasibility based on requirements and resources to fulfill project goals within the time frame and achieve high-quality results

Tesla Automobile

IT Operation Support Intern | Beijing China, August 2017– October 2017

Technical Skills

- **Programming:** Python (LangChain, PyTorch, TensorFlow, Scikit-Learn, NumPy, Pandas,OpenCV, Matplotlib, Seaborn), R, Matlab, C++, C
- **Machine Learning:** Bayesian Inference, Cross Validation, Random Forest, SVM, Gradient Boosting, Naive Bayes, k-NN, Decision Trees, Logistic Regression, Principal Component Analysis (PCA), K-Means clustering
- **Deep Learning:** CNNs, RNNs, Transformers, Large Language Models (Bert, GPT, LLaMA), Generative Models, Unsupervised/Self-supervised Learning, Zero-shot Learning, Domain Adaptation Techniques, Multi-Modal, 3D Vision, Hyperparameter Tuning, Cloud Computing, GPU Acceleration
- **DevOps:** Docker, Kubernetes, MLOps tools (Airflow, MLFlow), AWS, Terraform, GitLab,Unix command line, Git, Cuda
- **Advanced Statistics:** Numerical Optimization, Time Series Analysis, Hypothesis Testing, Forecasting

Public Speaking

National Library Singapore

Keynote Speaker | Singapore, Regular from May 2023 | Non-Profit

Talk: Leveraging ChatGPT-like Tools for Businesses and Tech Startups | Future of Work

- Gave an insightful talk on the potential and the future of AI-powered tools in today's digital landscape, Prompt Engineering skills, their potential to disrupt conventional business models, and how they allow single individuals or small teams to create significant impacts

Volunteering Experience

- **Integrate European Refugees Program | European Council on Refugees and Exiles (ECRE) | Oulu, Finland:** Assisted refugees in their transition at the Oulu reception center, teaching classes in English, mathematics, and science, and providing psychological counseling (June 2016 – July 2016)