

**Rick Liao (Liao Jie-Ren)**

**Deep Learning Engineer, Speech Recognition & Audio Processing Engineer, LLMs Application Engineer**  
Zhonghe, New Taipei City, Taiwan

**Profile**

* Experienced in LLM fine-tuning and prompt engineering, with expertise in LLM application development and integrated WebUI design, especially in Whisper and code generation[#].
* Skilled End-to-End ASR Developer: 7 years of experience building STT engines using Kaldi and end-to-end (deep learning) solutions[#].
* Proficient in deep learning model pruning and quantization[#].
* GitHub: <https://www.github.com/xrick>[#].

**Work Experience**

**AI-LLM Engineer - Maple Leaf Information Technology, Singapore**

**Feb 2025 – Present**

* LLM Fine-tuning: Responsible for fine-tuning DeepSeek-R1:7b with internal company data, increasing search accuracy by approximately 2% using LoRA[#].
* LLM RAG Web Apps Development:
  + DQE RAG Application: Improved design fault-finding efficiency by about 10%~15%[#].
  + SalesRAG: Enhanced product information search efficiency by about 30%~40%[#].
* **Projects:**
  + Design Quality Estimation RAG Application
  + SalesRAG Application
  + PdfRAG Application
  + Design of Aiagent + n8n automation workflow software

**Senior AI Engineer - Lian Yi Tong Co., Ltd.**

**Sep 2023 – Sep 2024**

* Online Customer Q&A Web Application:
  + Designed and developed a web application for online customer service, accelerating customer understanding of products and resolving queries. Utilized LLM to analyze speech content and enhance understanding of customer needs[#].
* Intelligent Socket Fire and Smoke Alarm Detection Model:
  + Developed a sound event classification model for highly resource-constrained environments, achieving 96.8% accuracy and compressing the model from 18.9MB to under 100KB[#].
  + Adopted Microsoft FLAML framework to develop an AutoML system for rapid model training and adaptation to diverse customer requirements[#].

**Digital Speech & Audio Algorithm Engineer - Goertek Taiwan Co., Ltd.**

**Dec 2019 – Mar 2022**

* Data Analysis Web Application Development:
  + Developed a speech spectrum analysis web application using Python, FastAPI, and Matplotlib[#].
* Edge Device Deep Learning Model Development:
  + Developed deep learning VAD and voice command models for microphone chips, achieving recognition rates of 96% and over 80% compression[#].
  + Developed abnormal sound detection models for cooling fans using time-domain audio features and machine learning algorithms; implemented on Raspberry Pi Zero for factory use in an anechoic chamber[#].

**NLP & Deep Learning Technology Deputy Manager - ADATA-Lung Chen Xing**

**Dec 2017 – Dec 2018**

* Web Services Programming:
  + Built dialogue engine RESTful Web APIs using Python[#].
  + Developed distributed crawlers for text data collection[#].
* Chatbot Engine Construction:
  + Developed a rule-based chatbot engine combined with machine learning to automate user commands such as auto-dialing, ticket booking, and weather inquiries[#].
  + Built NLP pipelines to accelerate corpus processing and debugging[#].
  + Developed the initial Kaldi-based ASR engine[#].
* Deep Learning Team Building:
  + Established a deep learning algorithm team of 6 members[#].
  + Planned short-term (1–3 years) team development strategies[#].

**.NET Software Engineer - Fong Shuo Technology**

**Sep 2012 – Mar 2017**

* Developed .NET WinForm applications for NCSIST projects[#].
* Developed [ASP.NET](http://ASP.NET) web applications for NCSIST internal information systems[#].

**iOS Developer - Zoaks Ltd. Co.**

**Mar 2009 – Sep 2011**

* Developed marketing iOS apps, including:
  + Coca-Cola 125th Anniversary App: Coke Collector
  + Kanebo Beauty Magazine
  + FamilyMark initial version[#].

**Software Team Leader - Yilan County Information Network Center**

**Sep 2000 – Sep 2009**

* Managed software development teams and coordinated project assignments[#].
* Oversaw project progress and team communications[#].
* Conducted requirements gathering and analysis[#].
* Analyzed and designed software system architectures and solved core algorithmic problems[#].
* Reported project progress and coordinated functional or other issues[#].
* Explored feasibility of new projects and R&D initiatives[#].

**Education**

* **Ph.D. Candidate, Department of Computer Science and Information Engineering, National Taiwan Normal University**  
  2018 – 2027  
  *Speech Recognition, Speech Enhancement, Voice Commands, Chat Engine Design, Few-shot Deep Learning, Meta-learning (Meta-Learning)*[#]
* **M.S., Department of Information and Computer Education, National Taiwan Normal University**  
  2003 – 2006  
  *Heuristic Meta Optimization Algorithm, Software Design Patterns and Architectures*[#]

**Skills**

* Deep Learning Model Training
* Deep Learning Model Pruning and Quantization
* Speech Signal Processing
* Automated Speech and Text Scoring Utilizing LLMs
* Automated Speech Mispronunciation Detection Utilizing LLMs
* Python Programming
* PyTorch / TensorFlow
* LLM RAG
* LLM Fine-tuning using LoRA
* LangChain and LangGraph
* PostgreSQL
* NoSQL: Redis, MongoDB
* Milvus Vector Database
* Docker and Kubernetes[#]

**Languages**

* English — Advanced[#]

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