Do Tri Nhan

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TECHNICAL SKILLS

Speech & Audio: TTS, Speaker Verification & Diarization, Voice Cloning & Conversion, Anti-spoofing, Speech Enhancement, Sound Event Detection

ML & LLM: PyTorch, ONNX, Triton, TorchServe, SLM, Reinforcement Learning, Agno Agent, RAG, Speech SSL

Engineering: Docker, FastAPI, Flask, RabbitMQ, Milvus, Qdrant Vector DB, Slurm, Datadog, Jenkins, Jfrog

Languages: Python (primary), C++, Java, React Vibe

EDUCATION

VNUHCM – University of Science *Sep 2017 – Jun 2021*
Bachelor of Science, Advanced Program in Computer Science (APCS K17) *Ho Chi Minh City, Vietnam*

- GPA: 3.83 / 4.0 TOEFL ITP: 550 / 677

EXPERIENCE

Vinfast Automotive AI Development Institute – Vingroup JSC *Jun 2026 – Present*
Senior AI Engineer – Conversational Speech Technology *Ho Chi Minh City, Vietnam*

- **On-cloud TTS Core Module:** Optimized model serving and reduced hallucinations in code-switching pronunciation, emotion, non-verbal vocalizations, fillers, and pauses.
- **Unified TTS Serving Gateway:** Architected a production FastAPI gateway consolidating multiple TTS model tiers and normalization backends — supporting streaming, async job queue, API key auth with per-key usage tracking, and horizontal shard deployment for multilingual production serving.
- **TTS Normalization Automation Harness:** Designed an end-to-end QC automation framework with LLM-based error classification, BA-configurable per-project switch-code vocabulary management, automated Java SDK and prompt rebuild, and full regression evaluation — reducing engineering intervention for vocabulary updates to zero.

VinSmart Future – Vingroup JSC *Feb 2026 – Jun 2026*
AI Team Lead – Speech Generation *Ho Chi Minh City, Vietnam*

- **Research Team Leadership:** Lead a team of 6 members on speech generation: voice design, non-verbal audio, and reinforcement learning for speech synthesis.
- **Voice Model Product Management:** Coordinate between research team and product projects; standardize quality assurance and release processes for voice models across three product lines: robot assistants, in-vehicle AI, and super-app voice mode.

Senior AI Engineer – Core AI Research *Jul 2025 – Feb 2026*

- **Vietnamese Phoneme-Based Flow Matching TTS:** Developed a Vietnamese phoneme-adaptive fine-tuning TTS model achieving stable quality with low WER in production (3.72%).
- **TensorRT & Triton Serving Optimization:** Optimized model serving with TensorRT and Triton Inference Server, achieving 2× throughput improvement and increased concurrent user capacity.
- **Hybrid Text Normalization:** Developed a Small Language Model (SLM) combined with rule-based normalization in a hybrid pipeline, improving accuracy from 73.45% with the rule-based only to 91.81%.

Vingroup Big Data Institute – Vingroup JSC *Jan 2024 – Jul 2025*
Middle AI Engineer – AI Agent & Voice Biometric *Hanoi, Vietnam*

- **AI Agent with Knowledge Base:** Built a RAG-based AI agent with query processing, embedding, function calling, and automatic double-bot quality control evaluation (2025).
- **Speech Data Warehouse:** Managed a team building a speech data warehouse for storage, querying, processing, release management, and natural language querying integration - Data Intelligence (2025).
- **Streaming Diarization Optimization:** Optimized and served streaming diarization with Triton EEND-VC, achieving 2× speed and superior quality over third-party solutions (2025).
- **Anti-spoofing Module:** Researched and deployed an anti-spoofing system with an EER of 3.75%, combining RawBoost augmentation, speech SSL, and Graph Neural Networks (2024).

AI Engineer – Speech Synthesis & Voice Biometric *Oct 2021 – Dec 2023*

- **Smart AI Voice Recording Service:** Designed an AI voice recording service for insurance operations using Speaker Diarization, ASR, and Voice Biometrics to detect agent fraud (2023).
- **Government Voice Biometric Project:** Implemented QC workflows and a microservice gateway contributing SNR Estimator, VAD, ASR, and Speaker Counter via TorchServe and Milvus (2023).
- **Multispeaker Acoustic Model:** Reduced GPU usage 4× via a multispeaker acoustic model supporting 30-min fine-tuning and zero-shot cloning with 30 s of audio (2023).
- **Universal Multistream Vocoder:** Optimized the EV assistant cloud TTS vocoder with Universal Multistream HiFi-GAN, achieving 1.5× faster inference without quality loss (2022).

VinAI Research Institute – Vingroup JSC *Dec 2020 – Sep 2021*
Engineering Resident – ERP Batch 1 *Hanoi, Vietnam*

- **Vietnamese TTS for Electric Vehicles:** Integrated state-of-the-art TTS (Tacotron2, FastSpeech2, GlowTTS, HiFi-GAN), optimized with ONNX Runtime for edge inference.
- **SpeechMT:** Designed and deployed a real-time voice-based machine translation service containerized with Docker and served via FastAPI.
- **Speech-Based QA for Car Manuals:** Developed a lightweight speech-interactive system for voice-driven car manual queries, deployed end-to-end.

KMS Technology *Jun 2020 – Sep 2020*
Software Engineer – Center of Excellence *Ho Chi Minh City, Vietnam*

- **RASA Chatbot Core Research:** Improved intent classification by combining Dense (ConveRT, BERT) and Sparse (TF-IDF, Count Vectors) features; evaluated on SQuAD data.
- **Reading Comprehension Backend:** Built BIDAF-based reading comprehension services with AllenNLP, Flask, Swagger, Docker Compose, and RabbitMQ.

RESEARCH AFFILIATIONS

Speech and Language Lab, Nanyang Technological University *Sep 2022 – Mar 2023*
Research Intern (Remote) *Singapore*
Sound event detection in urban areas, project with ST Engineering.

AI Lab, University of Science *Feb 2019 – Sep 2021*
Research Assistant *Ho Chi Minh City, Vietnam*
Built a 10 GB Vietnamese speech corpus; researched text normalization and phonology.

Robotics & IoT Lab, University of Science *May 2019 – Sep 2021*
Research Assistant *Ho Chi Minh City, Vietnam*
Teaching assistant and coach for EVJ Makethon, FLL, and WRO robotics competitions.

Computational Linguistics Center, University of Science *Apr 2019 – Sep 2019*
Research Assistant *Ho Chi Minh City, Vietnam*
Teaching assistant guiding SDL Trados Studio for the English Linguistics faculty (USSH).

PUBLICATIONS

- **APSIPA ASC 2026:** ViInstruct: A Large-Scale Vietnamese Dataset for Instruction-Based Text-to-Speech Synthesis.
- **APSIPA ASC 2026:** ViNonverbal: The First Vietnamese Nonverbal Speech Dataset via Scalable Pseudo-Labeling.
- **APSIPA ASC 2026:** Vi-SparkRL: Enhancing Tonal Accuracy and Naturalness in Vietnamese TTS via Multi-Objective Rewards.
- **MAPR 2025:** Unified Acoustic Representation Learning for Vietnamese Speech Classification Tasks.
- **MAPR 2025:** Analyzing the Correlation and Impact of Speech Evaluation Metrics on Speaker Verification and ASR.
- **MAPR 2025:** Adapting WavLM for Vietnamese Speaker Diarization in Real-world Conversations.
- **RIVF 2024:** Enhancing Deepfake Detection: WavLM and Advanced RawBoost Augmentation.
- **Voice Privacy 2024:** Voice Attacker: Multi-Head Factorized Attentive Reconstructor and Gradient Reversal for Random Prosody Anonymization.
- **DCASE 2023:** Sound Event Detection with Soft Labels Using Self-Attention for Global Scene Feature Extraction.
- **International Journal of Asian Language Processing:** FastSpeechStyle: Fast, Emotion-Controllable, High-Quality Speech Synthesis.
- **DCAI/NeurIPS 2021:** Vietnamese Speech-based Question Answering over Car Manuals.
- **7th NAFOSTED 2020:** Vietnamese Speech Synthesis with End-to-End Model and Text Normalization.
- **MediaEval 2020:** Emotion Classification Using WaveNet Features with SpecAugment and EfficientNet.

PyPi package `vinorm`: Vietnamese Text Normalization (34,933+ downloads / 6 months).
PyPi package `viphoneme`: Vietnamese Grapheme-to-IPA Phonetization (4,195+ downloads / 6 months).
Thesis: DeepSpeechVC – Voice Cloning Framework with Speech Synthesis and Voice Conversion.

AWARDS & RECOGNITION

- Outstanding Employee of the Year – VinBigdata *2023*
- First Place, VLSP TTS Emotional Speech Synthesis *2022*
- First Prize, Science-A-Thon, 9th Vietnamese Summer School of Science *2022*
- Outstanding Student Award in Artificial Intelligence, Ho Chi Minh City *2021*
- Excellent Thesis – Science and Technology Student Award *2021*
- Runner-Up, KMS Hackathon *2020*

CERTIFICATIONS & COMPETITIONS

- Contributed to obtaining ISO/IEC 19795-1:2021 (NIST/NVLAP) for Voice Biometric Testing *2024*
- FPT Scholarship, Final Round, Code War Competition *2019*
- Final Round, Samsung Collegiate Programming Cup *2018*
- Self-Driving Cars Specialisation – University of Toronto (Coursera) *2018*