THANATHAI LERTPETCHPUN

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RESEARCH INTEREST

Speech Emotion Recognition, Controllable Speech Generation, Speaker Verification, Voice Anti-spoofing

EDUCATION

PhD in Electrical and Computer Engineering, University of Southern California 2024 - Present
Advisor: **Prof. Shrikanth Narayanan**
Current GPA: 3.83/4.00

Bachelor in Computer Engineering, Chulalongkorn University 2018 - 2022
Thesis Advisor: **Prof. Ekapol Chuangsuwanich**
GPA: 3.82/4.00, CS-only 4.00/4.00

WORK EXPERIENCE

Graduate Research Assistant 08/2025 - Present
Signal Analysis and Interpretation Labortory (SAIL) *Los Angeles, CA*

- Conduct research in speech emotion recognition, text to speech, accent conversion, and voice conversion.
- Develop a framework to evaluate privacy for identity and attribute in speech.

Undergrad Research and Teaching Assistant 05/2021 - 08/2024
Chulalongkorn University *Bangkok, Thailand*

- Taught undergraduate students Computer Programming, Discrete Mathematics, Linear Algebra, Algorithm Design, and Pattern Recognition.
- Created and graded coursework for Computer Programming, Linear Algebra and Pattern Recognition.

Data Scientist 06/2021 - 07/2021
Tencent (Thailand) *Bangkok, Thailand*

- Created a full machine learning pipeline for news recommendation, including text scraping, training model, inferencing model, setting up multiple GPUs for training and storing data.
- Designed and implemented a complete architecture for applying machine learning in music recommendation including scraping data, cleaning data, fine-tuning model, and inferencing model.

PROJECTS

Annonymous Real Time Speech (ARTS) (USC - JHU - Meaning Company) 10/2024 - Present

- Developing zero-shot framework for multilingual TTS for accented English.
- Analalyzing the effect of speaker embedding on accent strength using phonemes rules to control the effect.
- Proposed frameworks to develop state-of-the-art speech emotion recognition (SER) for predicting both emotional attributes and categorical emotions. They achieved 1st rank in emotional attributes and 2nd rank in categorical attributes in Naturalistic Conditions Challenge (2 Interspeech2025 publications)

Speaker Recognition System and Anti-spoofing System. (Chulalongkorn University) 08/2022 - 05/2024

- Proposed an approach to amplify artifacts in spoofed utterances using speech enhancement and show its robustness on different countermeasures and speech enhancement models (1 Interspeech2025 publication).
- Proposed a new normalization layer to address the problem of mismatched emotions and languages in speaker verification. (1 Interspeech2023 publication).

SELECTED PUBLICATIONS

(Interspeech, 2025) **Thanathai Lertpetchpun***, Tiantian Feng*, Dani Byrd, Shrikanth Narayanan. "Developing a High-performance Framework for Speech Emotion Recognition in Naturalistic Conditions Challenge for Emotional Attribute Prediction."

(Interspeech, 2025) Tiantian Feng*, **Thanathai Lertpetchpun***, Dani Byrd, Shrikanth Narayanan. "Developing A Top-tier Framework in Naturalistic Conditions Challenge for Categorized Emotion Prediction: From Speech Foundation Models and Learning Objective to Data Augmentation and Engineering Choices."

(Interspeech, 2025) Thanapat Trachu*, **Thanathai Lertpetchpun***, Ekapol Chuangsuwanich. "Amplifying Artifacts with Speech Enhancement in Voice Anti-spoofing."

(Interspeech, 2023) **Thanathai Lertpetchpun**, Ekapol Chuangsuwanich. "Instance-based Temporal Normalization for Speaker Verification."

(* denotes equal contribution)

SELECTED CLASSWORK PROJECTS

Pattern Recognition (Chulalongkorn University) 2022
Trained a generative adversarial network (GAN) to colorize anime characters from sketched anime images with the reference colored character, getting FID score less than 20.

Natural Language Processing (Chulalongkorn University) 2021
Finetuned a transformer-based model based on a Thai Large Language Model capable of extractive summarizing Thai news, getting a BERTScore up to 84.54 and rouge-L up to 74.26

Bioinformatics (Chulalongkorn University) 2020
Developed a CNN-based model to process 3-dimensional images to predict binding affinities between proteins and ligands, achieving Pearson's correlation coefficient of 0.78.

AWARDS AND HONORS

SER in Naturalistic Conditions Challenge (2025) Rank 1st in Attribute Prediction
SER in Naturalistic Conditions Challenge (2025) Rank 2nd in Categorical Prediction
Viterbi School of Engineering Fellowship (2024) Top-off fellowship selected among incoming Ph.D. students
Travel Grant (2023) Student Travel Grant for Interspeech2023
Thailand Olympiad Informatics (2017) Ranked in the top-15 among all Thai high school contestants

SKILLS

Languages: Thai (Native), English (Fluent).
Computer Languages: Python, C/C++, Bash Script, JavaScript, Node.js.
Framework: Pytorch, Espnet, Huggingface, Speechbrain, Kaldi.