BURIN NAOWARAT

burin.naowarat@ed.ac.uk ◇ Personal Website ◇ LinkedIn ◇ Google Scholar

EDUCATION

PhD in Informatics (University of Edinburgh, United Kingdom) *Sep 2024 - Mar 2028 (Expected)*

Understanding learned representations in speech and language models through geometric properties, supervised by Dr. Hao Tang and Dr. Sharon Goldwater.

M.Eng. in Computer Engineering (Chulalongkorn University, Thailand) *Jun 2023*

Thesis: Incorporating Context into Non-Autoregressive Models using Contextualized CTC for Sequence Labelling, supervised by Dr. Ekapol Chuangsuwanich

PUBLICATIONS

[1] **Burin Naowarat**, Hao Tang, and Sharon Goldwater. Deep speech representations track word timing along a low-dimensional circular trajectory. In *SLT*, 2026.

[2] **Burin Naowarat**, Hao Tang, and Sharon Goldwater. A framework for analyzing concept representations in neural models. In *CoNLL*, 2026.

[3] **Burin Naowarat**, Philip Harding, Pasquale D'Alterio, Sibo Tong, and Bashar Awwad Shiekh Hasan. Effective Training of Attention-based Contextual Biasing Adapters with Synthetic Audio for Personalised ASR. In *Interspeech*, 2023.

[4] **Burin Naowarat**, Thananchai Kongthaworn, and Ekapol Chuangsuwanich. Word-level Confidence Estimation for CTC Models. In *Interspeech*, 2023.

[5] Artit Suwanbandit, **Burin Naowarat**, and Ekapol Chuangsuwanich. Thai Dialect Corpus and Transfer-based Curriculum Learning Investigation for Dialect Automatic Speech Recognition. In *Interspeech*, 2023.

[6] **Burin Naowarat**, Chawan Piansaddhayanon, and Ekapol Chuangsuwanich. Context Conditioning via Surrounding Predictions for Non-recurrent CTC Models. *IEEE ACCESS*, 2023.

[7] Konpat Preechakul, Chawan Piansaddhayanon, **Burin Naowarat**, Tirasan Khandhawit, Sira Sriswasdi, and Ekapol Chuangsuwanich. Deep Set Latent Prediction. In *NeurIPS*, 2021.

[8] Thananchai Kongthaworn, **Burin Naowarat**, and Ekapol Chuangsuwanich. Spectral and Latent Speech Representation Distortion for TTS Evaluation. In *Interspeech*, 2021.

[9] **Burin Naowarat**, Thananchai Kongthaworn, Korrawe Karunratanakul, Sheng Hui Wu, and Ekapol Chuangsuwanich. Reducing Spelling Inconsistencies in Code-Switching ASR using Contextualized CTC Loss. In *ICASSP*, 2021.

WORK EXPERIENCE

Cerence – *Language Modeling Engineer* *Jun 23 - Jul 24*

· Reduced WER by over 50% (relative) on deployed in-car ASR systems by enhancing lexical resources and n-gram language models for hybrid ASR systems.

· Improved entity recognition and intent classification accuracy by more than 10% absolute by aligning token segmentation between ASR and NLP components.

· Prototyped an end-to-end ASR system that outperformed the production baseline on internal benchmarks and was subsequently released to production.

Amazon – *Applied Scientist Intern* *Jun 22 - Nov 22*

· Proposed and implemented a synthetic audio training method for attention-based contextual biasing adapters on neural transducers, achieving 16% WER reduction on named-entity recognition [3].

· Designed a projection module with consistency regularization to bridge the acoustic gap between TTS-synthesized and real speech, cutting real-speech annotation requirements by 50% without performance loss.