

Thesis Proposal

Department of Computing, Faculty of Science, Silpakorn University

Thesis Title: The Rhythmic Thai Poetry Reading using Emotional Text-to-Speech Synthesis
(การอ่านทำนองเสนาะบทกวีไทยด้วยการสังเคราะห์ข้อความเป็นคำพูดเชิงอารมณ์)

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1. Introduction

Klon-suphap is a traditional Thai poem composed and inherited for centuries by well-known poets like "Sunthorn Phu" honored by UNESCO as a great world poet [1]. Klon-suphap requires correct structure and pattern of rhythm and sound used in poem reading. To read this Thai poem, we need to realize the stories, break down the syllables, and professional control uttering. Because of the difficulty and variety of poem reading, the research indicates that many Thai teachers in Bangkok cannot read Thai poems proficiently that causes educational obstacles. Thus, instructional media is imperative as a teacher assistant at the moment [2].

A unit of Klon-suphap is a form of Thai octameter poem that has four sentences called Wak. For each Wak, there are 7-9 compounded syllables. Thai poem reading then involves syllable segmentation with various forms depending on reading melodiousness, for example, 2-2-3, 3-2-3, and 3-3-3. Moreover, there are many derivative words, ancient words, and Pali Sandhi words, which lead to the wrong pronunciation rhythms. The hybrid approach of Thai syllable and Pali Sandhi segmentation studied in [3,4] shows that a combination of Rule-Based and Bi-direct Long Short-Term Memory (Bi-LSTM) performs proficiently with Sunthorn Phu's drama poem and Pali Sandhi words from Dhammapada Atthakatha, respectively.

Since most Thai poems are storytelling, there are a lot of emotions and expressions implicitly. Hence, the reader should identify the sentiment before using tones of voice. To develop technology instructional media of Thai poem reading, emotional text-to-speech (TTS) is a interesting choice in the future like the recent approach, Suthichai AI journalist unveiled by NECTEC with Suthichai's style and characteristics including voice and body movement. Although Thai TTS has been researched and developed for decades, the smoothness of connected points and emotional speech are current problems of Thai TTS synthesis [5]. Therefore, we purpose to develop Emotional Thai TTS synthesis in Klon-suphap reading applying for further development.

2. Objective

- 2.1 Study syllable and Pali Sandhi segmentation in general Klon-suphap.
- 2.2 Detect emotions from Klon-suphap scanning.
- 2.3 Develop emotional Thai text-to-speech in rhythmic Klon-suphap reading.

3. Study Scope

- 3.1 Klon-suphap with no more than 2 units
- 3.2 Scope of emotion classes: happy, love, angry, hate and others.
- 3.3 Using a style of traditional rhythmic Thai poem reading

4. Methodology

- 4.1 Data retrieval and preparation
- 4.2 Syllable and Pali Sandhi segmentation using hybrid approach
- 4.3 Klon-suphap scanning and emotional classification
- 4.4 Developing emotional Thai text-to-speech for poem reading

5. Expected Benefits

- 5.1 Syllable and Pali Sandhi classifying progress in Klon-suphap.
- 5.2 Emotional classification model in Klon-suphap.
- 5.3 Emotional Thai Text-to-speech advance in rhythmic Klon-suphap reading

Reference

- [1] Lao-Akka, Chantachon, S., & Thunapan, P. (2015). The Literature of Sunthorn Phu: Synthesis of Teaching and Morals that Contribute to Social Virtues. *The International Journal of Literary Humanities*, 14 (1): 23-28.
- [2] Sirichai B. (2014). Teaching Thai Poem Reading at the Secondary School in Bangkok. *Institute of Culture and Arts Journal*, 16(1): 31.
- [3] Thongkui, t., Khongtum, O., & Waijunya, S. (2019). Thai Syllable Segmentation in Drama's poem of Soonthron-Phu using Hybrid Approach.
- [4] Tammanam, K., Promrit, N., and Waijanya, S. (2021). A Hybrid Approach to Pali Sandhi Segmentation Using BiLSTM and Rule-based Analysis.
- [5] Wutiwiwatchai, C., Hansakunbuntheung, C., & Rugchatjaroen, A. (2017). Thai Text-to Speech Synthesis: A Review. *Journal of Intelligent Informatics and Smart Technology*, (2): 1-8.