

Seminar Title	Fine-Tuning Large Language Models for Automated User Persona Generation: A Case Study in Digital Educational Services
Speaker	Thanatat Wongabut Researcher, School of Information Technology, KMUTT

Abstract

The growing demand for user-centered digital services calls for efficient ways to understand user needs, as traditional persona creation is often slow and costly. This study proposes an automated process for generating user personas in educational digital services using large-language models, guided by three research questions: identifying effective prompt patterns, selecting suitable models, and establishing a fine-tuning process. Undergraduate students at King Mongkut's University of Technology Thonburi participated via a mixed-methods approach involving questionnaires and semi-structured interviews. K-means was used to cluster users by digital skills and learning preferences, while empathic traits were analyzed with empathy maps, the jobs-to-be-done framework, and Hofstede's cultural dimensions. Results indicate that personas generated without cultural context score higher in empathy and relatability, while those with cultural specifics appear more realistic but less universally relatable, which highlights the importance of balancing specificity with generalizability. ChatGPT-4 emerged as the most practical model compared to others at the time of this research. The resulting four-step process includes eliciting and organizing target user data, large-language model selection, prompt creation, and persona generation using prescribed narrative structures. The resulting personas were evaluated on empathy, similarity, and likability, and validated through representative user clusters. In conclusion, this research presents a replicable and scalable method that integrates empirical user data with structured narrative generation. Future work may extend this approach to other domains such as healthcare or public services, including exploration of real-time adaptive persona systems with human-in-the-loop refinement for improved cultural and ethical alignment.

Keywords: Large Language Model / Persona Generation / Prompt Engineering /
User Persona

Publication

1. Wongabut, T., Ninrutsirikun, U. and Arpnikanondt, C., 2025, “Automating Persona Generation: Leveraging ChatGPT-4 in Educational Digital Services”. **The 8th International Conference on Digital Arts, Media and Technology (DAMT)**, pp. 550-555.
2. Wongabut, T., Ninrutsirikun, U., Nukoolkit, C., Lavangnananda, P., Warasup, K., and Arpnikanondt, C., 2025, “A Feature Engineering Approach to Improve Clustering-Based Persona Generation”. **2025 IEEE 5th International Conference on Software Engineering and Artificial Intelligence (SEAI 2025)**, pp. 111-117.

Speaker Bio



Thanatat Wongabut is a researcher at the School of Information Technology (SIT), King Mongkut's University of Technology Thonburi, with a focus on Human-Computer Interaction, UX/UI design, and AI-assisted user experience systems. His master's thesis developed an LLM-based framework for persona generation and data-driven design to support user-centered development of educational digital services.

E-mail: thanatat.won@sit.kmutt.ac.th

Tel: 02-470-9814

LinkedIn: <https://www.linkedin.com/in/thanatat-wongabut/>