

# Thanh-Long V. Le

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## Education

<b>Korea Advanced Institute of Science and Technology (KAIST AI)</b> <i>M.S. in Artificial Intelligence</i>	<b>Feb. 2025 – Feb. 2027</b> <i>Seoul, South Korea</i>
<b>Korea Advanced Institute of Science and Technology (KAIST)</b> <i>B.S. in Computer Science and Artificial Intelligence</i> <ul style="list-style-type: none"><li>• GPA: <b>3.98/4.30</b></li><li>• Graduated <b>Magna Cum Laude</b> (Ranked <b>10</b> in the department)</li><li>• Minor in Business and Technology Management</li></ul>	<b>Sep. 2019 – Feb. 2024</b> <i>Daejeon, South Korea</i>

## Research Experience

<b>Machine Learning and Intelligence Lab, KAIST AI</b> <i>Graduate Researcher, Advised by Prof. Eunho Yang</i> <ul style="list-style-type: none"><li>• Research interests: LLM post-training in general, including LLM reasoning and alignment through reinforcement learning/preference optimization.</li><li>• Currently focusing on augmenting RLVR with various dense learning signal to improve the reasoning ability of LLM.</li><li>• Developed a sequence-based mixture-of-experts model for code infilling.</li></ul>	<b>Feb. 2025 – Present</b> <i>Seoul, South Korea</i>
<b>Networking and Mobile Systems Lab, KAIST</b> <i>Undergraduate Researcher, Advised by Prof. Sung-Ju Lee</i> <ul style="list-style-type: none"><li>• Conducted research on natural language processing, federated learning and human-computer interaction.</li><li>• Actively participated in the Exphrase project – an AI-based paraphrasing system equipped with five supplementary features: AI Translation, AI Confidence Score, AI Explanation, Example Usages, Statistics.</li><li>• Addressed label deficiency in federated learning by implementing semi-supervised learning with adaptive thresholding and sharpness-aware regularization.</li></ul>	<b>May. 2023 – Sep. 2024</b> <i>Daejeon, South Korea</i>

## Publications

### No Prompt Left Behind: Exploiting Zero-Variance Prompts in LLM Reinforcement Learning via Entropy-Guided Advantage Shaping

Thanh-Long V. Le, Myeongho Jeon, Kim Vu, Viet Lai, Eunho Yang  
Under review at *International Conference on Learning Representations (ICLR) 2026*

### Design Opportunities for Explainable AI Paraphrasing Tools

Yewon Kim, Thanh-Long V. Le, Donghwi Kim, Mina Le, Sung-Ju Lee  
*Conference on Designing Interactive Systems (DIS) 2025*

### (FL)<sup>2</sup>: Overcoming Few Labels in Federated Semi-Supervised Learning

Seungjoo Lee, Thanh-Long V. Le, Jaemin Shin, Sung-Ju Lee  
*Conference on Neural Information Processing Systems (NeurIPS) 2024*

## Work Experience

<b>Luxoft – BMW Korea</b> <i>C++ Software Engineer</i> <ul style="list-style-type: none"><li>• Developed and optimized features for map provision application to enhance the accuracy and reliability of ADAS (Advanced Driving Assistance System) functionalities of BMW vehicles.</li><li>• Detected, analyzed, and prepared reports and fixes for vehicle anomalies by leveraging software logs and simulations.</li></ul>	<b>Mar. 2024 – Dec. 2024</b> <i>Seoul, South Korea</i>
<b>Coc Coc Company Ltd.</b> <i>Software Engineer</i> <ul style="list-style-type: none"><li>• Maintained the functionality of three key components of Coc Coc Search’s backend system – compositor, knowledge graph, and search engine.</li><li>• Conducted a full codebase refactoring of compositor system to eliminate potential bugs and technical debt.</li><li>• Utilized SQL to collect and analyze usage data of Coc Coc Translate over the course of a year, providing insights to assist managers in decision making.</li></ul>	<b>Sep. 2021 – Oct. 2022</b> <i>Hanoi, Vietnam</i>

## Projects

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### **Improve the Robustness of QA System to Entity Renaming** **Sep. 2022 – Dec. 2022**

- Conducted experiments to evaluate and compare the robustness of BERT, RoBERTa, and SpanBERT against entity renaming on machine reading comprehension task across five distinct datasets.
- Proposed a novel improvement method named Anonymized Training with optional Anonymized Inference
- Achieved a substantial mitigation in performance drop from over 30% to less than 5% for SpanBERT against entity renaming, with BERT and RoBERTa's performance drop being further reduced.

### **Semi-Supervised Semantic Segmentation with Cross-Consistency Training** **Sep. 2022 – Dec. 2022**

- Replicate the findings presented in the original paper by Ouali et al, which focus on semi-supervised semantic segmentation using a shared encoder and multiple decoder models on the PASCAL VOC dataset.
- Conducted additional experiments with different encoder backbone, generative adversarial networks, and temporal ensembling, resulting in an improved mIoU score of 73.5 compared to the paper's result of 73.2.

### **Contrastive Learning for Price Match Guarantee** **Mar. 2022 – Jun. 2022**

- Applied deep learning techniques to solve the product matching problem by utilizing image and title data.
- Implemented and integrated the triplet loss function into the training of ResNet18, resulting in a significant improvement of the model's validation F1 score from 60% to 71%.
- Achieved the highest validation F1 score of 72.46% for images matching and 68.27% for titles matching.

## Honors and Awards

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**Qualcomm-KAIST Innovation Award** (2023): Winner.

**KAIST Dean's List** (2020): Top 3% students of the department.

**KAIST International Undergraduate Scholarship** (2019): Full-ride Scholar.

**Deakin Vice-Chancellor's International Scholarship** (2019): Recipient.

**Vietnam National Mathematical Olympiad** (2018): Silver medal.

## Technical Skills

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**Languages:** C++, C, Python, Java, Go, SQL, HTML, CSS, JavaScript.

**Technologies/Frameworks:** PyTorch, Jax, Haliarx, Levanter, Linux, Git, Vim, Bazel, Bash Scripting, MySQL.

**Certificates:** 8.0 in IELTS, 1500 in SAT, 800 in SAT Math Level 2, 800 in SAT Physics.