PHAN GIA BAO

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Ho Chi Minh City, Vietnam

OBJECTIVE

Seeking a challenge position to learn and grow in the technology community. An energetic person with a passionate curiosity for intelligence machine and disruptive technology. Have a strong interest in mathematical science. Aiming to contribute to innovative projects at the intersection of computer vision and practical problem solving.

EXPERIENCE

- **VinAI Research - AI Engineer** — Apr 2025 - Present, Ho Chi Minh City, Vietnam
  - Built a fullstack web app. Technical details in **Project [1]**.
  - Built an maintained an AI model as part of the Occupant Monitoring System. Technical details in **Project [2]**.
- **VinAI Research - AI Engineer Intern** — Oct 2024 - Dec 2024, Ho Chi Minh City, Vietnam
  Advisor: *Dr. Nguyen Ho Man Rang*
  - Did literature review on parking slot detection.
  - Conducted exploratory data analysis on PS 2.0 dataset to tune the threshold number in the baseline model
  - Engineered multi-gpu training on the baseline, reducing training time from 16 hours to 6 hours.
  - Implemented random scaling augmentation in training, reducing noise in marking point prediction while running inference.
  - Developed a post-processing technique to snap the parking slot prediction to the actual parking line on the image using Hough Line Transform.
- **VinAI Research - AI Engineer Intern** — Jan 2025 - Mar 2025, Ho Chi Minh City, Vietnam
  Advisor: *Dr. Nguyen Ho Man Rang*
  - Do research on Bird's Eye View perception in Autonomous Driving.
  - Run experiments of 3D detection and Tracking models on nuScenes dataset.
  - Engineer **Monocular Quasi-Dense 3D Object Tracking** ( ) to run on custom input video data.
- **Advanced Intelligence Technologies Lab - Research Assistant** — March 2024 - Present, Ho Chi Minh City, Vietnam
  Advisor: *Dr. Nguyen Duc Dung*
  - Developing methods to tackle map learning and topology reasoning on embedded device.
  - Researching view transformation methods to speed up the inference of map perception model.
  - Conducting experiments and evaluations of different models on OpenLane-V2 dataset.

EDUCATION

- **Ho Chi Minh City University of Technology** — Oct 2021 - May 2025, Ho Chi Minh City, Vietnam
  Bachelor of Computer Engineering
- **Le Hong Phong High School for the Gifted** — Aug 2018 - May 2021, Ho Chi Minh City, Vietnam
  High School

PROJECTS

- **AI-Powered Stakeholder Needs Extraction Platform** — *2025 – Present*
  Tools: ReactJS, TailwindCSS, Flask, LangChain, Ollama, Docker, Nginx
  - Developed a full-stack web app that ingests documents and produces structured, reviewable stakeholder needs.
  - Implemented a **ReactJS** + **TailwindCSS** UI with document viewer and real-time AI prompts backed by **Flask** APIs.
  - Integrated **LangChain** + **Ollama** for inference workflows (parsing, classification, consolidation) behind a clean API layer.
  - Containerized and served the platform via **Docker** and **Nginx** for reliable, scalable deployment.
- **Seatbelt Usage Classification for Occupant Monitoring System (OMS)** — *2025 – Present*
  Tools: Python, C++, ONNX, TensorRT, Qualcomm SNPE, OEM SDK
  - Built and maintained the Seatbelt Classification module as part of an OMS pipeline aligned with automotive safety protocols.
  - Trained a seatbelt-usage model on privately collected and curated data to handle diverse occupants, lighting, and poses.
  - Ported the model to hardware-friendly formats (**ONNX**→**TensorRT** and **SNPE**) for inference on edge device.
  - Packaged and integrated the module into the OEM SDK for deployment on **VinFast (VF)** car.

- **LaneSegNet++: CVPR 2024 Autonomous Grand Challenge - Mapless Driving** *March 2024 - June 2024*
  Tools: Python, PyTorch [GitHub]
  - Enhanced lane detection for the Map Learning and Topology Reasoning task.
  - Conducted literature review for SOTA models of Lane Segment Perception.
  - Integrated Standard Definition map into the baseline for better topology reasoning and replaced DETR with YOLOv8 for improved traffic element detection, achieving OpenLane-V2 UniScore (OLUS) of **38.4** compared to **36.7** of the baseline.
  - Participated in CVPR2024 Autonomous Grand Challenge, **ranked 27th** (Team ML4U-HCMUT) on the Mapless Driving track (**out of 120 teams**). The highest-ranking Southeast Asia team in the competition.
- **Benchmark SLAM models** *Sep 2025 - Present*
  Tools: Python, CUDA, C++
  - Surveyed the SLAM topic, with the focus on monocular SLAM
  - Implemented profiling tools for measuring runtime of each component in the pipeline of MASt3R-SLAM and VGGT-SLAM, with the goal of improving performance and runtime of these two baselines.

PUBLICATIONS

[C.1] *Anh Nguyen, **Bao Phan**, Tri Huynh, Nguyen Duc Dung* (2025). **TLSD: Breaking the Limit of Topological Lane Mapping with Graph Knowledge and Distance Awareness** . In *Proceedings of the 17th Asian Conference on Machine Learning*. December 09-12, 2025, Taipei, Taiwan.

ADDITIONAL INFORMATION

- **Languages:** English (IELTS 7.0), Vietnamese (first language)