

Nhat-Quynh Le-Pham

Research Resident at Qualcomm AI Research

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Summary

My research focuses on **3D visions, computer graphics**, and **generative models**. I am experienced in open-vocabulary 3D understanding, 3D/4D modeling, and image/video diffusion models. I am particularly interested in simulating realistic 3D worlds using physically grounded generative models that integrate geometry, appearance, and motion.

Education

University of Science - Viet Nam National University Ho Chi Minh City

Bachelor of Science - Advanced Program in Computer Science (APCS)

Ho Chi Minh, Vietnam

Oct 2020 - Dec 2024

- **GPA: 3.8/4.0, Thesis: 10/10** | Language of instruction: English
- Awarded **Top GPA Scholarship** (2023)

Experiences

Qualcomm AI Research

Research Resident | Mentor: Prof. Binh-Son Hua, Dr. Khoi Nguyen

Ho Chi Minh, Vietnam

Feb 2025 - Current

- Conducted research on open-vocabulary 3D understanding and world models with leading research scientists and professors.
- Developed and implemented efficient 3D perception and generative models optimized for edge and mobile devices.

CloudThinker

AI Engineer

- Optimized the core workflow of a multi-agent cloud operation system using AWS Bedrock and LangChain.
- Designed and deployed an end-to-end automated evaluation framework to assess multi-agent performance using Langfuse.

VinAI Research

Research Resident | Mentor: Prof. Binh-Son Hua, Dr. Trung-Nghia Le

Ho Chi Minh, Vietnam

Aug 2023 - Feb 2025

- Conducted independent research for the graduation thesis under the guidance of faculty members from my home institution and professors from Trinity College Dublin.
- Proposed a novel text-to-4D content generation using only image priors and monocular driver videos, bypassing the heavy computational cost of video diffusion models.

MTI Technology

Data Scientist Intern

- Collaborated with a five-person team to develop a Japanese drug bill information retrieval system via optimizing Detectron2 and Mecab.
- Improved the accuracy under ambient lighting and shaking-quality noise conditions via heuristic approach.

Publications

Prepare Lighter and Faster for Open-Vocabulary Queries: A Query-Wise 3D Segmenter for Gaussian Splatting

Under Review at CVPR'26

Nhat-Quynh Le-Pham, Khoi Nguyen, Binh-Son Hua - [Paper](#) | [Video](#)

Nov 2025

- Proposed a novel on-device, lightning-fast query-wise open-vocabulary 3D instance segmentation on 2D/3D Gaussian Splittings, achieving state-of-the-art performance in both runtime efficiency and visual quality.

Text-to-4D Content Creation using Image Priors and Monocular Driver Videos

Bachelor Thesis

Nhat-Quynh Le-Pham - [Thesis](#) | [Video](#)

July 2024

- Developed an end-to-end framework for controllable, high-quality 4D object generation from text prompts using only image priors and driver videos, removing reliance on generative video models.
- Introduced efficient image prior fine-tuning, score distillation, and attention swapping to transfer motion with high fidelity.
- Defended the graduation thesis with **distinction**, earning a perfect score of **10/10 (Top 1%)**.

Patents

Query-based Open-vocabulary 3D object segmentation from Gaussian Splits

US Patent

Nhat-Quynh Le-Pham, Khoi Nguyen, Binh-Son Hua

Nov 2025

Workshops & Journals

SketchANIMAR: Sketch-Based 3D Animal Fine-Grained Retrieval

3DOR'23

Published in Computers & Graphics Journal, Elsevier (Q1) - [Paper](#) | [Github](#)

Mar 2023

- Developed a cross-domain contrastive learning framework aligning 3D objects with text via cosine similarity, using an EfficientNetV2-Small-based feature extraction pipeline with Canny edge and KMeans-based dataset augmentation, improving Nearest Neighbor performance by 0.5.
- Achieved **First Prize** in the challenge track.

TextANIMAR: Text-Based 3D Animal Fine-Grained Retrieval

3DOR'23

Published in Computers & Graphics Journal, Elsevier (Q1) - [Paper](#) | [Github](#)

Mar 2023

- Developed a cross-domain contrastive learning framework aligning 3D objects with text using cosine similarity, with a CLIP and EfficientNetV2-Small-based feature extraction pipeline and KMeans-based dataset augmentation, improving Nearest Neighbor performance by 0.5.
- Achieved **First Prize** in the challenge track.

SHREC'22: Fitting and recognition of simple geometric primitives on point clouds

3DOR'22

Published in Computers & Graphics Journal, Elsevier (Q1) - [Paper](#) | [Github](#)

Feb 2022

- Built recognition method of geometric shapes on 8100 point clouds based on PointNet to extract global and local features for classification, followed by primitive-specific shape parameter fitting using least squares and geometric methods, with final predictions determined via majority voting among the top models.

FakeNews: Corona Virus and Conspiracies Multimedia Analysis Task

MediaEval'21

Published in MediaEval 2021 Workshop - [Paper](#)

Dec 2021

- Developed a COVID-19 conspiracy misinformation framework using a multimodal ensemble of BERT, Naive Bayes, and LSTM, combined with extensive tweet preprocessing and dataset augmentation, achieving promising results despite challenges from dataset imbalance and sentiment bias.

Scholarships & Awards

2023	Vietnam Female Students in Science and Technology Award , Ministry of Science and Technology	<i>Ha Noi, Vietnam</i>
<i>Top 20 female sci-tech students of 2023</i>		
2023	Top GPA Scholarship , Faculty of Information Technology - University of Science - VNUHCM	<i>HCMC, Vietnam</i>
<i>Top 1%</i>		
2023	First Prize , SHREC 2023: Sketch-Based 3D Animal Fine-Grained Retrieval	<i>3DOR'23</i>
2023	First Prize , SHREC 2023: Text-Based 3D Animal Fine-Grained Retrieval	<i>3DOR'23</i>
2022	Ranked 3rd , SHREC 2022: Fitting and recognition of simple geometric primitives on point clouds	<i>3DOR'22</i>
2021	Finalist , Ho Chi Minh City AI Challenge	<i>HCMC, Vietnam</i>

Certificates

IELTS 7.0

Skills

Programming Pytorch, Blender, Unity3D, Linux, Git/Github, CI/CD, Docker, SLURM, Anaconda, Python, C/C++, SQL, JavaScript.

Miscellaneous Tableau, Microsoft Office, draw.io, Anaconda, LATEX.

References

Prof. Binh-Son Hua Assistant Professor at Trinity College Dublin - [Homepage](#) | [Google Scholar](#) | [Email](#)

Dr. Khoi Nguyen Staff Research Scientist at Qualcomm AI Research - [Homepage](#) | [Google Scholar](#) | [Email](#)

Dr. Trung-Nghia Le Senior Researcher & Lecturer at University of Science - VNUHCM - [Homepage](#) | [Google Scholar](#) | [Email](#)