PHAM QUANG HIEU

Woven Planet North America
Software Engineer

3D computer vision · deep learning · autonomous driving

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Experience

Woven Planet North America
Senior Software Engineer *Jul 2021 – present*
- Leading the ML Edge Compute team of 4 engineers, tasked with deployment of deep learning models across the autonomy stack on the target compute platform. This includes architecture fine-tuning, quantization, and latency optimization. The team is also partnering with the hardware and ML platform teams to bring up an automated pipeline for validation, testing, and executing deep learning models on the edge.
- Designed and developed a long-range vision-based 3D detection model. Set up a playback system to feed vehicle data into the perception service that is used for visualization, validation, and simulation.

Lyft Level 5
Software Engineer *May 2021 – Jul 2021*
- Proposed and developed a new free space prediction model in the perception stack that improved upon the previous static obstacle prediction model. Set up an annotation pipeline for bird's-eye-view free space and map elements prediction.
- Continued the role at Woven Planet after the acquisition of Lyft Level 5 in Jul 2021.

Meta Reality Labs
Research Intern *Aug 2020 – Nov 2020*
- Researched and developed a deep learning method for high-fidelity 3D eye segmentation using implicit neural representations. Curated and experimented on both synthetic and real datasets which showed highly accurate segmentation results on a wide range of pupil positions.

Lyft Level 5
Software Engineering Intern *Feb 2020 – Jun 2020*
- Improved the performance of LiDAR-based large-vehicle detection model by curating a new training dataset with additional samples and implementing a new heading loss function. Later on, led the migration effort of the detection code base from Tensorflow to PyTorch.

Education

Singapore University of Technology and Design (SUTD)
Ph.D. in Computer Science *2016 – 2020*
- Advisors: Dr. Sai-Kit Yeung and Dr. Gemma Roig
- Thesis: Data-driven 3D scene understanding
- SUTD President's Graduate Fellowship

Vietnam National University - Ho Chi Minh City University of Science
B.S. in Computer Science *2010 – 2014*
- Summa cum laude

Selected Publications

RFNet-4D: Joint object reconstruction and flow estimation from 4D point clouds
European Conference on Computer Vision (ECCV) *2022*
Tuan-Anh Vu, Duc Thanh Nguyen, Binh-Son Hua, Quang-Hieu Pham, and Sai-Kit Yeung

Point-set distances for learning representations of 3D point clouds
International Conference on Computer Vision (ICCV) *2021*
Trung Nguyen, Quang-Hieu Pham, Tam Le, Tung Pham, Nhat Ho, and Binh-Son Hua

A*3D: An autonomous driving dataset in challenging environments
IEEE International Conference on Robotics and Automation (ICRA) *2020*
Quang-Hieu Pham*, Pierre Sevestre*, Ramanpreet Singh Pahwa, Huijing Zhan, Chun Ho Pang, Yuda Chen, Armin Mustafa, Vijay Chandrasekhar, and Jie Lin

LCD: Learned cross-domain descriptors for 2D-3D matching
AAAI Conference on Artificial Intelligence *2020*
Quang-Hieu Pham, Mikaela Angelina Uy, Binh-Son Hua, Duc Thanh Nguyen, Gemma Roig, and Sai-Kit Yeung

Revisiting point cloud classification: A new benchmark dataset and classification model on real-world data
International Conference on Computer Vision (ICCV) *2019*
Mikaela Angelina Uy, Quang-Hieu Pham, Binh-Son Hua, Duc Thanh Nguyen, and Sai-Kit Yeung

JSIS3D: Joint semantic-instance segmentation of 3D point clouds with multi-task pointwise networks and multi-value conditional random fields
IEEE Conference on Computer Vision and Pattern Recognition (CVPR) *2019*
Quang-Hieu Pham, Duc Thanh Nguyen, Binh-Son Hua, Gemma Roig, and Sai-Kit Yeung

Real-time progressive 3D semantic segmentation for indoor scenes
IEEE Winter Conference on Applications of Computer Vision (WACV) *2019*
Quang-Hieu Pham, Binh-Son Hua, Duc Thanh Nguyen, and Sai-Kit Yeung

SceneNN: A scene meshes dataset with annotations
International Conference on 3D Vision (3DV) *2016*
Binh-Son Hua, Quang-Hieu Pham, Duc Thanh Nguyen, Minh-Khoi Tran, Lap-Fai Yu, and Sai-Kit Yeung

Skills

Languages: English (fluent), Vietnamese (native)
Programming: C/C++, Python, CUDA, Pytorch, OpenGL, OpenCV