Khoi Nguyen

Ph.D. in Computer Science

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Research interests:

- *Visual Content Generation: images, videos, and 3D data* with diffusion models, autoregressive models, and multimodal LLMs.
- *2D and 3D Understanding* with few-shot, zero-shot, and open-vocabulary learning

EMPLOYMENT

Jul 2021 – Now
Research Scientist
VinAI Research

Jun 2019 - Sep 2019
Research Intern - AIBee US Corp, Palo Alto, CA - Mentor: Dr. Chunhui Gu, Silvio Savarese
- Topic: Multi-person Tracking by Segmentation in Surveillance Camera

Jun 2018 - Sep 2018
Research Intern - Verisk Analytics, Jersey City, NJ - Mentor: Dr. Maneesh Singh
- Topic: Apply Graph Neural Network to image document analysis

EDUCATION

Sep 2017 – Jun 2021
Doctor of Philosophy in Computer Science
Oregon State University, Corvallis, OR, USA, advisor: Prof. Sinisa Todorovic
- Thesis: "Part-based and Uncertainty-Aware Few-shot Object Segmentation in Images"

Sep 2015 – Sep 2017
Master of Science in Computer Science
Oregon State University, Corvallis, OR, USA, advisor: Prof. Sinisa Todorovic
- Thesis: "Relational Networks for Visual Relationship Detection"

Sep 2009 – Apr 2014
Bachelors's degree in Computer Science
Ho Chi Minh City University of Technology, Vietnam, advisor: Prof. Tru Cao
- Thesis: "Entity Disambiguation System based on Wikipedia",

AWARDS/ACTIVITIES

Awards
- **Best Paper - Honorable Mention Award, WACV 2023**
- Winner of ScanNet 3DIS - CVPR 2023, Winner of OpenSUN3D - CVPR 2024
- Outstanding Reviewer Award, ECCV 2020
- Vietnam Education Foundation (VEF) Fellowship (Cohort 2015)

Reviewer
- **CVPR:** 2021, 2022, 2023, 2024; **ICCV:** 2021, 2023; **ECCV:** 2020, 2022, 2024
- **NeurIPS:** 2022, 2023, 2024; **ICLR:** 2022, 2023, 2024, 2025
- **Journals:** TPAMI, TIP

Area Chair
- **ACCV:** 2024; **BMVC:** 2024

Workshop Organizer
- "SyntaGen: Harnessing Generative Models for Synthetic Visual Datasets", CVPR 2024

PUBLICATIONS

Preprints
Khoi Nguyen: Myself

- [*ArXiv'24f*] Trong-Tung Nguyen, Quang Nguyen, Khoi Nguyen, Anh Tran, Cuong Pham, **SwiftEdit: Lightning Fast Text-Guided Image Editing via One-Step Diffusion**
- [*ArXiv'24e*] Quang Nguyen, Truong Vu, Trong-Tung Nguyen, Yuxin Wen, Preston K Robinette, Taylor T Johnson, Tom Goldstein, Anh Tran, Khoi Nguyen, **EditScout: Locating Forged Regions from Diffusion-based Edited Images with Multimodal LLM**
- [*ArXiv'24d*] Uy Dieu Tran, Minh Luu, Phong Ha Nguyen, Khoi Nguyen, Binh-Son Hua, **ModeDreamer: Mode Guiding Score Distillation for Text-to-3D Generation using Reference Image Prompts**
- [*ArXiv'24c*] Hai Pham, Tung Do, Phong Nguyen, Son Hua, Khoi Nguyen, Rang Nguyen, **SharpDepth: Sharpening Metric Depth Predictions Using Diffusion Distillation**
- [*ArXiv'24b*] Phuc Nguyen, Minh Luu, Anh Tran, Cuong Pham, Khoi Nguyen, **Any3DIS: Class-Agnostic 3D Instance Segmentation by 2D Mask Tracking**
- [*ArXiv'24a*] Phuc D.A. Nguyen, Minh Luu, Anh Tran, Cuong Pham, Khoi Nguyen, **Open-Ended 3D Point Cloud Instance Segmentation**

- [*arXiv'23*] Quang Nguyen*, Truong Vu*, Cuong Pham, Anh Tran, Khoi Nguyen, **Stable Messenger: Steganography for Message-Concealed Image Generation**

Conferences

- [*AAAI'25b*] Hung Nguyen, Quang Qui-Vinh Nguyen, Khoi Nguyen, Rang Nguyen, **SwiftTry: Fast and Consistent Video Virtual Try-On with Diffusion Models**
- [*AAAI'25a*] Duc-Hai Pham, Duc Dung Nguyen, Hoang-Anh Pham, Ho Lai Tuan, Phong Ha Nguyen, Khoi Nguyen, Rang Nguyen, **Semi-supervised 3D Semantic Scene Completion with 2D Vision Foundation Model Guidance**
- [*ECCV'24b*] Uy Dieu Tran*, Minh Luu*, Phong Nguyen, Khoi Nguyen, Binh-Son Hua, **Diverse Text-to-3D Synthesis with Augmented Text Embedding**
- [*ECCV'24a*] Trung Dao, Thanh Le, Duc Vu, Thuan Nguyen, Khoi Nguyen, Cuong Pham, Anh Tran, **SBv2: Make Your One-step Diffusion Model Better Than Its Teacher**
- [*CVPR'24*] Phuc DA Nguyen*, Tuan Duc Ngo*, Chuang Gan, Evangelos Kalogerakis, Anh Tran, Cuong Pham, Khoi Nguyen, **Open3DIS: Open-vocabulary 3D Instance Segmentation with 2D Mask Guidance**
- [*WACV'24*] Chau Pham*, Truong Vu*, Khoi Nguyen, **LP-OVOD: Open-Vocabulary Object Detection by Linear Probing**
- [*NeurIPS'23*] Quang Nguyen*, Truong Vu*, Anh Tran, Khoi Nguyen, **Dataset-Diffusion: Diffusion-based Synthetic Data Generation for Pixel-Level Semantic Segmentation**
- [*ICCV'23*] Tuan Ngo, Binh-Son Hua, Khoi Nguyen, **GaPro: Box-Supervised 3D Point Cloud Instance Segmentation Using Gaussian Processes as Pseudo Labelers**
- [*CVPR'23*]Tuan Ngo, Binh-Son Hua, Khoi Nguyen, **ISBNet: a 3D Point Cloud Instance Segmentation Network with Instance-aware Sampling and Box-aware Dynamic Convolution**
- [*WACV'23*] Hue Nguyen, Diep Tran, Khoi Nguyen, Rang Nguyen, **PSENet: Progressive Self-Enhancement Network for Unsupervised Extreme-Light Image Enhancement , (The Best Paper - Honorable Mention Award!)**
- [*ECCV'22c*] Tuan Ngo, Khoi Nguyen, **Geodesic-Former: a Geodesic-Guided Few-shot 3D Point Cloud Instance Segmenter**
- [*ECCV'22b*] Thanh Nguyen*, Chau Pham*, Khoi Nguyen, Minh Hoai, **Few-shot Object Counting and Detection**
- [*ECCV'22a*] Khoi D. Nguyen, Quoc-Huy Tran, Khoi Nguyen, Binh-Son Hua, Rang Nguyen, **Inductive and Transductive Few-Shot Video Classification via Appearance and Temporal Alignments**
- [*CVPR'22*] Khoi Nguyen, Sinisa Todorovic, **iFS-RCNN: An Incremental Few-shot Instance Segmenter**
- [*NeurIPS'21*] Duong Le*, Khoi D. Nguyen*, Khoi Nguyen, Quoc-Huy Tran, Rang Nguyen, Binh-Son Hua, **POODLE: Improving Few-shot Learning via Penalizing Out-of-Distribution Samples**
- [*ICCV'21*] Khoi Nguyen, Sinisa Todorovic, **A Weakly Supervised Amodal Segmenter with Boundary Uncertainty Estimation**
- [*CVPR'21*] Khoi Nguyen, Sinisa Todorovic, **FAPIS: A Few-shot Anchor-free Part-based Instance Segmenter**
- [*ICPR'20*] Khoi Nguyen, Sinisa Todorovic, **A Self-supervised GAN for Unsupervised Few-shot Object Recognition**
- [*ICCV'19*] Khoi Nguyen, Sinisa Todorovic, **Feature Weighting and Boosting for Few-Shot Segmentation**

Patents

- Thi Hue Nguyen, Thi Ngoc Diep Tran, Cong Thanh Tran, Khoi Nguyen, Ho Man Rang Nguyen, Hai Hung Bui, **Method and apparatus for extreme-light image enhancement**, in *US Patent*, 2024
- Khoi Nguyen, Maneesh Singh, **Computer Vision Systems and Methods for Information Extraction from Text Images Using Evidence Grounding Techniques**, in *US Patent*, 2021

STUDENT ADVISING

Graduated Residents
They are currently PhD students

- Vu Tuan Truong (2024), **Vision-Language Models**, Northeastern University
- Ngo Duc Tuan (2023), **3D Point Cloud Instance Segmentation**, UMass Amherst
- Pham Hai Chau (2023), **Few/Zero-shot Object Detection**, University at Buffalo