

# Khoi Nguyen

PhD in Computer Science - Research Scientist in Computer Vision and GenAI

Email: ducminhkhloi@gmail.com

Website: <http://khoinguyen.org/>

Google Scholar: [bit.ly/drkh0inguyen](https://scholar.google.com/citations?user=drkh0inguyen)

LinkedIn: <https://www.linkedin.com/in/drkh0inguyen/>

## 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"

## EMPLOYMENT

Jul 2021 – Now

### Research Scientist in Computer Vision - VinAI Research (<https://research.vinai.io/>)

- Conduct cutting-edge research in Computer Vision including Perception AI (detection, segmentation, tracking) and Generative AI (Image, Video, 3D Model Synthesis)
- Publish papers at top-tier CV conferences such as CVPR, ICCV, ECCV, and NeurIPS
- Lead a product to build a visual perception system for autonomous driving agent

Jun 2019 - Sep 2019

### Research Intern - AlBee 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

## RESEARCH EXPERTISE

### Research Interests

- Visual Content Generation: images, videos, and 3D data with diffusion models, autoregressive models, and multimodal LLMs
- 2D and 3D Understanding: Detection, Segmentation, and Vision-Language Models
- Learning with limited supervision: Few-shot/zero-shot and Open-vocabulary Learning

### Technical Skills

- PyTorch, TensorFlow, Python, C++, Diffusion Models, Multimodal LLMs, Generative AI

## 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 Labels**
  - [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

## AWARDS/ACTIVITIES

- |            |   |
|------------|---|
| Awards     | <ul style="list-style-type: none"> <li>• <b>Best Paper - Honorable Mention Award, WACV 2023</b></li> <li>• Outstanding Reviewer Award, ECCV 2020</li> <li>• Vietnam Education Foundation (VEF) Fellowship (Cohort 2015)</li> </ul>  |
| Reviewer   | <ul style="list-style-type: none"> <li>• <b>CVPR</b>: 2021, 2022, 2023, 2024, 2025; <b>ICCV</b>: 2021, 2023; <b>ECCV</b>: 2020, 2022, 2024</li> <li>• <b>NeurIPS</b>: 2022, 2023, 2024; <b>ICLR</b>: 2022, 2023, 2024, 2025</li> <li>• <b>Journals</b>: TPAMI, TIP</li> </ul> |
| Area Chair | <ul style="list-style-type: none"> <li>• <b>ACCV</b>: 2024; <b>BMVC</b>: 2024</li> </ul>  |

## LEADERSHIP/MENTORSHIP

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|--------------------|--|
| Workshop Organizer | <ul style="list-style-type: none"> <li>• "SyntaGen: Harnessing Generative Models for Synthetic Visual Datasets", CVPR 2024</li> </ul>  |
| Team Lead          | <ul style="list-style-type: none"> <li>• "Generative AI" research theme and Seminar Series Manager at VinAI Research</li> </ul>  |
| Mentor             | <ul style="list-style-type: none"> <li>• Mentoring 10+ AI residents to conduct cutting-edge research to publish 15+ papers on top-tier Computer Vision conferences and apply for 3+ prestigious PhD Programs.</li> </ul> |