Khoi Nguyen

Ph.D. in Computer Science

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Google Scholar

http://khoinguyen.org/

Research interests: My primary research is about 2D/videos/3D understanding, encompassing topics such as reconstruction, detection, segmentation, and tracking. In addition, I am actively involved in advancing 2D/videos/3D Generation techniques, leveraging Diffusion Models and Neural Radiance Fields (NeRFs). I also explores Few-shot Learning and Vision-Language Models.

EMPLOYMENT/AWARDS

Jul 2021 – Now

Research Scientist

VinAI Research

Awards

- Best Paper - Honorable Mention Award, WACV 2023
- Outstanding Reviewer Award, ECCV 2020
- Vietnam Education Foundation (VEF) Fellowship (Cohort 2015)

EDUCATION

Sep 2017 – Jun 2021

Doctor of Philosophy in Computer Science

Oregon State University, Corvallis, OR, USA

- Thesis: "Part-based and Uncertainty-Aware Few-shot Object Segmentation in Images"
- Advisor: Prof. Sinisa Todorovic

Sep 2015 – Sep 2017

Master of Science in Computer Science

Oregon State University, Corvallis, OR, USA

- Thesis: "Relational Networks for Visual Relationship Detection",
- Advisor: Prof. Sinisa Todorovic

Sep 2009 – Apr 2014

Bachelors's degree in Computer Science

Ho Chi Minh City University of Technology (HCMUT), HCMC, Vietnam

- Thesis: "Entity Disambiguation System based on Wikipedia", advisor: Prof. Tru Cao
- Top-5 student in Computer Science Program (total 330 students),

STUDENT ADVISING

Current VinAI residents

- Nguyen Qui Vinh Quang, Aug 2023 - now, **Human Mesh Recovery in Videos**
- Nguyen Ho Quang, Feb 2023 - now, **Watermarking Diffusion Model**
- Pham Duc Hai, Feb 2023 - now, **3D Scene Understanding from Monocular Cameras**
- Luu Nguyen Hoang Minh, Feb 2023 - now, **NeRF for Scene Understanding**
- Vu Tuan Truong, Jul 2022 - now, **Diffusion Models for Perception Tasks**

Graduated VinAI residents

- Ngo Duc Tuan, Aug 2021 - Jul 2023, **3D Point Cloud Instance Segmentation**, now: PhD Student at Umass Amherst from 2023
- Pham Hai Chau, Aug 2021 - now, **Few-shot and Zero-shot Object Detection**, now: PhD Student at University at Buffalo from 2023
- Nguyen Van Thanh, Aug 2021 - Feb 2022, **Few-shot Object Counting and Detection**

PUBLICATIONS

Conference papers

- Quang Nguyen*, Truong Vu*, Anh Tran, Khoi Nguyen, **Dataset-Diffusion: Diffusion-based Synthetic Data Generation for Pixel-Level Semantic Segmentation**, in *Neural Information Processing Systems (NeurIPS)*, 2023
- Tuan Ngo, Binh-Son Hua, Khoi Nguyen, **GaPro: Box-Supervised 3D Point Cloud Instance Segmentation Using Gaussian Processes as Pseudo Labelers**, in *International Conference on Computer Vision (ICCV)*, 2023
- Tuan Ngo, Binh-Son Hua, Khoi Nguyen, **ISBNet: a 3D Point Cloud Instance Segmentation Network with Instance-aware Sampling and Box-aware Dynamic Convolution**, in *Computer Vision and Pattern Recognition (CVPR)*, 2023

- Hue Nguyen, Diep Tran, Khoi Nguyen, Rang Nguyen, **PSENet: Progressive Self-Enhancement Network for Unsupervised Extreme-Light Image Enhancement**, in *Winter Conference on Applications of Computer Vision (WACV)*, 2023, **(The Best Paper - Honorable Mention Award!)**
- Tuan Ngo, Khoi Nguyen, **Geodesic-Former: a Geodesic-Guided Few-shot 3D Point Cloud Instance Segmenter**, in *European Conference on Computer Vision (ECCV)*, 2022
- Thanh Nguyen*, Chau Pham*, Khoi Nguyen, Minh Hoai, **Few-shot Object Counting and Detection**, in *European Conference on Computer Vision (ECCV)*, 2022
- 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**, in *European Conference on Computer Vision (ECCV)*, 2022
- Khoi Nguyen, Sinisa Todorovic, **iFS-RCNN: An Incremental Few-shot Instance Segmenter**, in *Computer Vision and Pattern Recognition (CVPR)*, 2022
- 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**, in *Advances in Neural Information Processing Systems (NeurIPS)*, 2021
- Khoi Nguyen, Sinisa Todorovic, **A Weakly Supervised Amodal Segmenter with Boundary Uncertainty Estimation**, in *International Conference on Computer Vision (ICCV)*, 2021
- Khoi Nguyen, Sinisa Todorovic, **FAPIS: A Few-shot Anchor-free Part-based Instance Segmenter**, in *Computer Vision and Pattern Recognition (CVPR)*, 2021
- Khoi Nguyen, Sinisa Todorovic, **A Self-supervised GAN for Unsupervised Few-shot Object Recognition**, in *International Conference on Pattern Recognition (ICPR)*, 2020
- Khoi Nguyen, Sinisa Todorovic, **Feature Weighting and Boosting for Few-Shot Segmentation**, in *International Conference on Computer Vision (ICCV)*, 2019

Patents

- Khoi Nguyen, Maneesh Kumar Singh, **Computer Vision Systems and Methods for Information Extraction from Text Images Using Evidence Grounding Techniques**, in *US Patent*, 2021

PROFESSIONAL ACTIVITIES

Conference Reviewer

- CVPR 2021, 2022, 2023
- ICCV 2021, 2023
- ECCV 2020, 2022
- NeurIPS 2022, 2023
- ICLR 2022, 2023, 2024

Journal Reviewer

TPAMI, TIP

EXPERIENCE

Jun 2019 - Sep 2019

Research Intern

AIBee US Corp - Palo Alto, CA, USA

- Multi-person Tracking by Segmentation in Surveillance Camera
- Mentor: Dr. Chunhui Gu, Dr. Sinisa Todorovic, Dr. Silvio Savarese

Jun 2018 - Sep 2018

Research Intern

Verisk Analytics - the AI Innovation Lab, Jersey City, New Jersey, USA

- Apply Graph Neural Network to image document analysis for extracting semi-structured information (W2 Form)
- Mentor: Dr. Maneesh Singh