Vuong Duc Nguyen

Contact Information

6919 Hobby Wind Ridge Dr
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Education

University of Houston, Houston, TX
Ph.D., Computer Science, May 2025 (Expected)
M.S., Computer Science, Dec 2024

Hanoi University of Science and Technology, Hanoi, Vietnam
B.S., Applied Mathematics and Informatics

Employment and Research Experience

University of Houston
Graduate Research Assistant Aug 2022 - Present

- Develop state-of-the-art deep learning models for Person Re-Identification.
- Research on model drifts and data drifts in Semantic Segmentation.
- Authored 14 publications in Person Re-Identification and Semantic Segmentation.

Teaching Assistant Aug 2022 - Present

- Prepare teaching materials; Design and grade assignments; Assist students.
- Courses: Digital Image Processing (Spring 2025, Fall 2024, Spring 2024, Fall 2023, Spring 2023), Data Structures (Spring 2023), Introduction to Computer Science and Programming (Fall 2022).

Autodesk, Inc.
AI Research Scientist Intern May 2024 - Aug 2024

- Research on production-ready deep generative models for generating 3D and CAD models from multimodal inputs.
- Deliver timely research results, write paper manuscripts.

Grooo International
Machine Learning Engineer Feb 2021 - May 2022

- Developed efficient and scalable Machine Learning models and pipelines.
- Collaborated with product management and development team to deploy models.

Hanoi University of Science and Technology
Research Assistant (unpaid) Jun 2020 - Dec 2022

- Researched and authored 3 publications on Multi-objective Optimization.
- Mentored 3 sophomore students in conducting research on Optimization.

Professional Services

Reviewer Services

- International Journal of Computer Vision (4 times)
- IEEE Transactions on Circuits and Systems for Video Technology (2 times)
- Pattern Recognition (2 times)
- Image and Vision Computing (4 times)
- Journal of Visual Communication and Image Representation (1 time)
- The IEEE/CVF Winter Conference on Applications of Computer Vision 2025 (1 time)
- International Conference on Learning Representations 2025 (1 time)

- British Machine Vision Conference 2024 (3 times)
- ACM Conference on Multimedia (MM) 2024 (5 times)
- The IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (7 times)
- IEEE International Conference on Multimedia and Expo 2024 (5 times)

University Services

- Judge at The Three-minute Thesis Competition (3MT), College of Natural Sciences and Mathematics, University of Houston, 2023

Mentoring

Quantitative Imaging Lab, University of Houston
Mentor Aug 2023 - Aug 2024

- Mentor 2 undergraduate students in conducting research on Computer Vision, resulting in 1 paper.

Vietnam Education Foundation (VEF) 2.0
Mentor Aug 2022 - Present

- Mentored Vietnamese students in applying for Ph.D. programs in the US.
- Serve as invited speakers in several workshops in preparing for Ph.D. application.

Leadership

College of Natural Sciences and Mathematics, University of Houston
Graduate Student Advisory Board Aug 2023 - Present

- Represent as the point of contact between the graduate students of Department of Computer Science and College of Natural Sciences and Mathematics.
- Plan and hold general events within the college.

Computer Science Graduate Student Association, University of Houston
Secondary Student Officer Aug 2022 - May 2023

- Mentored and supported new graduate students in Computer Science.
- Arranged logistics for events and activities.

Awards

Outstanding Junior Ph.D. Student Award, University of Houston

Winner (Audience's Choice) & *1st-Runner-up* (Committee's Choice) Prizes, Ph.D. Research Showcase Competition 2024, University of Houston.

Fellowships

University of Houston
Cullen Graduate Student Success Fellowship Nov 2022
NSM Conference Travel Fellowship Jan 2024

FPT Group
FPT Young Talents Scholarship Nov 2018

Invited Talks

Into the Era of Computer Vision and Deep Learning
Computer Vision Research Workshop 2024, hosted by Cougar AI and The Society of Asian Scientists and Engineers

PUBLICATIONS **Published**

1. **V. D. Nguyen**, P. Mantini, and S. K. Shah. "Occlusion-aware Appearance and Shape Learning for Occluded Cloth-Changing Person Re-Identification". In *Pattern Analysis and Applications*, 2025.
2. **V. D. Nguyen**, P. Mantini, and S. K. Shah. "Cross-Modality Complementary Learning for Video-based Cloth-Changing Person Re-Identification". In *Asian Conference on Computer Vision (ACCV)*, 2024 *(Oral)*.
3. **V. D. Nguyen**, P. Mantini, and S. K. Shah. "Cross-Attention Vision Transformer for Occluded Cloth-Changing Person Re-Identification". In *Asian Conference on Computer Vision (ACCV)*, 2024.
4. **V. D. Nguyen**, P. Mantini, and S. K. Shah. "Occlusion-aware Cross-Attention Fusion for Video-based Occluded Cloth-Changing Person Re-Identification". In *IEEE International Joint Conference on Biometrics (IJCB)*, 2024. *(Oral)*
5. S. Mirza, A. Gala, P. Devarakota, **V. D. Nguyen**, P. Mantini, and S. Shah. "Recall-based Knowledge Distillation for Data Distribution based Catastrophic Forgetting in Semantic Segmentation". In *International Conference on Pattern Recognition (ICPR)*, 2024.
6. **V. D. Nguyen**, P. Mantini and S. K. Shah. "ACML: Attention-based Cross-Modality Learning for Cloth-Changing and Occluded Person Re-Identification". In *IEEE International Conference on Image Processing (ICIP)*, 2024.
7. **V. D. Nguyen**, P. Mantini, and S. K. Shah. "Occluded Cloth-Changing Person Re-Identification via Occlusion-aware Appearance and Shape Reasoning". In *IEEE International Conference on Advanced Video and Signal-Based Surveillance (AVSS)*, 2024. *(Oral)*
8. **V. D. Nguyen**, K. Khaldi, D. Nguyen, P. Mantini, and S. Shah. "Contrastive Viewpoint-aware Shape Learning for Long-term Person Re-Identification". In *The IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, 2024.
9. **V. D. Nguyen**, P. Mantini, and S. K. Shah. "Contrastive Clothing and Pose Generation for Cloth-Changing Person Re-Identification". In *The IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, 2024.
10. **V. D. Nguyen**, S. Mirza, A. Zakeri, A. Gupta, K. Khaldi, R. Aloui, P. Mantini, S. K. Shah, and F. Merchant. "Tackling Domain Shift in Person Re-Identification: A Survey and Analysis". In *The IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, 2024.
11. **V. D. Nguyen**. "Fetal ECG Extraction on Time-Frequency Domain using Conditional GAN". In *The IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, 2024.
12. **V. D. Nguyen**, P. Mantini, and S. K. Shah. "Temporal 3D Shape Modeling for Video-based Cloth-Changing Person Re-Identification". In *The IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) Workshops*, 2024.
13. K. Khaldi, **V. D. Nguyen**, P. Mantini, and S. K. Shah. "Unsupervised Person Re-Identification in Aerial Imagery". In *The IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, 2024.
14. **V. D. Nguyen**, S. Mirza, P. Mantini, and S. K. Shah. "Attention-based 3D Shape and Gait Representations Learning for Video-based Cloth-Changing Person Re-Identification". In *VISIGRAPP (2: VISAPP)*, 2024.

15. S. Mirza, **V. D. Nguyen**, P. Mantini, and S. K. Shah. "Data Quality Aware Approaches for Addressing Model Drift of Semantic Segmentation Models". In *VISIGRAPP (3: VISAPP)*, 2024.
16. **V. D. Nguyen**, A. Ho, A. Vu, A. Nguyen, and T. Tran. "Building Footprint Extraction in Dense Areas using Super Resolution and Frame Field Learning". In *International Conference on Awareness Science and Technology*, 2023. *(Best paper award)*
17. **V. D. Nguyen**, N. K. Duyen, N. M. Hai and B. K. Duy. "Multicriteria Portfolio Selection with Intuitionistic Fuzzy Goals as a Pseudoconvex Vector Optimization". In *International Conference on Intelligence of Things*, 2023.
18. **V. D. Nguyen** and T. N. Thang. "Optimizing over Pareto set of semistrictly quasiconcave vector maximization and application to stochastic portfolio selection". In *Journal of Industrial and Management Optimization*, 2022.
19. T. N. Thang and **V. D. Nguyen**. "Portfolio selection with risk aversion index by optimizing over pareto set". In *International Conference on Intelligent Systems and Networks*, 2021.

Submitted

1. **V. D. Nguyen**, P. Mantini, and S. K. Shah. "Bidirectional Feature Enhancement for Video-based Occluded Cloth-Changing Person Re-Identification". Submitted to *IEEE Transactions on Biometrics, Behavior, and Identity Science*, 2025.

References

Dr. Shishir Shah, Professor & Chair of Department of Computer Science, University of Houston
`sshah@central.uh.edu`

Dr. Hooman Shayani, Senior Research Manager, Senior Principal AI Research Scientist, Autodesk
`hooman.shayani@autodesk.com`

Dr. Pranav Mantini, Senior Researcher & Lecturer, Department of Computer Science, University of Houston
`pmantini@cs.uh.edu`