Hung Nguyen

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EDUCATION

University of California San Diego, USA
M.S. and Ph.D., Electrical Engineering (Signal and Image Processing) 09/2023 – 06/2029 (expected)

- Advisors: Distinguished Profs. Truong Nguyen, Pamela Cosman.

Ho Chi Minh City University of Technology, Vietnam
B.Eng., Mechatronics Engineering 08/2017 – 06/2022

RESEARCH INTERESTS

- Neural rendering-based 3D/4D reconstruction, with emphasis on 3D Gaussian Splatting (3DGS) and its compression.
- Frequency-domain transforms, e.g., wavelet, Fourier transforms, for deep learning architectures [Research Overview]
- Inverse problems in 3D reconstruction, image/video compression, generative AI, vision-language models for robotics.

RESEARCH EXPERIENCE

Video Processing Lab, UC San Diego
Graduate Student Researcher 09/2024 – Present

- Research priors from frequency-domain transforms for sparse-view/compressed/radio-frequency Gaussian Splatting.
- Develop WaveletGaussian (ICASSP '26), a low-resolution, wavelet-domain diffusion framework for pseudo-sample generation used in sparse-view 3DGS, reducing training time by 35% while improving PSNR by 0.5 dB.
- Develop AutoOpti3DGS and its extension (ICCVW '25, EUSIPCO '26), which compress 3DGS via wavelet-based frequency modulation of training images, reducing Gaussian counts by up to 15% while maintaining PSNR.

SELECTED PUBLICATIONS & PREPRINTS

First-authored publications

- **Hung Nguyen**, An Le, Runfa Li, Truong Nguyen. "From Coarse to Fine: Learnable Discrete Wavelet Transforms for Efficient 3D Gaussian Splatting", ICCV Workshops 2025. [Paper] [Poster]
- **Hung Nguyen**, Runfa Li, An Le, Truong Nguyen. "DWTGS: Rethinking Frequency Regularization for Sparse-view 3D Gaussian Splatting", VCIP 2025. [Paper] [Poster]
- **Hung Nguyen**, Runfa Li, An Le, Truong Nguyen. "WaveletGaussian: Wavelet-domain Diffusion for Sparse-view 3D Gaussian Object Reconstruction", ICASSP 2026. [Paper] [Poster]
- **Hung Nguyen**, An Le, Truong Nguyen. "Learnable Multi-level Discrete Wavelet Transforms for 3D Gaussian Splatting Frequency Modulation", EUSIPCO 2026. [Paper] [Poster]

Other publications

- An Le, **Hung Nguyen**, …, Truong Nguyen. "Stop-band Energy Constraint for Orthogonal Tunable Wavelet Units in Convolutional Neural Networks for Computer Vision problems", VCIP 2025 **Oral**. [Paper] [Talk]
- An D. Le, **Hung Nguyen**, …, Truong Q. Nguyen, Cheolhong An. "Universal Wavelet Units in 3D Retinal Layer Segmentation", ICAISF 2026 **Oral**. [Paper] [Talk]

ACADEMIC SERVICES

- Reviewer: ICASSP (2027), WACV (2027), ISBI (2027), TIP (2026), TSP (2026), SPL (2026), OJSP (2026).

WORK EXPERIENCE

VinMotion, Vietnam
Senior AI Engineer 12/2025 – 05/2026

- Develop Speech2Grasp, a data-efficient framework to transfer text-conditioned grasp detection to speech, achieving comparable detection performance with 3x lower latency using only 15K speech adaption samples. Deploy the framework on a Unitree humanoid robot.

TECHNICAL SKILLS

- Programming Languages: Python, C/C++, MATLAB.
- DL/ML Packages: PyTorch, JAX, TensorFlow, Keras, standard image processing libraries (e.g., OpenCV, NumPy).
- DL/ML Methods: VLMs, Diffusion Models, Vision Transformers, NeRF/3DGS, CNNs.

HONORS AND AWARDS

- Centaur Graduate Fellowship, ECE Department, UC San Diego. Awarded 02/2026.
- Center for Wireless Communications Fellowship, UC San Diego. Awarded 02/2026.
- IEEE Eta Kappa Nu Invitation for top 1/3 Graduate Students of UCSD ECE Department. Awarded 10/2024.
- Vingroup Scholarship for Overseas Study for Master's and Doctoral Degrees, Vingroup JSC. Awarded 06/2023.
- Panasonic Asia Scholarship for Undergraduate Students, Panasonic Vietnam. Awarded 04/2022.
- Scholarship for Undergraduate Engineering Students, PECC2 (Vietnam). Awarded 09/2021.