DAT THANH NGUYEN

Erlangen (91058), Germany
Email Github Google Scholar LinkedIn

5+ years of experience in multimedia compression and signal processing.
Interests include neural compression, generative models, and 3D data processing.
PhD candidate in Multimodal Point Cloud Coding with R&D experience at Meta Reality Labs and CNRS, CentraleSupélec.

EDUCATION

06/2021 – present **PhD Student** — **University of Erlangen-Nuremberg, Germany**
* Major: Computer Science, Electrical Engineering * Topic: Coding of Multimodal Point Cloud Data
* Expected graduation: July 2025.
`Point Cloud Compression / Context Model / Generative Model / 3D Representation / Neural Compression / MPEG G-PCC / PyTorch / Sparse Tensor / C++ / Python`

9/2019 – 11/2020 **Master's Degree** — **Télécom Paris, France**
* Major: Electrical Engineering Master's Specialization: Multimedia Networking
* CPA: 16.7/20 * Rank: Highest Honors
`Information Theory / Image & Video Coding / Multimedia Transport / Content Security`

9/2013 – 03/2019 **Engineer's Degree** — **Hanoi University of Science and Technology, Vietnam**
* Major: Electronics and Telecommunications Class: Talented Engineer
* CPA: 3.43/4.0 * Rank: Top 2%
`Calculus & Algebra / Probability and Statistics / Signal Processing / Multimedia Communication / Object-Oriented Programming / Advanced Programming`

EMPLOYMENT AND RESEARCH EXPERIENCE

01/2023 – 04/2023 **Research Scientist Intern** — **Meta Reality Labs, Redmond, USA**
* Developed a real-time adaptive LoD algorithm for mesh simplification, significantly improving rendering efficiency and visual fidelity based on camera dynamics.
`C++ / 3D Models / Mesh Simplification / Level of Detail / Real-time Rendering`

11/2020 – 05/2021 **Research Engineer** — **L2S, CentraleSupélec, France**
* Deep learning based lossless point cloud geometry compression
* 3D point cloud representation and processing.
`Point Cloud Compression / Context Modeling / MPEG-I / Octree / Tensorflow & PyTorch`

5/2020 – 11/2020 **Master's Internship** — **L2S, CentraleSupélec, France**
* Topic: Lossless compression of Point Clouds based on Machine Learning tools
* Supervisors: VALENZISE Giuseppe and PIERRE Duhamel (CNRS).
`Entropy Model / Lossless Coding / CABAC Python / Tensorflow / PyCloud`

SKILLS AND QUALIFICATIONS

Programming languages: Python, C++, C, Matlab, Java, VHDL
Libraries & tools: Pytorch, Tensorflow, Keras, scikit-learn, Docker, VMware
Operating systems: Linux, Windows, MacOS, Slurm,
Presentation at: ICASSP'21,23; ICMEW'21; ICIP'22, 24; Asilomar'24; JWOC'21; INISCOM'19;
Reviewer for: IEEE T-CSVT, IEEE TIP, , IEEE VCIP, IEEE ICASSP, Signal Processing: Image Communication

AWARDS AND SCHOLARSHIPS

Heidelberg Laureate Forum (2024)
FAU President's Welcome Award (2021)
Labex Digicosme scholarship (Telecom Paris, 2019)
Erasmus+ scholarship at TUM, Germany (2018)
Best student award (HUST, 2016)
Scholarships for excellent students, (HUST, 2015-2017)

LANGUAGES

English - Proficient
German - Beginner - A2
French - Beginner

LIST OF PUBLICATIONS

2023 **IEEE Transactions on Circuits and Systems for Video Technology** **(68 citations)**

Nguyen, Dat Thanh, and André Kaup. "Lossless Point Cloud Geometry and Attribute Compression Using a Learned Conditional Probability Model." IEEE Transactions on Circuits and Systems for Video Technology (2023).

2021 **IEEE Transactions on Circuits and Systems for Video Technology** **(45 citations)**

Nguyen, Dat Thanh, Maurice Quach, Giuseppe Valenzise, and Pierre Duhamel. "Lossless Coding of Point Cloud Geometry using a Deep Generative Model." IEEE Transactions on Circuits and Systems for Video Technology 31, no. 12 (2021): 4617-4629.

2022 **International Conference on Image Processing** **(15 citations)**

Nguyen, Dat Thanh, and André Kaup. "Learning-Based Lossless Point Cloud Geometry Coding Using Sparse Tensors." 2022 IEEE International Conference on Image Processing (ICIP). IEEE, 2022.

2021 **IEEE International Conference on Acoustics, Speech and Signal Processing** **(78 citations)**

Nguyen, Dat Thanh, Maurice Quach, Giuseppe Valenzise, and Pierre Duhamel. "Learning-based lossless compression of 3d point cloud geometry." In ICASSP 2021-2021 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), pp. 4220-4224. IEEE, 2021.

2021 **IEEE International Conference on Multimedia & Expo Workshops** **(68 citations)**

Nguyen, Dat Thanh, Maurice Quach, Giuseppe Valenzise, and Pierre Duhamel. "Multiscale deep context modeling for lossless point cloud geometry compression." In 2021 IEEE International Conference on Multimedia & Expo Workshops (ICMEW), pp. 1-6. IEEE, 2021.

2024 **IEEE International Conference on Image Processing** **(1 citations)**

Nguyen, Dat Thanh, Daniel Zieger, Marc Stamminger, Andre Kaup. "End-to-end learned Lossy Dynamic Point Cloud Attribute Compression", IEEE International Conference on Image Processing (ICIP). IEEE, 2024.

2023 **IEEE International Conference on Acoustics, Speech and Signal Processing** **(9 citations)**

Nguyen, Dat Thanh, Kamal Gopikrishnan Nambiar, and André Kaup. "Deep Probabilistic Model for Lossless Scalable Point Cloud Attribute Compression." ICASSP 2023 - IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP). IEEE, 2023.

2024 **IEEE Asilomar Conference on Signals, Systems, and Computers**

Nguyen, Dat Thanh, Daniel Zieger, Markus Gambietz, Anne Koelewijn, Marc Stamminger, Andre Kaup. "Multiresolution point cloud compression for real-time visualization and streaming of large 3D datasets", 2024 IEEE Asilomar Conference on Signals, Systems, and Computers.

2023 **IEEE Transactions on Image Processing** **(26 citations)**

Herglotz, C., Och, H., Meyer, A., Ramasubbu, G., Eichermüller, L., Kränzler, M., Brand, F., Fischer, K., **Nguyen, D.T.**, Regensky, A. and Kaup, A., 2024. The Bjøntegaard Bible Why your Way of Comparing Video Codecs May Be Wrong. IEEE Transactions on Image Processing.

2020 **MONET- Springer Journal** **(9 citations)**

Thinh, P. H., **Dat, N. T.**, Nam, P. N., Thanh, N. H., Nguyen, H. M., Huong, T. T. An Efficient QoE-Aware HTTP Adaptive Streaming over Software Defined Networking. Mobile Networks and Applications, 1-13.