Haato Watanabe

Tokyo/Japan | +81 8025601194 | heart.watanabe2000@gmail.com | https://github.com/haato-w

Summary

Graduate researcher in computer graphics and computer vision, specializing in differentiable 3D representations and Gaussian Splatting supervised by Nobuyuki Umetani.
I build end-to-end research systems from algorithm design to high-performance CUDA/PyTorch implementation and interactive visualization. My work has been published at peer-reviewed international conferences, with a strong emphasis on real-time systems and scalable experimental pipelines.
I am interested in research and applied research roles where novel ideas are translated into working systems.

Education

The University of Tokyo *April 2026 -*

PhD in Graduate School of Information Science and Technology

- Research on differentiable 3D representations, Gaussian Splatting, and interactive editing systems

The University of Tokyo *April 2024 – Mar 2026*

M.S in Graduate School of Information Science and Technology

- Research on differentiable 3D representations, Gaussian Splatting, and interactive editing systems

Tokyo University of Science *April 2019 – Mar 2024*

B.S in Industrial and Systems Engineering

- Primarily studied statistics and fundamental computer science.
- Relevant Coursework: Algorithms, Machine Learning, Operating System, Theory of Computing

Work Experience

Huawei Tokyo Research Center (Shinagawa, Tokyo) *November 2025 –*

Research Intern: Computer Graphics

- Conducting research on computer graphics and differentiable rendering within the CG research team.
- Working on efficient representations and optimization techniques for dynamic 3D scene representations.
- Collaborating with researchers in an international research environment.

Preferred Networks Inc. (Otemachi, Tokyo) *August 2024 – December 2024*

Intern: R&D Software Engineer

- Developed a web-based interactive viewer for 4D Gaussian Splatting (4DGS), enabling visualization of dynamic 3D scenes over continuous time.
- Designed the system to support arbitrary time queries, allowing smooth temporal navigation beyond discrete frame playback.
- To the best of our knowledge at the time, this was the first web viewer capable of handling continuous-time 4DGS scenes.
- Implemented the viewer with a focus on real-time interaction and usability in a browser environment.
- The project was featured on the PFN Tech Blog: https://tech.preferred.jp/ja/blog/4d-gaussian-splatting-web-viewer/
- Key Technologies : TypeScript | WebGL | React | Svelte

Matsuo Institute Inc. (Hongo, Tokyo) *Feb 2024 – July 2024*

Intern: software developer

- Developed and deployed LLM-based applications using OpenAI APIs for internal strategic use.
- Key Technologies: AutoGen, LLM prompt optimization

Plaid Inc. (Ginza, Tokyo) *Mar 2022 – Jan 2023*

Intern: software developer

- Worked as an engineer in a production web service development team for nearly one year.
- Contributed to both frontend and backend development, including API implementation, UI updates, and system maintenance.
- Built and maintained automated end-to-end testing pipelines for web services.
- Key Technologies: TypeScript, Vue, Node.js, MongoDB, CI/CD

Alice Inc. (Toranomon, Tokyo) *Jul 2021 – Jan 2022*

Intern: Machine Learning application developer

- Developed a license plate recognition system that operates on Jetson.
- Achieved recognition accuracy equivalent to existing products at the time in case of ideal environmental brightness and angles.
- Created character detection process using OpenCV, and trained character recognition Deep Learning model with the ETL character database.
- Quantized the Deep Learning model for deployment on Jetson's memory, accelerated inference speed using TensorRT.
- Key Technologies : Jetson | OpenCV | Pandas | Scikit-learn | Tensorflow | TensorRT

Publication

Neural Gabor Splatting: Enhanced Gaussian Splatting with Neural Gabor for High-frequency Surface Reconstruction

- Haato Watanabe, Nobuyuki Umetani
- CVPR 2026 (Accepted)

SketchRodGS: Sketch-based Extraction of Slender Geometries for Animating Gaussian Splatting Scenes

- Haato Watanabe, Nobuyuki Umetani
- ACM, SIGGRAPH Asia 2025 Technical Communications (SA Technical Communications '25)

3D Gabor Splatting: Reconstruction of High-frequency Surface Texture using Gabor Noise

- Haato Watanabe, Kenji Tojo and Nobuyuki Umetani
- Proceedings of the Eurographics 2025 Short Papers, 2025, Eurographics Association

Other Projects

4D Gaussian Splatting Web Viewer (PFN Internship)

- Developed a real-time, web-based viewer for 4D Gaussian Splatting (4DGS), enabling continuous-time exploration of dynamic 3D scenes.
- Introduced arbitrary time queries for smooth temporal navigation beyond frame-based playback.
- Designed and implemented the system with a focus on interactive performance and usability in browser environments.
- Featured on the PFN Tech Blog: https://tech.preferred.jp/ja/blog/4d-gaussian-splatting-web-viewer/
- Tech: TypeScript, WebGL, React, Svelte

Awards & Fellowships

- SPRING GX Fellowship, The University of Tokyo, 2026– : Competitive fellowship awarded to selected graduate students for research excellence
- Dean's Award, The University of Tokyo
- Best Communications Award, SIGGRAPH Asia 2025 Technical Communications: Top award in the Technical Communications track
- Excellent Paper Award & Audience Award, MIRU 2025

Others

- Reviewer (by invitation), Pacific Graphics 2025. Reviewed a full paper on 3D reconstruction using differentiable representations.

Other Skills

Programming Languages	***Experienced:*** Python | TypeScript | C | C++ | CUDA ***Familiar:*** Bash | Java | C#
Frameworks & Libraries	Linux | Docker | REST API | PyTorch | Numpy | Django | OpenGL | WebGL | Unity
Languages	Japanese (Native) English (Professional working proficiency)