

Haato Watanabe

Homepage: haatowatanabe.com/

Email: heart.watanabe2000@gmail.com

Github: github.com/haato-w

Linkedin: linkedin.com/in/haato-watanabe-3769961a7/

Google Scholar: scholar.google.co.jp/citations?user=2XQ5u_8AAAAJ



SUMMARY

PhD student at The University of Tokyo (advised by Prof. Nobuyuki Umetani) working on differentiable 3D representations and Gaussian Splatting.

First-author CVPR 2026 paper on high-frequency surface reconstruction.

Experienced in designing and implementing high-performance research systems, including CUDA-based differentiable rendering pipelines, neural field models, and real-time visualization frameworks.

Research intern in Computer Graphics, Vision, and Generative AI.

Research Interests: Differentiable rendering, neural 3D representations, Gaussian Splatting, real-time graphics

EDUCATION

THE UNIVERSITY OF TOKYO

April 2026 -

PhD in Graduate School of Information Science and Technology

- Research on editable and differentiable 3D scene representations

THE UNIVERSITY OF TOKYO

April 2024 – Mar 2026

M.S in Graduate School of Information Science and Technology

- Research on high-frequency neural rendering and Gaussian Splatting

TOKYO UNIVERSITY OF SCIENCE

April 2019 – Mar 2024

B.S in Industrial and Systems Engineering

- Primarily studied statistics and fundamental computer science.

PROFESSIONAL EXPERIENCE

COOLANT CLIMATE, INC. (SAN FRANCISCO, CA) — RESEARCH ENGINEERING INTERN

Aug. 2026 – Oct. 2026

- Conducting on-site research and development on 3D Gaussian Splatting.
- Developing novel Gaussian Splatting algorithms for large-scale outdoor scene reconstruction.
- Collaborating with researchers and engineers in an international startup.

HUAWEI (TOKYO RESEARCH CENTER) (SHINAGAWA, TOKYO) — RESEARCH INTERN

Nov 2025 – June 2026

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

PREFERRED NETWORKS (PFN) (OTEMACHI, TOKYO) — R&D SOFTWARE ENGINEER INTERN

Aug 2024 – Dec 2024

- Built a real-time web viewer for 4D Gaussian Splatting with continuous-time queries
- Enabled interactive rendering of dynamic scenes in browser (WebGL-based pipeline)
- Achieved real-time browser-based rendering for 200,000 dynamic Gaussian primitives
- The project was featured on the PFN Tech Blog: tech.preferred.jp/ja/blog/4d-gaussian-splatting-web-viewer/

MATSUO INSTITUTE INC. (HONGO, TOKYO) — SOFTWARE DEVELOPER INTERN

Feb 2024 – July 2024

- Developed LLM-based applications using OpenAI APIs for internal use

PLAID INC. (GINZA, TOKYO) — SOFTWARE ENGINEER INTERN

Mar 2022 – Jan 2023

- Contributed to production web services (frontend/backend, testing pipelines)

FIRST-AUTHOR PUBLICATIONS

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

- Haato Watanabe, Nobuyuki Umetani
- Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2026
- Project Page: haatowatanabe.com/projects/neural-gabor-splatting
- arXiv: arxiv.org/abs/2604.15941
- Code: github.com/haato-w/neural-gabor-splatting

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)
- Project Page: haatowatanabe.com/projects/sketchrodgs/
- arXiv: arxiv.org/abs/2601.02072
- Code: github.com/haato-w/sketch-rod-gs

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
- Selected for Oral Presentation at MIRU 2025
- Project Page: haato-w.github.io/3d-gabor-splatting-project-page/
- arXiv: arxiv.org/abs/2504.11003
- Code: github.com/haato-w/3d-gabor-splatting

INVITED TALKS & PRESENTATIONS

- Neural Gabor Splatting. Invited Talk, Meeting on Image Recognition and Understanding (MIRU 2026), Nagasaki, Japan, August 2026.
- "3D Gaussian Splatting: From Basics to Research Frontiers", Guest Speaker, GPU UNITE Podcast, Tokyo, Japan, June 2026
- "Current Advances in 3D Gaussian Splatting", Invited Talk, GPU UNITE Meetup, Tokyo, Japan, May 2026

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**
- **Master's Representative**, The University of Tokyo Graduation Ceremony, 2026
- **Best Communications Award**, SIGGRAPH Asia 2025 Technical Communications: Top award in the Technical Communications track
- **Excellent Paper Award**, MIRU 2025
- **Audience Award**, MIRU 2025

OTHERS

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

TECHNICAL SKILLS

CUDA	custom kernel implementation, MLP forward/backward, differentiable rendering
PyTorch	extension development, training pipelines for neural rendering
WebGL / OpenGL	real-time rendering, interactive visualization systems