

Haato Watanabe

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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.

Seeking research internship opportunities 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.

WORK EXPERIENCE

HUAWEI (TOKYO RESEARCH CENTER) — RESEARCH INTERN

November 2025 -

- 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 (PFN) — INTERN: R&D SOFTWARE ENGINEER

August 2024 – December 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. — SOFTWARE DEVELOPER INTERN

Feb 2024 – July 2024

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

PLAID INC. — 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
- 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

- “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

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| 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 |