

YUKI OKAMOTO

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RESEARCH INTEREST

- Deep generative models
- Probabilistic modeling
- Bayesian/variational inference
- Stochastic processes
- Inverse problems
- Signal and image processing

EDUCATION

KTH Royal Institute of Technology

Master of Science in Applied and Computational Mathematics

Aug 2024 - Jun 2026

Stockholm, Sweden

The University of Tokyo

Bachelor of Engineering in Systems Innovation

Exchange studies at KTH during Aug 2022 - Jun 2023

Apr 2020 - Mar 2024

Tokyo, Japan

RESEARCH EXPERIENCE

KTH Royal Institute of Technology

Master's Thesis Student at Division of Probability, Mathematical Physics and Statistics

Jan 2026 - Jun 2026

Stockholm, Sweden

Supervisor: Asst. Prof. Soon Hoe Lim

Thesis Title: Planning as Conditional Generative Sampling: Belief- and Reward-Conditioned Diffusion Planners for Informative Path Planning

- Developed a conditional generative framework utilizing diffusion models (DDPMs) to sample high-reward trajectories for autonomous underwater vehicles.
- Evaluated the model's out-of-distribution generalization, proving that feasible OOD conditioning allows the planner to synthesize novel behaviors absent from the training demonstrations.

KTH Royal Institute of Technology

Research Assistant at Medical Imaging Physics Group

Oct 2025 - Current

Stockholm, Sweden

Supervisor: Prof. Mats Danielsson, Assoc. Prof. Mats Persson, Per Lundhammar

- Designed and implemented a permutation-equivariant deep learning model using Set Transformer to infer temporal ordering of unordered photon detection data in SPECT imaging.
- Reduced inference complexity from factorial time to a single forward pass while achieving competitive ordering accuracy for short chain lengths against a maximum likelihood baseline.

National Ocean Policy Secretariat, Cabinet Office, Government of Japan

Research Assistant

Mar 2024 - Aug 2024

Tokyo, Japan

Supervisor: Prof. Toru Sato, Toshiro Suzuki, Takamasa Nakamura

- Developed a stochastic risk assessment model using Bayesian Monte Carlo simulations to quantify the frequency and magnitude of global mineral resource supply disruptions.
- Evaluated the economic security value of domestic mineral resource development by modeling the avoided production losses enabled by strategic stockpiling.

The University of Tokyo

Bachelor's Thesis Student at Laboratory of Environmental Modeling and Synthesis

Mar 2023 - Mar 2024

Tokyo, Japan

Supervisor: Prof. Toru Sato

Thesis Title: Proposal and cost evaluation of observation point placement method for underwater monitoring of sub-seabed CCS

- Designed and implemented a modified greedy solution for optimal coverage problems in underwater monitoring of offshore carbon capture and storage (CCS).

PUBLICATIONS

- [1] **Y. Okamoto**, T. Sato, and S. Kanao, “Cost assessment of optimal seawater monitoring for unexpected CO₂ leakage from an offshore reservoir,” *International Journal of Greenhouse Gas Control*, vol. 146, p. 104455, 2025, ISSN: 1750-5836. DOI: <https://doi.org/10.1016/j.ijggc.2025.104455>.

PRESENTATIONS

Conference Oral Presentations (underline: presenter)

- [1] **Y. Okamoto** and T. Sato, “Proposal and cost evaluation of observation point placement method for underwater monitoring of sub-seabed CCS,” presented at 17th Greenhouse Gas Control Technologies, Calgary, Canada, October 20-24, 2024.
- [2] **Y. Okamoto** and T. Sato, “Proposal and cost evaluation of observation point placement method for underwater monitoring of sub-seabed CCS,” presented at The Japan Society of Naval Architects and Ocean Engineers 2024 Annual Spring Meeting, Kanazawa, Japan, May 27-28, 2024.

Seminars

- [3] **Y. Okamoto**, “Diffusion Planner for Underwater CO₂ Monitoring”, presented at KTH Climate Action Centre, Stockholm, Sweden, May 26, 2026.
- [4] **Y. Okamoto**, “Proposal and cost evaluation of observation point placement method for underwater monitoring of sub-seabed CCS,” presented at Imperial College London (UK), University of Bergen (Norway), and Plymouth Marine Laboratory (UK), February 10-18, 2024.

RESEARCH GRANTS & FELLOWSHIPS

Environmental Research Grant

Miljöfonden, Swedish Engineers Association
Awarded for a thesis project focused on environmental sustainability.

Dec 2025
50,000 SEK

Travel Grant

Musha Shugyo Program, The University of Tokyo
Funded research presentations at the University of Bergen, Imperial College London, and Plymouth Marine Laboratory.

Feb 2024
450,000 JPY

Graduate Fellowship

Takenaka Scholarship Foundation

Highly selective national scholarship (max. 3 recipients annually) covering five years of graduate studies.

Nov 2023
20,000,000 JPY

Study Abroad Fellowship

Gyomu Super Japan Dream Foundation

Competitive scholarship awarded to support exchange studies at KTH Royal Institute of Technology.

Jul 2022
1,350,000 JPY

SKILLS

Programming

Python, Git, MATLAB

Tools & Frameworks

PyTorch, GPyTorch, Hydra, NumPy, Pandas, Matplotlib, Scikit-learn

Language Skills

Japanese (native), English (professional), Swedish (advanced)

Soft Skills

Leadership, Project management, Problem solving, Team collaboration

EXTRACURRICULAR ACTIVITIES

TEDxUTokyo

Board Member

Nov 2021 - Jun 2022
Tokyo, Japan

- Co-organized a TEDx conference at the University of Tokyo with 400 participants.
- Managed logistics, coordinated with stakeholders, and secured over 10 enterprise sponsorships.