

Naoki Sato

MASTER'S CANDIDATE IN COMPUTER SCIENCE

Meiji University, 1-1-1 Higashimita, Tama-ku, Kawasaki-shi, Kanagawa 214-8571 Japan

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Education

Meiji University

M.S. IN COMPUTER SCIENCE

Kanagawa, Japan

Apr. 2023 -

- Topic: Optimization in Deep Neural Networks
- Supervisor: Prof. Hideaki Iiduka

Meiji University

B.S. IN COMPUTER SCIENCE

Kanagawa, Japan

Apr. 2019 - Mar. 2023

- Thesis: Using Constant Learning Rate of Two Time-Scale Update Rule for Training Generative Adversarial Networks
- Supervisor: Prof. Hideaki Iiduka

Research Interests

Optimization for Deep Learning

Publication

INTERNATIONAL CONFERENCE

Explicit and Implicit Graduated Optimization in Deep Neural Networks

[Naoki Sato](#), [Hideaki Iiduka](#)

Philadelphia, Pennsylvania, USA

Feb. 27, 2025

The 39th Annual AAAI Conference on Artificial Intelligence (AAAI-25)

Theoretical Analysis of Two Time-Scale Update Rule for Training GANs

[Naoki Sato](#), [Hideaki Iiduka](#)

Waseda University, Tokyo, Japan

Aug. 23, 2023

The 10th International Congress on Industrial and Applied Mathematics (ICIAM2023)

Existence and Estimation of Critical Batch Size for Training Generative Adversarial Networks with Two Time-Scale Update Rule

[Naoki Sato](#), [Hideaki Iiduka](#)

Honolulu, Hawaii, USA

Jul. 24, 2023

The 40th International Conference on Machine Learning (ICML2023)

JOURNAL

Scaled Conjugate Gradient Method for Nonconvex Optimization in Deep Neural Networks

[Naoki Sato](#), [Hideaki Iiduka](#)

Dec. 13, 2024

Journal of Machine Learning Research (JMLR)

DOMESTIC CONFERENCE

Global Optimization for Empirical Risk Function by Graduated Optimization with Stochastic Noise in SGD

[Naoki Sato](#), [Hideaki Iiduka](#)

Hokkaido University, Hokkaido, Japan

Dec. 21, 2024

The 55th Information-Based Induction Sciences and Machine Learning (IBISML)

Global Optimization for Empirical Risk Minimization Problems using a Graduated Optimization Algorithm with the Smoothing Effect of Stochastic Gradient Descent

[Naoki Sato](#), [Hideaki Iiduka](#)

SONIC CITY HALL, Saitama, Japan

Nov. 5, 2024

The 27th Information-Based Induction Sciences Workshop (IBIS2024)

Role of Momentum in Smoothing Objective Function and Generalizability of Deep Neural Networks

[Naoki Sato](#), [Hideaki Iiduka](#)

Nanzan University, Aichi, Japan

Sept. 11, 2024

The 2024 Fall National Conference of Operations Research Society of Japan

Global Optimization of Deep Neural Networks for Graduated Optimization Method using Smoothing Effect of Stochastic Gradient Descent

Naoki Sato, Hideaki Iiduka **[Student Excellent Presentation Award]**

The 2024 Spring National Conference of Operations Research Society of Japan

University of Tsukuba, Ibaraki,

Japan

Mar. 7, 2024

Existence and Estimation of Critical Batch Size for Training GANs with Two Time-Scale Update Rule

Naoki Sato, Hideaki Iiduka

RIMS Workshop on Mathematical Optimization: Theory and Practice, Research Institute for Mathematical Sciences

Kyoto University, Kyoto, Japan

Aug. 28, 2023