Toshimitsu ARITAKE

The Institute of Statistical Mathematics
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EDUCATION

04/2008 – 03/2012	**Waseda University, School of Advanced Science and Engineering, Department of Electrical Engineering and Bioscience, Bachelor of Engineering**
04/2012 – 03/2014	**Waseda University, Graduate School of Advanced Science and Engineering, Department of Electrical Engineering and Bioscience, Master of Engineering**
09/2017 – 03/2021	**Waseda University, Graduate School of Advanced Science and Engineering, Department of Electrical Engineering and Bioscience, Doctor of Engineering**

EDUCATIONAL WORK EXPERIENCE

04/2014 – 08/2017	**Research Staff , Hitachi Ltd.**
10/2015 – 08/2017	**Research Engineer (Temporary assignment), Hitachi Europe Ltd.,**
09/2018 – 08/2019	**Teaching Assistant, School of Advanced Science and Engineering, Waseda University** • Teaching assistance for experiments (instruction and scoring by an oral assessment)
07/2019 – 03/2021	**Technical Assistant, Department of Statistical Modeling, The Institute of Statistical Mathematics, Research Organization of Information and Systems**
04/2021 – Present	**Project Assistant Professor The Institute of Statistical Mathematics, Research Center for Statistical Machine Learning Research Organization of Information and Systems**
04/2022 – Present	**Lecturer, Rikkyo University, Graduate School of Artificial Intelligence and Science** • Lecture and hands-on exercises on sparse modeling including optimization, matrix factorization and deep neural networks.

RESEARCH INTEREST

Sparse Modeling: Research on the development and application of algorithms for sparse modeling

- Learning sparse dictionary that have specific structure
- Application of sparse modeling to the single molecule localization microscopy
- Unrolling (Meta-learning of iterative algorithm)

Domain Adaptation:

- Domain adaptation for Extra features using optimal transport

Time Series Analysis

- Application of Hawkes process to the neuron spike data

PUBLICATIONS

1. T. Aritake, H. Hino and N. Murata, "Learning Ancestral Atom via Sparse Coding," in IEEE Journal of Selected Topics in Signal Processing, vol. 7, no. 4, pp. 586-594, Aug. 2013
2. T. Aritake, H. Hino, S. Namiki, D. Asanuma, K. Hirose, N. Murata, "Fast and robust multiplane single-molecule localization microscopy using a deep neural network," in Neurocomputing, Volume 451, pp. 279-289, 2021
3. T. Aritake, H. Hino, S. Namiki, D. Asanuma, K. Hirose, N. Murata, "Single-molecule localization by voxel-wise regression using convolutional neural network," in Results in Optics, Volume 1, 2020
4. Mizuo Nagayama, Toshimitsu Aritake, Hideitsu Hino, Takeshi Kanda, Takehiro Miyazaki, Masashi Yanagisawa, Shotaro Akaho, Noboru Murata, "Detecting cell assemblies by NMF-based clustering from calcium imaging data," in Neural Networks, Volume 149, Pages 29-39, 2022
5. T. Aritake, H. Hino, "Unsupervised Domain Adaptation for Extra Features in the Target Domain Using Optimal Transport" in Neural Computation 採録決定

CONFERENCE PRESENTATIONS

1. N. L. H. Møller, P. Bjørn, J. C. Villumsen, T. C. Hancock, T. Aritake, and S. Tani, "Data Tracking in Search of Workflows", Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing, pp2153-2165, 2017.
2. T. Aritake, N. Murata, "Learning Scale and Shift-Invariant Dictionary for Sparse Representation," in Machine Learning, Optimization, and Data Science. LOD 2019,

Lecture Notes in Computer Science, vol 11943. Springer, Cham, 2019.

3. M. Nagayama, T. Aritake, H. Hino. T. Kanda, T. Miyazaki, M. Yanagisawa, S. Akaho, N. Murata, "Sleep State Analysis Using Calcium Imaging Data by Non-negative Matrix Factorization," in ICANN 2019: Theoretical Neural Computation, Lecture Notes in Computer Science, vol 11727. Springer, Cham, 2019
4. T. Aritake, H. Hino, "Domain Adaptation with Optimal Transport for Extended Variable Space", in 2022 Internatinal Joint Conference on Neural Networks (IJCNN), 2022.

DOMESTIC WORKSHOPS AND CONFERENCES

1. 有竹 俊光, 日野 英逸, 村田 昇, "スパースコーディングにおける基底生成のための単一母基底の学習", 情報論的学習理論と機械学習研究会 (IBISML), 2012
2. 有竹 俊光, 大塚 理恵子, "人流シミュレーションを用いたサテライトオ フィスの導入効果分析, " 第 52回土木計画学研究・講演集", 52 巻, No.(P5), 2015.
3. 永山 瑞生, 有竹 俊光, 日野 英逸, 上田 壮志, 宮崎 峻弘, 柳沢 正史, 赤穂 昭太郎, 村田 昇, "非負値行列因子分解を用いたカルシウムイメージングデータからの睡眠状態解析", 情報論的学習理論と機械学習研究会 (IBISML), 2019.
4. 有竹 俊光, 日野 英逸, 並木 繁行, 浅沼 大祐, 廣瀬 謙造, 村田 昇, "深層ニューラルネットワークを用いた多焦点顕微鏡のリアルタイム3次元局在化", 情報論的学習理論と機械学習研究会 (IBISML), 2020.
5. 有竹 俊光, 日野 英逸, "変数の拡張に対する最適輸送を用いたドメイン適応", 情報論的学習理論と機械学習研究会 (IBISML), 2022.

OTHERS

PATENT

1. 有竹 俊光, 鴨志田 亮太,"データ処理システム、及び、データ処理方法", JP6454222B2

MEMBERSHIP

- IEEE Member (2021/07 – Present)
- Japan Society of Civil Engineer (2015/4 – 2016/3)

AWARDS AND SCHOLARSHIP

None

GRANTS

None

REVIEWER

2022

- 2022 Artificial Intelligence and Statistics Conference (AISTATS2022)
- IEICE Transactions

2021

- Optics and Laser Technology
- IEEE Transaction on Industrial Electronics

2020

- 2020 Conference on Neural Information Processing Systems (NeurIPS2020)

VOLUNTEER EXPERIENCE

None

SKILLS

Statistical Analysis

- Basis statistics, Time series analysis

Machine Learning

- Sparse modeling, Optimal transport, Deep neural network

Programming

- Python/R/C#

Development

- Server Administration (FreeBSD, Linux)

LANGUAGES

- Japanese
- English