Futoshi Futami

Lecturer at Osaka University
Osaka, Japan

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Education

Ph.D. Graduate school of Frontier Science, the University of Tokyo — Sep.2016 – Mar.2020
Supervisor: Masashi Sugiyama
Thesis title: Robust and Computationally-Efficient Approximate Bayesian Inference

M.S. Physics, Graduate school of Science, the University of Tokyo — Apr.2013 – Mar.2015
Supervisor: Seiji Miyashita
Thesis title: Static and dynamical properties of magnetic order in small world networks

B.A. Physics, the University of Tokyo — Apr.2009 – Mar.2013

Employment

Lecturer — Sep.2022 -
Osaka University, Graduate School of Engineering Science

Researcher — Apr. 2020 - Sep.2022
NTT Communication Science Laboratories

Research Internship — June. 2019 - Sep. 2019
Google Brain at Mountain View

Research Internship — Sep. 2018 - Dec. 2018
Microsoft Research Asia

Research Assistant — Apr. 2017 – Mar. 2020
RIKEN Center for Advanced Intelligence Project

Staff in Planning division — Apr.2015 – Dec.2016
Financial Services Agency, Japanese Government

Awards

1. Best Paper Runner-up for ACML 2021 (Scalable gradient matching based on state space Gaussian Processes) 2021
2. Dean’s Award for Outstanding Achievement Doctoral Course Graduate School of Frontier Sciences 2020

3. IEICE TC-IBISML Research Award, IEICE, Information-Based Induction Sciences and Machine Learning (IBISML) Technical Group 2018
4. Google PhD Fellowship 2018
5. Selected as a contributed talk at NIPS AABI workshop. 2017

Publications

International Conference Papers (Peer Reviewed)

1. **F. Futami,** & M.Fujisawa, Time-Independent Information-Theoretic Generalization Bounds for SGLD. In Neural Information Processing Systems, 2023. (NeurIPS 2023)
2. **F. Futami,** T. Iwata, N. Ueda, I. Sato, & M. Sugiyama. Predictive variational Bayesian inference as risk-seeking optimization. In Artificial Intelligence and Statistics, 2022. (AISTATS 2022)
3. **F. Futami,** T. Iwata, N. Ueda, I. Sato, & M. Sugiyama. Loss function based second-order Jensen inequality and its application to particle variational inference. In Neural Information Processing Systems, 2021. (NeurIPS 2021)
4. **F. Futami**. Scalable gradient matching based on state space Gaussian Processes. Asian Conference on Machine Learning, 2021. (ACML 2021)
5. **F. Futami**, T. Iwata, N. Ueda, & I. Yamane. Skew-symmetrically perturbed gradient flow for convex optimization. Asian Conference on Machine Learning, 2021. (ACML 2021)
6. **F. Futami,** I. Sato, & M. Sugiyama. Accelerating the diffusion-based ensemble sampling by non-reversible dynamics. International Conference on Machine learning, 2020. (ICML 2020)
7. **F. Futami,** Z. Cui, I. Sato, & M. Sugiyama. Bayesian posterior approximation via greedy particle optimization, Thirty-Third AAAI Conference on Artificial Intelligence. (AAAI 2019)
8. **F. Futami,** I. Sato, & M. Sugiyama. Variational Inference based on Robust Divergences. In Artificial Intelligence and Statistics, 2018. (AISTATS 2018)
9. **F. Futami,** I. Sato, & M. Sugiyama. Expectation Propagation for t-exponential family using q-Algebra. In Neural Information Processing Systems, 2017. (NeurIPS 2017)

Journal paper

1. **F. Futami**, T. Iwata, N. Ueda, & I. Sato. Accelerated Diffusion-Based Sampling by the Non-Reversible Dynamics with Skew-Symmetric Matrices, Entropy, 23(8), 2021. ISSN1099-4300.

Unpublished paper

1. H. Imamura, N. Charoenphakdee, **F. Futami**, I. Sato, J. Honda, & M. Sugiyama. Time-varying Gaussian Process Bandit Optimization with Non-constant Evaluation Time (https://arxiv.org/abs/2003.04691)
2. **F. Futami**, & T. Iwata Information-theoretic Analysis of Test Data Sensitivity in Uncertainty. (https://arxiv.org/abs/2307.12456)
3. **F. Futami,** T. Iwata, N. Ueda, I. Sato, & M. Sugiyama. Excess risk analysis for epistemic uncertainty with application to variational inference. (https://arxiv.org/abs/2206.01606)

Workshops/Technical Reports

1. **F. Futami**, I. Sato, & M. Sugiyama — Dec. 8, 2017
   Variational Inference based on Robust Divergences
   Advances in Approximate Bayesian Inference, NIPS 2017 Workshop
2. **F. Futami**, I. Sato, & M. Sugiyama — Jun. 23, 2017
   Expectation Propagation for t-exponential family using q-Algebra
   IEICE Technical Report, IBISML, Okinawa

Talks

1. The 25th Information-Based Induction Science Workshop (IBIS2022), Tsukuba. — Nov. 20, 2022
2. NeurIPS meetup Japan 2021, Online — Dec. 13, 2021
3. The 24th Information-Based Induction Science Workshop (IBIS2021), Online — Nov. 10, 2021
4. The 23th Information-Based Induction Science Workshop (IBIS2020), Online — Oct. 25, 2020
5. Invited talk at NTT communication science laboratories, Kyoto — Apr. 5, 2019
6. AAAI-19, spotlight talk, search & constrained optimization, Hawaii — Jan. 31, 2019
7. Second International Workshop on Symbolic-Neural Learning, Nagoya — July. 5, 2018
8. Toshiba R&D Center, Media AI Department, Kanagawa. — Jan. 12, 2018
9. Graph-mining & WEB & AI seminar, National Institute of Informatics, Tokyo — Jan. 11, 2018
10. ERATO Winter Festa Episode 3, Tokyo, Japan — Dec. 25-26, 2017
11. Advances in Approximate Bayesian Inference, NIPS 2017 Workshop — Dec. 8, 2017
12. The 20th Information-Based Induction Science Workshop (IBIS2017), Tokyo. — Nov. 8, 2017

Teaching

1. Statistics C-2 (Basics of statistics for undergraduate school students), Osaka University — 2022-
2. Statistics C-1 (Basics of statistics for undergraduate school students), Osaka University — 2023-
3. Invited lecture at RIKEN, Advanced Intelligence Project — 2017, 2018
   Basics of machine learning
4. Teaching assistant, the University of Tokyo — 2013
   Advanced course of statistical physics

Funding

1. Precursory Research for Embryonic Science and Technology by Japan Science and Technology Agency (25,000,000 Yen/169000 USD) — 2023-2026

2. Grant-in-Aid for Early-Career Scientists by Japan Society for the Promotion of Science (4,550,000 Yen/31000 USD) 2023-2026
3. ACT-X: A research funding for excellent young researchers sponsored by Japan Science and Technology Agency (42000 USD) 2019
4. Google PhD Fellowship (10000USD) 2018
5. AIP Prism Program : A research funding for excellent young researchers sponsored by Japan Science and Technology Agency (23000 USD) 2018
6. TOYOTA and DWANGO scholarship 2018 (12000 USD) 2018
7. TOYOTA and DWANGO scholarship 2017 (12000 USD) 2017
8. AIP Challenge Program : A research funding for excellent young researchers sponsored by JST (10000 USD) 2017
9. NIPS travel award (1000 USD) 2017
10. Workshop Travel award, Advances in Approximate Bayesian Inference (AABI) NIPS2017 (500 USD) 2017

Professional Service

Conference reviewing

1. International Conference on Learning Representations 2024, 2023,2022,2021,2020,2019,2018
2. Artificial Intelligence and Statistics 2024,2023,2022,2021
3. Neural Information Processing Systems 2023,2022,2021,2020,2019,2018
4. International Conference on Machine Learning 2023,2021,2020,2019
5. Advances in Approximate Bayesian Inference (AABI) 2021,2020,2018
6. Asian Conference on Machine Learning 2023,2022
7. Association for the Advancement of Artificial Intelligence 2020,2018

Journal reviewing

1. Machine Learning 2018-
2. Transactions on Machine Learning Research 2022-
3. Information Geometry 2023-