

Sotetsu Koyamada

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INTERESTS

I am interested in developing machine learning solutions for familiar problems to us by utilizing both of the engineering approach and scientific method. As a research topic, my primary interest is reinforcement learning, and I am particularly interested in both theoretical and practical interface between its algorithms and other fields of machine learning. I am also interested in neural networks and natural language processing as well.

EDUCATION

Ph.D. candidate of Informatics

Apr 2015 - Present

Kyoto University

Advisor: Shin Ishii

Master of Informatics

Apr 2013 - Mar 2015

Kyoto University

Advisor: Shin Ishii

Thesis title: “Principal Sensitivity Analysis and Its Application to Knowledge Discovery in Functional Neuroimaging”

Bachelor of Economics

Apr 2008 - Mar 2013

Kyoto University

Advisor: Masaaki Iiyama

PROFESSIONAL EXPERIENCE

Research intern

Apr 2018 - Present

Microsoft Research Asia, Beijing, China

Engaged in developing a super human AI on a popular imperfect information game with large state space. The roles include investigating a novel reinforcement learning algorithm, developing server-side system and introducing the domain knowledge of the game to the other team members.

Research assistant

Aug 2016 - Mar 2018

National Institute of Advanced Industrial Science and Technology, Tokyo, Japan

Developed a new training objective function for neural sequence prediction, which uses α -divergence to theoretically bridge the gap between maximum likelihood-based methods and reinforcement learning.

Machine learning engineer

Apr 2015 - Mar 2018

Recruit Holdings Co., Ltd., Tokyo, Japan

Constructed predictive APIs on Hadoop and Spark platform to improve KPI (key performance indicator) performances for more than 30 web services.

Research assistant

Oct 2013 - Mar 2015

ATR Cognitive Mechanisms Laboratories, Kyoto, Japan

Developed a subject-independent brain decoder using neural networks and proposed a new algorithm for data-driven scientific discovery from nonlinear classifiers.

RESEARCH

Books

- **S. Koyamada** et al.: Japanese translation of “Algorithms for Reinforcement Learning” by C. Szepesvári, Kyoritsu Shuppan.
 - Chief editor. Managed the entire project ran by 12 team members.
 - Wrote an additional chapter about deep reinforcement learning.

Publications (refereed)

- **S. Koyamada**, Y. Kikuchi, A. Kanemura, S. Maeda, and S. Ishii: “Neural sequence model training via α -divergence minimization.” ICML Workshop on Learning to Generate Natural Language, 2017.
- **S. Koyamada**, M. Koyama, K. Nakae, and S. Ishii: “Principal sensitivity analysis.” In Proceedings of the Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD), 621-632, 2015.
- **S. Koyamada**, Y. Shikauchi, K. Nakae, and S. Ishii: “Construction of subject independent brain decoders for human fMRI with deep learning.” The International Conference on Data Mining, Internet Computing, and Big Data, 60-68, 2014.

Pre-prints (not refereed)

- **S. Koyamada**, Y. Shikauchi, K. Nakae, M. Koyama, S. Ishii “Deep learning of fMRI big data: a novel approach to subject-transfer decoding.” arXiv:1502.00093, 2015.

Other presentations (not refereed)

- **S. Koyamada**: “Principal Sensitivity Analysis.” Machine Learning Summer School 2015 Kyoto, Kyoto, Sep 1, 2015 (poster presentation)
- **S. Koyamada**, Y. Shikauchi, K. Nakae, M. Koyama, and S. Ishii: “Knowledge Discovery for Nonlinear Classifier in Functional Neuroimaging.” 10th AEARU Workshop on Computer Science and Web Technology, Tsukuba, Feb 26, 2015 (poster presentation)
- **S. Koyamada**, Y. Shikauchi, K. Nakae, and S. Ishii: “Learning the subject-independent discriminative features from the large-scale fMRI database.” Neuro2014, Yokohama, Sep 13, 2014 (poster presentation)

GRANTS AND SCHOLARSHIPS	Student Scholarship Japan Student Services Organization (JASSO), Japan Approx. 1,056,000 JPY	<u>Apr 2013 - Mar 2015</u>
	Student Scholarship Tobitate! Study Abroad Initiative, Japan Approx. 870,000 JPY	<u>Apr 2018 -Sep 2018</u>
TEACHING	Teaching assistant Lecture sessions on deep learning, Kyoto University, Japan	<u>Jul 23, 2014</u>
	Teaching assistant “Introduction to Computer Science.” Kyoto University, Japan	<u>Oct 2013 - Mar 2014</u>

SKILLS

Programming skills

- Programming language: Python, Go, C#, C++, Java, R
 - GitHub repo: <https://github.com/sotetsuk>
- Deep learning framework: PyTorch, Chainer, TensorFlow
- Middleware/Infrastructure: Docker, AWS, GCP, RDBMS, Hadoop, Spark
- Others: Git, SQL, LaTeX

Language

Japanese (native), English