

AKIFUMI OKUNO

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I am an assistant professor at the school of statistical thinking, the institute of statistical mathematics, Tokyo, Japan. I am also a visiting scientist of mathematical statistics team, RIKEN center for Advanced Intelligence Project (AIP). I received a Doctor of Informatics degree from Kyoto University.

PUBLICATIONS

Journal paper (refereed)

1. [Akifumi Okuno](#) and Hidetoshi Shimodaira. “Hyperlink Regression via Bregman Divergence.” **Neural Networks**, 126:362-383, 2020.
▷ <https://arxiv.org/abs/1908.02573>

Conference papers (refereed)

6. [Akifumi Okuno](#) and Hidetoshi Shimodaira. “Extrapolation Towards Imaginary 0-Nearest Neighbour and Its Improved Convergence Rate.” *accepted to NeurIPS* 2020.
▷ <https://arxiv.org/abs/2002.03054>
5. Geewook Kim, [Akifumi Okuno](#), Kazuki Fukui, and Hidetoshi Shimodaira. “Representation Learning with Weighted Inner Product for Universal Approximation of General Similarities.” International Joint Conference on Artificial Intelligence (**IJCAI**) 2019.
▷ <https://www.ijcai.org/proceedings/2019/699>
4. [Akifumi Okuno](#) and Hidetoshi Shimodaira. “Robust Graph Embedding with Noisy Link Weights.” International Conference on Artificial Intelligence and Statistics (**AISTATS**) 2019. PMLR 89:664-673.
▷ <http://proceedings.mlr.press/v89/okuno19b.html>
3. [Akifumi Okuno](#), Geewook Kim, and Hidetoshi Shimodaira. “Graph Embedding with Shifted Inner Product Similarity and Its Improved Approximation Capability.” International Conference on Artificial Intelligence and Statistics (**AISTATS**) 2019. PMLR 89:644-653.
▷ <http://proceedings.mlr.press/v89/okuno19a.html>
2. [Akifumi Okuno](#), Tetsuya Hada, and Hidetoshi Shimodaira. “A probabilistic framework for multi-view feature learning with many-to-many associations via neural networks.” International Conference on Machine Learning (**ICML**) 2018. PMLR 80:3888-3897.
▷ <http://proceedings.mlr.press/v80/okuno18a.html>
1. Kazuki Fukui, [Akifumi Okuno](#), and Hidetoshi Shimodaira. “Image and tag retrieval by leveraging image-group links with multi-domain graph embedding.” International Conference on Image Processing (**ICIP**) 2016.
▷ <http://ieeexplore.ieee.org/document/7532351/>

Workshop paper (refereed)

1. [Akifumi Okuno](#) and Hidetoshi Shimodaira. “On representation power of neural network-based graph embedding and beyond.” **ICML** 2018 TADGM Workshop. 8 pages + Supplement. (Okuno et al., (AISTATS2019) is based on this workshop paper)
▷ <https://sites.google.com/view/tadgm/accepted-papers>

PREPRINT

2. [Akifumi Okuno](#) and Keisuke Yano. “Dependence of variance on covariate design in nonparametric link regression” 24 pages. *submitted*.
▷ <https://arxiv.org/abs/2012.13106>

1. Morihito Mizutani, [Akifumi Okuno](#), Geewook Kim and Hidetoshi Shimodaira. “Stochastic Neighbor Embedding of Multimodal Relational Data for Image-Text Simultaneous Visualization” 20 pages. *submitted*.
▷ <https://arxiv.org/abs/2005.00670>

INVITED TALKS

3. [Akifumi Okuno](#). Bregman Hyperlink Regression and Its Expressive Power (in English, Oral), at *ACML 2019 Workshop on Statistics and Machine Learning Researchers in Japan*, Nagoya, Japan. Nov., 2019.
2. [Akifumi Okuno](#). Graph Embedding with Shifted Inner Product Similarity and Its Improved Approximation Capability (in English, Oral), at *the Workshop on Functional Inference and Machine Intelligence*, Tokyo, Japan. Mar., 2019.
1. [Akifumi Okuno](#). A probabilistic model for graph embedding and its properties (in Japanese, Oral), at *RIMS Workshop*, Kyoto, Japan. Nov., 2018.

Other presentations are listed in <https://okuno.net/>

EDUCATION

Kyoto University

Doctor of Informatics, from the Graduate School of Informatics

September 2020

Supervisor: Prof. Hidetoshi SHIMODAIRA

Thesis: “Studies on Neural Network-Based Graph Embedding and Its Extensions”

Osaka University

Master of Engineering, from the Graduate School of Engineering Science

March 2016

Supervisor: Prof. Hidetoshi SHIMODAIRA

Thesis: “Iteratively Reweighted-Graph Embedding”

graduated at the top of the list of the division of mathematical science

Osaka University

Bachelor of Engineering, in Mathematical Science, Engineering Science Department

March 2014

Supervisor: Prof. Hidetoshi SHIMODAIRA

Thesis: “Robust information criterion and its application”

graduated at the top of the list of mathematical science course

LANGUAGE

Japanese Native

English Intermediate

OVERSEAS EXPERIENCE

UC Berkeley, California, USA

October 2016 - November 2016

Research visiting at Prof. Bin Yu’s Lab. (as a visitor)

The stay was funded by the Center for Mathematical Modeling and Data Science, Osaka University

Ohio State University, Ohio, USA

February 2016 - May 2016

Research visitig at Prof. Mikhail Belkin’s Lab. (as a visitor)

The stay was funded by the Center for Mathematical Modeling and Data Science, Osaka University

WORKING EXPERIENCE

The Institute of Statistical Mathematics

Oct. 2020 - (Present)

Assistant Professor at the School of Statistical Thinking

RIKEN Center for Advanced Intelligence Project (AIP)

Feb. 2017 - (Present)

as a Part-timer: Feb. 2017 - Mar. 2017 and Apr. 2018 - Mar. 2019

as a Trainee: May 2017 - Mar. 2018

as a *Technical Staff I*: Apr. 2019 - Sep. 2020

as a *Visiting Scientist*: Oct. 2020 - (Present)

working at Mathematical Statistics team (PI: Prof. Hidetoshi SHIMODAIRA)

Japan Society for the Promotion of Science (JSPS) Apr. 2017 - Mar. 2019
Research Fellow (DC2)

Graduate School of Engineering Science, Osaka University Aug. 2016 - Feb. 2017
 Σ -Research Assistant

Osaka University Library Apr. 2014 - Feb. 2017
Library Teaching Assistant of Statistics and Mathematics

Osaka University Oct. 2015 - Feb. 2016
Tutor of a Taiwanese shot-term exchange student

Engineering Science Department, Osaka University Apr. 2014 - Aug. 2015
Teaching Assistant

Apr. 2015 - Aug. 2015: Problem Based Learning (Prof. Kei HIROSE), Oct. 2014 - Feb. 2015: Statistics B-II (Prof. Fuyuhiko TANAKA), Apr. 2014 - Aug. 2014: Complex Analysis (Prof. Fuyuhiko TANAKA).

AWARDS

Excellent Presentation Award from IBISML2019 *Nov. 2019*

Excellent Research Award from ICT-13 (held in Kyoto U.) *Feb. 2019*

Excellent Presentation Award from JAPAN STATISTICAL SOCIETY *Mar. 2017*

Full Repayment Exemption of JASSO Type I scholarship for Students with Excellent Grades from JAPAN STUDENT SERVICES ORGANIZATION (JASSO) *May 2016*

Graduate School of Engineering Science Award from OSAKA UNIVERSITY *Mar. 2016*

Engineering Science Department Award from OSAKA UNIVERSITY *Mar. 2014*

Kimura Award from RITSUMEIKAN ACADEMY *Mar. 2010*

MISC.

Reviewer of AISTATS2019, ICML2019, ACML2019, AAAI2020, AISTATS2020, ICML2020, BMVC2020, ACML2020, NeurIPS2020, AISTATS2021, JJSD, Machine Learning, and Neural Networks.