Naoto Ohsaka

Personal and Contact Information

E-mail:	naoto.ohsaka@gmail.com
Webpage:	https://todo314.github.io/
Google Scholar author ID	https://scholar.google.co.jp/citations?user=Qgkc9DgAAAAJ
ORCID	https://orcid.org/0000-0001-9584-4764
DBLP	https://dblp.org/pid/81/10779.html

Education

March 2018	**Doctor of Information Science and Technology**
	Graduate School of Information Science and Technology, the University of Tokyo, Japan
	Title: Efficient and Effective Identification of Influential Vertices in Social Networks
March 2015	**Master of Information Science and Technology**
	Graduate School of Information Science and Technology, the University of Tokyo, Japan
	Title: Estimating and Maximizing the Spread of Influence in Social Networks: Pruned Monte-Carlo Simulations and Fully-Dynamic Indices
March 2013	**Bachelor of Engineering**
	Department of Computer Science, the University of Electro-Communications, Japan
	Title: Study on Improving the Performance of a Streaming Algorithm for the k-means Problem

Professional Experience

April 2013–March 2016	Research assistant of the Complex Network and Map Graph Group, JST, ERATO, Kawarabayashi Large Graph Project
April 2016–March 2018	Research Fellowship for Young Scientists (DC2)
April 2018–Present	NEC

Publications

1. A Reinforcement Learning Method to Improve the Sweeping Efficiency for an Agent.
   Naoto Ohsaka, Daisuke Kitakoshi, and Masato Suzuki.
   *Proceedings of the 2011 IEEE International Conference on Granular Computing (**GrC**)*, pp. 515–520, 2011.
   doi.org/10.1109/GRC.2011.6122650
2. Fast and Accurate Influence Maximization on Large Networks with Pruned Monte-Carlo Simulations.
   Naoto Ohsaka, Takuya Akiba, Yuichi Yoshida, and Ken-ichi Kawarabayashi.

*Proceedings of the 28th AAAI Conference on Artificial Intelligence (**AAAI**)*, pp. 138–144, 2014.

http://www.aaai.org/ocs/index.php/AAAI/AAAI14/paper/view/8455

3. Efficient PageRank Tracking in Evolving Networks.

   Naoto Ohsaka, Takanori Maehara, and Ken-ichi Kawarabayashi.

   *Proceedings of the 21st ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (**KDD**)*, pp. 875–884, 2015.

   doi.org/10.1145/2783258.2783297

4. Monotone *k*-Submodular Function Maximization with Size Constraints.

   Naoto Ohsaka and Yuichi Yoshida.

   *Proceedings of the 29th Annual Conference on Neural Information Processing Systems (**NIPS**)*, pp. 694–702, 2015.

   http://papers.nips.cc/paper/5709-monotone-k-submodular-function-maximization-with-size-constraints

5. Dynamic Influence Analysis in Evolving Networks.

   Naoto Ohsaka, Takuya Akiba, Yuichi Yoshida, and Ken-ichi Kawarabayashi.

   *Proceedings of the VLDB Endowment, (**PVLDB**)*, 9(12), pp. 1077–1088, 2016.

   http://www.vldb.org/pvldb/vol9/p1077-ohsaka.pdf

6. Maximizing Time-Decaying Influence in Social Networks.

   Naoto Ohsaka, Yutaro Yamaguchi, Naonori Kakimura, and Ken-ichi Kawarabayashi.

   *Proceedings of the 15th European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (**ECML PKDD**)*, pp. 132–147, 2016.

   doi.org/10.1007/978-3-319-46128-1_9

7. Portfolio Optimization for Influence Spread.

   Naoto Ohsaka and Yuichi Yoshida.

   *Proceedings of the 26th International Conference on World Wide Web (**WWW**)*, pp. 977–985, 2017.

   doi.org/10.1145/3038912.3052628

8. Coarsening Massive Influence Networks for Scalable Diffusion Analysis.

   Naoto Ohsaka, Tomohiro Sonobe, Sumio Fujita, and Ken-ichi Kawarabayashi.

   *Proceedings of the 2017 ACM SIGMOD International Conference on Management of Data (**SIGMOD**)*, pp. 635–650, 2017.

   doi.org/10.1145/3035918.3064045

9. Yoichi Iwata, Tomoaki Ogasawara, and Naoto Ohsaka. On the Power of Tree-Depth for Fully Polynomial FPT Algorithms.

   *Proceedings of the 35th International Symposium on Theoretical Aspects of Computer Science (**STACS**)*, pp. 41:1–41:14, 2018.

   doi.org/10.4230/LIPIcs.STACS.2018.41

10. NoSingles: A Space-Efficient Algorithm for Influence Maximization.

    Diana Popova, Naoto Ohsaka, Ken-ichi Kawarabayashi, and Alex Thomo.

    *Proceedings of the 30th International Conference on Scientific and Statistical Database Management (**SSDBM**)*, pp.

18:1–18:12, 2018.

doi.org/10.1145/3221269.3221291

11. Boosting PageRank Scores by Optimizing Internal Link Structure.

    Naoto Ohsaka, Tomohiro Sonobe, Naonori Kakimura, Takuro Fukunaga, Sumio Fujita, and Ken-ichi Kawarabayashi.

    *Proceedings of the 29th International Conference on Database and Expert Systems Applications (**DEXA**)*, pp. 424–439, 2018.

    doi.org/10.1007/978-3-319-98809-2_26

12. A Predictive Optimization Framework for Hierarchical Demand Matching.

    Naoto Ohsaka, Tomoya Sakai, and Akihiro Yabe.

    *Proceedings of the 2020 SIAM International Conference on Data Mining (**SDM**)*, pp. 172–180, 2020.

    doi.org/10.1137/1.9781611976236.20

13. The Solution Distribution of Influence Maximization: A High-level Experimental Study on Three Algorithmic Approaches.

    Naoto Ohsaka.

    *Proceedings of the 2020 ACM SIGMOD International Conference on Management of Data (**SIGMOD**)*, pp. 2151–2166, 2020.

    doi.org/10.1145/3318464.3380564

14. On the (In)tractability of Computing Normalizing Constants for the Product of Determinantal Point Processes.

    Naoto Ohsaka and Tatsuya Matsuoka.

    *Proceedings of the 37th International Conference on Machine Learning (**ICML**)*, pp. 7414–7423, 2020.

    http://proceedings.mlr.press/v119/ohsaka20a.html

15. Predictive Optimization with Zero-Shot Domain Adaptation.

    Tomoya Sakai and Naoto Ohsaka.

    *Proceedings of the 2021 SIAM International Conference on Data Mining (**SDM**)*, pp. 369–377, 2021.

    doi.org/10.1137/1.9781611976700.42

16. Unconstrained MAP Inference, Exponentiated Determinantal Point Processes, and Exponential Inapproximability.

    Naoto Ohsaka.

    *Proceedings of the 24th International Conference on Artificial Intelligence and Statistics (**AISTATS**)*, pp. 154–162, 2021.

    http://proceedings.mlr.press/v130/ohsaka21a.html

17. Tracking Regret Bounds for Online Submodular Optimization

    Tatsuya Matsuoka, Shinji Ito, and Naoto Ohsaka.

    *Proceedings of the 24th International Conference on Artificial Intelligence and Statistics (**AISTATS**)*, pp. 3421–3429, 2021.

    http://proceedings.mlr.press/v130/matsuoka21a.html

18. Spanning Tree Constrained Determinantal Point Processes are Hard to (Approximately) Evaluate.
    Tatsuya Matsuoka and Naoto Ohsaka.
    Operations Research Letters, 49(3), pp. 304–309, 2021.
    doi.org/10.1016/j.orl.2021.02.004
19. A Fully Polynomial Parameterized Algorithm for Counting the Number of Reachable Vertices in a Digraph.
    Naoto Ohsaka.
    Information Processing Letters, 171, pp. 106137, 2021.
    doi.org/10.1016/j.ipl.2021.106137
20. Approximation Algorithm for Submodular Maximization under Submodular Cover.
    Naoto Ohsaka and Tatsuya Matsuoka.
    *Proceedings of the 37th Conference on Uncertainty in Artificial Intelligence (**UAI**)*, 2021, to appear.

Presentations

November 2011	Oral presentation of Publication 1 in Kaohsiung, Taiwan
July 2014	Oral and poster presentation of Publication 2 in Québec, Canada
August 2015	Oral and poster presentation of Publication 3 in Sydney, Australia
December 2015	Poster presentation of Publication 4 in Montréal, Canada
September 2016	Oral and poster presentation of Publication 5 in New Delhi, India
September 2016	Oral and poster presentation of Publication 6 in Riva del Garda, Italy
April 2017	Oral presentation of Publication 7 in Perth, Australia
May 2017	Oral and poster presentation of Publication 8 in Chicago, USA
September 2018	Oral presentation of Publication 11 in Regensburg, Germany
June 2020	Online video presentation of Publication 13
July 2020	Online video presentation of Publication 14
April 2021	Online video presentation of Publication 16
July 2021	Online presentation of Publication 20

Awards and Honors

November 2012	3rd Place (with Izuru Matsuura and Masafumi Yabu), ACM International Collegiate Programming Contest Asia Regional Contest 2012 in Tokyo, Tokyo, Japan
July 2013	14th Place (with Izuru Matsuura and Masafumi Yabu), ACM International Collegiate Programming Contest World Finals 2013, St. Petersburg, Russia

Referee

1. Conference referee: AAAI'16 (subreviewer), NeurIPS'19, ICML'20, NeurIPS'20, AAAI'21, AISTATS'21, ICML'21

2. Journal reviewer: IEICE Transactions on Information and Systems (2015, 2018), IEEE Access (2019), PLOS ONE (2020), The VLDB Journal (2021)

Skills

Programming languages (C/C++, Java, Ruby, Python)