Cheng Tang

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RESEARCH SHORT RECAP

During my PhD years, I spent most of my efforts on advancing the theoretical understanding of a popular clustering heuristic, k-means method. At Amazon, I applied the family of transformer models to product-inspired problems in natural language processing and information retrieval.

EMPLOYMENT

Applied Scientist, New York, NY USA

AI Labs, Amazon Web Services, Jul. 2018 - Jan. 2021
Managers: Bing Xiang & Andrew Arnold

Research Intern, Cambridge, UK

Machine Intelligence group, Microsoft Research, Jun. 2017 - Aug. 2017
Mentors: Alex Gaunt & Ryota Tomioka, Jul., 2017 - Sep., 2017

- Project: Explored the application of a neural-logical model to the problem of understanding the hidden rules that govern the gene expression process.

Research Visitor, Tüebingen, Germany

Theory of Machine Learning group, University of Tüebingen, Germany, Mar. 2017 - Jun. 2017
Mentor: Ulrike von Luxburg, Mar., 2017 - Jun., 2017

- Project: Theoretical exploration of the role of sub-sampling in random forests

EDUCATION

The George Washington University, Washington, DC USA

Ph.D., Computer Science, May 2018

- Advisor: Claire Monteleoni

B.S., Mathematics, *Magna Cum Laude,* GPA 3.77/4.0, May 2012

ARXIV'D

C. Tang, "On the tightness of linear relaxation based robustness certification methods", 2022.

C. Tang, Andrew Arnold, "Neural document expansion for ad-hoc information retrieval", 2020.

CONFERENCE PROCEEDINGS

C. Tang, "Exponentially convergent stochastic k-PCA without variance reduction", Accepted at NeurIPS (**oral**, acceptance rate 0.5%), 2019.

C. Tang, D. Garreau, U. von Luxburg, "When do random forests fail?", Proceedings of 32nd Conference on Neural Information Processing Systems (NeurIPS), 2018.

C. Tang and C. Monteleoni, "Convergence rate of stochastic k-means", Proceedings of the 20th International Conference on Artificial Intelligence and Statistics (AISTATS), 2017.

C. Tang and C. Monteleoni, "On Lloyd's algorithm: new theoretical insights for clustering in practice," Proceedings of the 19th International Conference on Artificial Intelligence and Statistics (AISTATS), pp. 1280-1289, 2016.

Academic reviewing experience	AISTATS (2017, 2019, 2020, 2021), ICML (2015, 2018, 2019, 2020), NeurIPS (2016, 2017, 2018), ICLR (2017, 2019, 2020, 2021), AAAI (2019, 2020, 2021), TPAMI (2019, 2020)
Selected honors and awards	Engineer Alumni Association Scholarship, SEAS, GWU, 2015 - 2016
	Louis P. Wagman Endowment Fellowship, GWU, 2013
	Presidential Academic Scholarship, GWU, 2008 - 2012
	Ranked 165/230,000, National College Entrance Exam (admitted to Fudan University), Sichuan province, China, 2008.
Academic Teaching Experience	Discrete Structures II, Graduate Teaching Assistant, Department of Computer Science, GWU, Fall, 2016
	Machine Learning, Undergraduate Teaching Assistant, Department of Computer Science, GWU, Spring 2012
	Math and Politics, Undergraduate Teaching Assistant, Department of Mathematics, GWU, Fall, 2011
Computer Languages	Python (including deep-learning frameworks such as TensorFlow/PyTorch/MXNet), MATLAB, Unix/Linux