

Julia Balla

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EDUCATION	Massachusetts Institute of Technology Ph.D. in Electrical Engineering and Computer Science Advisors: Tess Smidt and Tommi Jaakkola	Sep 2023 – Present
	University of Oxford, Exeter College M.Sc. in Advanced Computer Science Advisor: Michael Bronstein Thesis: Graph-Informed Symbolic Regression	Oct 2022 – Aug 2023
	Massachusetts Institute of Technology B.Sc. in Mathematics with Computer Science, Minor in Economics	Sep 2018 – May 2022
SCHOLARSHIPS & AWARDS	Robert M. (1941) and Jacqueline M. Fano Fellowship	2023 – 2024
	DeepMind Scholarship	2022 – 2023
PUBLICATIONS & PREPRINTS	Balla, J. , Huang, S., Dugan, O., Dangovski, R., Soljagic, M. (2023). AI-Assisted Discovery of Quantitative and Formal Models in Social Science. <i>arXiv:2210.0056</i> . <i>In review</i> .	
	Vepakomma, P., Balla, J. , Raskar, R. (2022). PrivateMail: Supervised Manifold Learning of Deep Features with Privacy for Image Retrieval. <i>Proceedings of the AAAI Conference on Artificial Intelligence</i> , 36(8), 8503-8511. Oral presentation at AAAI-22	
	Vepakomma, P., Balla, J. , Raskar, R. (2020). Splintering with distributions: A stochastic decoy scheme for private computation. <i>arXiv:2007.02719</i>	
RESEARCH EXPERIENCE	Harvard Medical School Supervisor: Marinka Zitnik Combining symbolic regression with graph neural networks for the discovery of fundamental drug interaction laws.	Jun 2022 – Sep 2022
	Institute for AI and Fundamental Interactions, MIT Supervisor: Marin Soljačić Designed a neural symbolic regression system for the discovery of universal laws in social science and dynamical systems.	Jun 2021 – Aug 2022
	London Geometry and Machine Learning Summer School Supervisor: Francesco di Giovanni Surveyed techniques for graph-rewiring in graph neural networks from a geometric perspective.	Jul 2022
	MIT Computer Science and Artificial Intelligence Lab Supervisors: Octavian Ganea and Tommi Jaakkola Explored computationally tractable methods to learn Riemannian manifolds as geometric priors for graph representation learning.	Feb 2021 – May 2021
	MIT Media Lab Supervisors: Praneeth Vepakomma and Ramesh Raskar Developed algorithms for privacy-preserving machine learning with applications in distributed learning and private image retrieval.	Feb 2020 – May 2021

INDUSTRY EXPERIENCE	Wellington Management	Jun 2021 – Aug 2021
	<i>Data Science Intern</i> Designed a text classification algorithm to identify job postings indicating company growth.	Boston, MA
	Meta	Jun 2020 – Aug 2020
	<i>Data Engineering Intern</i> Created a data pipeline and dashboard for sentiment analysis of Messenger app reviews using Presto and HiveQL.	New York, NY
	Predata	Jun 2019 – Aug 2019
	<i>Data Visualization Intern</i> Developed a web app using ReactJS and Django for predicting geopolitical risk by visualizing page activity for geotagged Wikipedia pages on a 3D map.	New York, NY
	R3	Jan 2019 – Feb 2019
	<i>Research and Education Intern</i> Analyzed challenges within the automotive, aerospace, and agriculture industries caused by Brexit and mapped them to potential blockchain solutions.	New York, NY
TEACHING	MIT High School Studies Program	Jul 2022 – Aug 2022
	<i>Instructor</i> C15061: The Mathematics of Multi-Agent Systems	
	MIT Splash	Nov 2020
	<i>Instructor</i> C14311: Minecraft Fires, Social Networks, and Quantum Complexity	
OUTREACH	MIT EECS Graduate Application Assistance Program	Oct 2023 – Present
	<i>Mentor</i>	
	MIT Undergraduate Society of Women in Math	Feb 2022 – May 2022
	<i>Mentor</i>	
REVIEWING	NeurIPS AI4Science Workshop 2023	
SKILLS	Software: Python (PyTorch), R, Julia, SQL (Postgres)	
	Miscellaneous: Fluent in Russian	