

Julia Balla

juliaballa.com | julia.balla@exeter.ox.ac.uk

EDUCATION	University of Oxford, Exeter College M.S. in Advanced Computer Science <i>DeepMind Scholar</i>	Oct 2022 – Sep 2023
	Massachusetts Institute of Technology B.S. in Mathematics with Computer Science Minor in Economics	Sep 2018 – May 2022
PUBLICATIONS & PREPRINTS	Balla, J. , Huang, S., Dugan, O., Dangovski, R., Soljagic, M. (2022). AI-Assisted Discovery of Quantitative and Formal Models in Social Science. <i>arXiv:2210.00563</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 <i>Advisor: Professor Marinka Zitnik</i> Combining symbolic regression with graph neural networks for the discovery of fundamental drug interaction laws.	Jun 2022 – Present
	Institute for AI and Fundamental Interactions, MIT <i>Advisor: Professor Marin Soljačić</i> Designing a neural symbolic regression system for the discovery of universal laws in social science and dynamical systems.	Jun 2021 – Present
	London Geometry and Machine Learning Summer School <i>Advisor: Dr. Francesco di Giovanni</i> Surveyed techniques for graph-rewiring in graph neural networks from a geometric perspective.	Jul 2022
	MIT Computer Science and Artificial Intelligence Lab <i>Advisors: Dr. Octavian Ganea and Professor Tommi Jaakkola</i> Explored computationally tractable methods to learn Riemannian manifolds as geometric priors for graph representation learning.	Feb 2021 – May 2021
	MIT Media Lab <i>Advisor: Professor Ramesh Raskar</i> Developed algorithms for privacy-preserving machine learning with applications in distributed learning and private image retrieval.	Feb 2020 – May 2021
	Wellington Management <i>Data Science Intern</i> Designed a text classification algorithm to identify job postings indicating company growth.	Jun 2021 – Aug 2021 Boston, MA

Facebook Jun 2020 – Aug 2020
Data Engineering Intern New York, NY
Created a data pipeline and dashboard for sentiment analysis of Messenger app reviews using Presto and HiveQL.

Predata Jun 2019 – Aug 2019
Data Visualization Intern New York, NY
Developed a web app using ReactJS and Django for predicting geopolitical risk by visualizing page activity for geotagged Wikipedia pages on a 3D map.

R3 Jan 2019 – Feb 2019
Research and Education Intern New York, NY
Analyzed challenges within the automotive, aerospace, and agriculture industries caused by Brexit and mapped them to potential blockchain solutions.

OUTREACH **MIT High School Studies Program** Jul 2022 – Aug 2022
Instructor Cambridge, MA
Designed and taught a weekly lecture series on “[The Mathematics of Multi-Agent Systems](#)” to more than 80 high schoolers.

MIT Undergraduate Society of Women in Math Feb 2022 – May 2022
Mentor Cambridge, MA
Offered guidance regarding careers, academics, and personal development to undergraduate women studying mathematics.

MIT Splash Nov 2020
Instructor Cambridge, MA
Created and taught a class on “Minecraft Fires, Social Networks, and Quantum Complexity” to more than 50 high schoolers for a weekend-long educational program.

SKILLS **Software:** Python (PyTorch), R, Julia, SQL (Postgres)
Miscellaneous: Fluent in Russian