Jiayi (Joanna) Li

CONTACT
INFORMATION

UCLA Department of Statistics
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RESEARCH
INTERESTS

I study the training and optimization process of neural networks, seeking to understand how parametrization and optimization algorithms influence the expressive power and generalization ability of artificial neural networks. On the side, I work with algebraic statistics and application of machine learning theory to economics problems.

EDUCATION

University of California Los Angeles, Los Angeles, CA
Ph.D. Statistics, 2021 - present
M.S. Statistics, 2019 - 2021
Research area: Statistical Machine Learning.

Stony Brook University, New York
B.S. Mathematics, pure Mathematics option., 2016 - 2018

VISITING
POSITIONS

Max Planck Institute, Leipzig, Germany
July 15, 2023 - September 1, 2023
Research area: Statistical Machine Learning and Algebraic Statistics.

Institute for Mathematical and Statistical Innovation, Chicago, IL
September 17, 2023 - December 15, 2023
Long Program: Algebraic Statistics and Our Changing World

HONORS AND
AWARDS

University of California Los Angeles
Summer Mentored Research Fellowship, 2022
ACM-W Scholarship, 2020
Cathay Bank Scholarship, 2020
Stony Brook University
William Lowell Putnam Competition, school team, 2017, 2018
MSRI Travel Fund, 2017

PUBLICATIONS

Journal Papers
[JP7] **Li, J.**, Li, Y., Dai, X. "*Discussion: Estimating means of bounded random variables by betting" by Waudby-Smith and Ramdas*", Journal of the Royal Statistical Society: Series B (JRSSB), 2023.
[JP6] **Li, J.** "*Computational Creativity: Bridging Art and Computer Science.*", XRDS 29, 4, pp. 5-5, 2023.
[JP5] **Li, J.** "*Looking Ahead, 2023 and Beyond.*", XRDS 29, 2, pp. 5-6, 2023.
[JP4] Guo, D., Jin, X., Shao, D., **Li, J.**, Shen, Y., Tan, H. "*Image-Based Regulation of Mobile Robots without Pose Measurements*", IEEE Control Systems Letters (L-CSS), vol. 6, pp. 2156-2161, 2022
https://doi.org/10.1109/LCSYS.2021.3139288
[JP3] ("**Highly Cited Paper**" recognized by the journal Sensors) Huang, Z., Shen, Y., **Li, J.**, Fey, M., Brecher, C. "*A Survey on AI-Driven Digital Twins in Industry 4.0: Smart Manufacturing and Advanced Robotics,*" Sensors. 2021; 21(19): 6340.
https://doi.org/10.3390/s21196340
[JP2] **Li, J.** and Wang, Y. "*An Interview with Owen McCall from TREECYCLE*".

XRDS 27, 4 (Summer 2021), pp. 42-45, 2021.
https://doi.org/10.1145/3466892
[JP1] **Li, J.** and Ahuja, K. "*Making with a Sustainable Purpose: an Interview with Matthew L. Mauriello*". XRDS 27, 4 (Summer 2021), pp. 38-41, 2021.
https://doi.org/10.1145/3466888

Workshop Posters
[WP3] Raghavan, G., **Li, J.**, and Thomson, M. "*Employing Geometry for Rescuing Neural Networks*", Southern California Machine Learning Symposium (SCMLS), San Diego, CA, 2020.
[WP2] **Li, J.**, Tseran, H., and Montúfar, G. "*Tropical Geometry for Understanding Expressivity of Neural Networks*", Frontiers in Machine Learning for the Physical Sciences, Irvine, CA, 2020.
[WP1] Shen, Y., **Li, J.**, Jung, S., Sun, J., Ma, J., and Rosen, J. "*Providing Assistance to Stroke Patients Using an Intelligent Exoskeleton Robot*", UCLA MAE-IAB Research Open House, Los Angeles, CA, 2019.

INVITED TALKS	[TK2] Westwood Village Rotary Club, Los Angeles, CA	09/07, 2023
	[TK1] Summer Institutes in Computational Social Sciences, Los Angeles, CA	06/20-06/30, 2023

EVENTS ORGANIZED	[WS1] 1st Distinguished Women in Statistics and Data Science Workshop, Los Angeles, CA	05/23, 2023

TEACHING EXPERIENCE

Instructor, Department of Statistics, University of California Los Angeles

Math Camp for Master in Applied Statistics students	Fall 21-23

Teaching Associate, MSOL*, University of California Los Angeles
*Ranked #1-2 online graduate engineering programs 2014-2023.

ENGR 200 "*Program Management Principles for Engineers and Professionals*"	
Instructors: Leslie Lackman (UCLA), Vandana Mangal (LMU)	Winter 20-23
ENGR 202 "*Reliability, Maintainability, and Supportability*"	
Instructor: Myron Hecht (The Aerospace Corporation, UCLA)	Spring 20-23
ENGR 203 "*System Architecture*"	
Instructor: Steven Silverman (UCLA)	Summer 21-23
ENGR 205 "*Model-Based System Engineering*"	
Instructor: Myron Hecht (The Aerospace Corporation, UCLA)	Fall 20-23
ENGR 116 "*Statistics for Management Decisions*"	
Instructors: Hamed Mamani (U Washington), Lara Dolecek (UCLA)	Summer 20
Alireza Mehrnia (UCLA)	Summer 23

Teaching Assistant, Department of Statistics, University of California Los Angeles

STATS 13 "*Intro to Statistical Methods for Life and Health Sciences*"	
Instructor: Guani Wu (UCLA)	Summer 21

CONFERENCES AND SEMINARS ATTENDED

[MPI MIS + UCLA†] Math Machine Learninig Seminar Series	01/01-07/24, 2023
[DLT2022] Deep Learning Theory Workshop and Summer School, Berkeley, CA	08/01-08/05, 2022
[AS2022] Algebraic Statistics Conference 2022, Honolulu, HI	05/16-05/20, 2022
[LMS2022†] LMS Invited Lecture Series 2022: The Mathematics of Deep Learning	02/28-03/04, 2022
[BIRS2021†] Banff International Research Station Workshop: Geometry & Learning from Data	10/24-10/29, 2021

	[AbstractionFall2020[†]] Conceptual Abstraction and Analogy in Natural and Artificial Intelligence, AAAI Fall Symposium Series	11/13-11/14, 2020
	[DeepMath2020[†]] Mathematical Theory of Deep Neural Network	11/05-11/06, 2020
	[UC Irvine[†]] Frontiers in Machine Learning for the Physical Sciences	10/26, 2020
	[brain-ai.jp[†]] International Symposium on AI and Brain Science	10/10-10/12, 2020
	[MDCCSA[†]] IAS Missing Data Challenges in Computation, Statistics and Applications	09/08-09/11, 2020
	[Bernoulli-IMS 2020[†]] Bernoulli-IMS One World Symposium 2020	08/24-08/28, 2020
	[Simons Institute for the Theory of Computing[†]] Probability, Geometry, and Computation in High Dimensions Boot Camp	08/19-08/28, 2020
	[CMI-HIMR 2020[†]] Clay Mathematics Institute-Heilbronn Institute for Mathematical Research Integrable Probability Summer School	07/27-07/31, 2020
	[MSML 2020[†]] Mathematical and Scientific Machine Learning	07/20-07/24, 2020
	[ICML 2020[†]] 37th International Conference on Machine Learning	07/12-07/18, 2020
	[COLT 2020[†]] 33rd International Conference on Learning Theory	07/09-07/12, 2020
	[STOC 2020[†]] Theoretical Computer Science (TCS) Workshop	06/25, 2020
	[Algebraic Statistics 2020[†]] Mini Algebraic Statistics Conference	06/22-06/26, 2020
	[MSRI[†]] Optimal Transport and Applications to ML and Statistics	05/04-05/08, 2020
	[ICLR 2020[†]] International Conference on Learning Representations	04/26-05/01, 2020
	[Simons Institute for the Theory of Computing] Foundations of Deep Learning, Berkeley, CA	05/23-08/09, 2019
	[IPAM] Geometry and Learning from Data in 3D and Beyond	03/11-06/14, 2019
	[SOCAMS 2019] Southern Calif. Applied Mathematics Symposium	04/27, 2019
	[SCMLS 2019] Southern Calif. Machine Learning Symposium	03/15, 2019

VOLUNTEERING & SERVICES	**ACM XRDS**	
	EDITOR-IN-CHIEF	2022 - present
	LEAD EDITOR	2021
	FEATURE EDITOR	2020
	UCLA STATISTICS CLUB, **Mentor**	2022 - present
	SOCIETY OF WOMEN IN STATISTICS, **co-Chair**	2022 - present

GRANTS AWARDED	**University of California Los Angeles**	
	Simons Institute for the Theory of Computing Travel Grant	2022
	Algebraic Statistics Travel Grant	2022
	WiML ICML Registration Fee Grant	2020, 2021
	WiML ICLR Registration Fee Grant	2020, 2021
	PyData LA Registration Fee Grant	2019
	Stony Brook University	
	MSRI Travel Fund	2017

PROGRAMMING LANGUAGES	Proficient: Python, R, LaTeX
	Familiar: C++, Java, MATLAB

PROFESSIONAL MEMBERSHIPS	ACM

REFERENCES	Available upon request.