Himabindu Lakkaraju

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Research Interests Transparency, Fairness, and Safety in Artificial Intelligence (AI); Applications of AI to Criminal Justice, Healthcare, Public Policy, and Education; AI for Decision-Making.

Academic & Professional Experience

Harvard University *11/2018 - Present*
Postdoctoral Fellow with appointments in Business School and Department of Computer Science

Microsoft Research, Redmond *5/2017 - 6/2017*
Visiting Researcher

Microsoft Research, Redmond *6/2016 - 9/2016*
Research Intern

University of Chicago *6/2014 - 8/2014*
Data Science for Social Good Fellow

IBM Research - India, Bangalore *7/2010 - 7/2012*
Technical Staff Member

SAP Research, Bangalore *7/2009 - 3/2010*
Visiting Researcher

Adobe Systems Pvt. Ltd., Bangalore *7/2007 - 7/2008*
Software Engineer

Education

Stanford University *9/2012 - 9/2018*
Ph.D. in Computer Science
Thesis: Enabling Machine Learning for High-Stakes Decision-Making
Advisor: Prof. Jure Leskovec
Thesis Committee: Prof. Emma Brunskill, Dr. Eric Horvitz, Prof. Jon Kleinberg, Prof. Percy Liang, Prof. Cynthia Rudin

Stanford University *9/2012 - 9/2015*
Master of Science (MS) in Computer Science
Advisor: Prof. Jure Leskovec

Indian Institute of Science (IISc) *8/2008 - 7/2010*
Master of Engineering (MEng) in Computer Science & Automation
Thesis: Exploring Topic Models for Understanding Sentiments Expressed in Customer Reviews
Advisor: Prof. Chiranjib Bhattacharyya

Selected Publications

Articles in peer-reviewed journals

[17] Human Decisions and Machine Predictions
Jon Kleinberg, **Himabindu Lakkaraju**, Jure Leskovec, Jens Ludwig, Sendhil Mullainathan
QJE - Quarterly Journal of Economics, 2018
(author names are ordered alphabetically)
Featured in MIT Technology Review, Harvard Business Review, The New York Times, and as Research Spotlight on National Bureau of Economics front page

[16] Mining Big Data to Predict Real-Life Outcomes
Michal Kosinski, Yilun Wang, **Himabindu Lakkaraju**, Jure Leskovec
Psychological Methods - 2016

Articles in peer-reviewed conference proceedings

[15] Faithful and Customizable Explanations of Black Box Models
Himabindu Lakkaraju, Ece Kamar, Rich Caruana, Jure Leskovec
AIES - AAAI/ACM Conference on Artificial Intelligence, Ethics, and Society, 2019

[14] The Selective Labels Problem: Evaluating Algorithmic Predictions in the Presence of Unobservables
Himabindu Lakkaraju, Jon Kleinberg, Jure Leskovec, Jens Ludwig, Sendhil Mullainathan
KDD - ACM SIGKDD Conference on Knowledge Discovery and Data Mining, 2017

[13] Learning Cost-Effective and Interpretable Treatment Regimes
Himabindu Lakkaraju, Cynthia Rudin
AISTATS - International Conference on Artificial Intelligence and Statistics, 2017
INFORMS Data Mining Best Paper Award - Finalist, 2017
Invited Talk at INFORMS Annual Meeting, 2017

[12] Identifying Unknown-Unknowns in the Open World: Representations and Policies for Guided Exploration
Himabindu Lakkaraju, Ece Kamar, Rich Caruana, Eric Horvitz
AAAI - AAAI International Conference on Artificial Intelligence, 2017
Featured in Bloomberg Technology

[11] Confusions over Time: An Interpretable Bayesian Model for Characterizing Trends in Decision Making
Himabindu Lakkaraju, Jure Leskovec
NIPS - Advances in Neural Information Processing Systems, 2016

[10] Interpretable Decision Sets: A Joint Framework for Description and Prediction
Himabindu Lakkaraju, Stephen Bach, Jure Leskovec
KDD - ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, 2016
Invited Talk at INFORMS Annual Meeting 2016

[9] A Machine Learning Framework to Identify Students at Risk of Adverse Academic Outcomes
Himabindu Lakkaraju, Everaldo Aguiar, Carl Shan, David Miller, Nasir Bhanpuri, Rayid Ghani, Kecia Addison
KDD - ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, 2015

[8] A Bayesian Framework for Modeling Human Evaluations
Himabindu Lakkaraju, Jure Leskovec, Jon Kleinberg, Sendhil Mullainathan
SDM - SIAM International Conference on Data Mining, 2015

[7] Who, When, and Why: A Machine Learning Approach to Prioritizing Students at Risk of not Graduating High School on Time
Everaldo Aguiar, **Himabindu Lakkaraju**, Nasir Bhanpuri, David Miller, Ben Yuhas, Kecia Addison, Shihching Liu, Marilyn Powell and Rayid Ghani
LAK - Learning Analytics and Knowledge Conference, 2015

[6] What's in a name ? Understanding the Interplay between Titles, Content, and Communities in Social Media
Himabindu Lakkaraju, Julian McAuley, Jure Leskovec
ICWSM - International AAAI Conference on Weblogs and Social Media, 2013
Featured in Time, Forbes, Phys.Org, Business Insider

[5] Dynamic Multi-Relational Chinese Restaurant Process for Analyzing Influences on Users in Social Media
Himabindu Lakkaraju, Indrajit Bhattacharya, Chiranjib Bhattacharyya
ICDM - IEEE International Conference on Data Mining, 2012

[4] Attention prediction on social media brand pages
Himabindu Lakkaraju, Jitendra Ajmera
CIKM - ACM Conference on Information and Knowledge Management, 2011

[3] Exploiting Coherence for the Simultaneous Discovery of Latent Facets and associated Sentiments
Himabindu Lakkaraju, Chiranjib Bhattacharyya, Indrajit Bhattacharya, Srujana Merugu
SDM - SIAM International Conference on Data Mining, 2011
Best Paper Award

Full list of articles at https://stanford.io/2XuAZQn

Patents

[2] Extraction and Grouping of Feature Words
Chiranjib Bhattacharyya, **Himabindu Lakkaraju**, Sunil Aravindam, Kaushik Nath
US8484228 B2

[1] Enhancing knowledge bases using rich social media
Jitendra Ajmera, Shantanu Godbole, **Himabindu Lakkaraju**, Ashish Verma, Ben Roden
US20130224714 A1

Honors & Awards

INFORMS Data Mining Best Paper Award - Finalist 2017
"Learning Cost-Effective and Interpretable Treatment Regimes"

Outstanding Reviewer Award 2017
International World Wide Web Conference (WWW)

Selected as one of the **Rising Stars in EECS** 2016

One of the 25 Ph.D. students invited to **Women in Research Lean In** 2016
with Sheryl Sandberg at Facebook HQ

Eminence and Excellence Award for outstanding contributions to research 2012
IBM Research

Research Division Award recognizing research contributions 2012
IBM Research

Best Paper Award, SIAM International Conference on Data Mining (SDM) 2011
"Exploiting Coherence for the Simultaneous Discovery of Latent Facets and associated Sentiments"

Masters Thesis awarded **Highest Grade** at Indian Institute of Science 2010

Runners-up at **Novel Web Software Contest** 2010
International World Wide Web Conference (WWW)

Honorable Mention at Yahoo HackU 2010
"Flickr based Image Recognition"

SPOT Award for outstanding product contributions 2009
Adobe Systems Pvt. Ltd.

All India Rank 32 (99.82%ile) 2008
Graduate Aptitude Test in Engineering (GATE)
Entrance examination for IISc & IITs in Computer Science & Engineering

University Rank 10, Bachelor of Engineering, Computer Science 2007
Out of 8000 students from 175 colleges

Selected Media Coverage

MIT Technology Review: How to upgrade judges with machine learning
Harvard Business Review: Solving social problems with machine learning
The New York Times: Even Imperfect Algorithms Can Improve the Criminal Justice System
Bloomberg Technology: Researchers combat gender and racial bias in AI
Forbes: How to craft the perfect Reddit posting
Time: How to succeed on Reddit
Business Insider: How to execute the perfect Reddit submission
Phys.org: Stanford Trio explore success formula for Reddit posts
International Business Times: The secret to what makes something go viral
New Scientist: Things that make a meme explode
The Verge: The math behind successful Reddit submissions
ACM TechNews: Stanford trio explore success formula for Reddit posts
Gizmodo: This equation can tell you how successful a reddit post can be
GigaOm: How to maximize your reddit upvotes, by the numbers

Selected Grants & Fellowships

Grant Writing - IARPA Contract for Hybrid Forecasting Systems	2017
Microsoft Research Dissertation Grant (US$20,000)	2017
Stanford Graduate Fellowship (tuition + US$41,700 p.a.)	2013 - 2017
Google Anita Borg Scholarship (US$10,000)	2015
Facebook Graduate Fellowship Finalist (US$500)	2013
Indian Institute of Science Graduate Scholarship (tuition + Rs.96,000 p.a.)	2008 - 2010
SAP India Research Grant (Rs.150,000)	2009 - 2010
Undergraduate Merit scholarship (Rs.3000 p.a.)	2004 - 2007

Teaching Experience

Guest Lecture, Introduction to Data Science, Stanford Law School	Spring 2016
Teaching Assistant, Stanford: Mining Massive Data Sets (CS 246)	Winter 2016
Guest Lecture, Algorithms for Submodular Optimization Stanford: Mining Massive Data Sets (CS 246)	Winter 2016
Co-instructor, Introduction to Python Programming Stanford: Girls Teaching Girls to Code (GTGTC) for High School Students	Spring 2015
Head Teaching Assistant, Stanford: Social & Information Network Analysis (CS 224W)	Autumn 2014
Head Teaching Assistant, Indian Institute of Science: Machine Learning	Autumn 2010
Co-instructor, Visvesvaraya Technological University: Object Oriented Programming	Autumn 2007
Co-instructor, Visvesvaraya Technological University: Introduction to Databases	Winter 2007
Instructor for English and Mathematics (Grades 8 - 10) UNICEF's Teach India Initiative	2008 - 2010

Invited Talks & Panel Discussions	Harvard Data Science Conference, Cambridge	2018
	South Park Commons, San Francisco	2018
	Microsoft Research, Redmond	2018
	Computer Science Department at UCSD, San Diego	2018
	Computer Science Department at University of Michigan, Ann Arbor	2018
	Computer Science Department at Brown University, Providence	2018
	Computer Science Department at UIUC, Urbana Champaign	2018
	Computer Science Department at USC, Los Angeles	2018
	Machine Learning and Computer Science Departments at Carnegie Mellon University, Pittsburgh	2018
	Computer Science Deparment at UCLA, Los Angeles	2018
	Computer Science Deparment at UCI, Irvine	2018
	Computer Science Deparment at Duke University, Durham	2018
	Computer Science Department at University of Maryland, College Park	2018
	NYU Stern School of Business, New York	2018
	Operations Research and Information Engineering Department at Cornell University, Ithaca	2018
	Industrial Engineering and Operations Research Department at Columbia University, New York	2018
	College of Computing at Georgia Tech, Atlanta	2018
	Computer Science Department at Harvard University, Cambridge	2018
	Computer Science Department at Yale University, New Haven	2018
	MIT Sloan School of Management, Cambridge	2018
	Harvard Business School, Cambridge	2018
	Operations Research and Financial Engineering Department at Princeton University, Princeton	2018
	UC Berkeley School of Public Health, San Francisco	2018
	Microsoft Research, Redmond, USA	2017
	IBM Thomas J. Watson Research Center, New York	2017
	Machine Learning Seminar at Duke University, Durham	2017
	INFORMS Annual Meeting, Houston	2017
	Keynote at ICML Workshop on Automatic Machine Learning, Sydney, Australia	2017
	Stanford Biomedical Data Science Lecture Series, Palo Alto	2017
	Stanford Data Science Retreat, Palo Alto	2017
	Workshop on Demystifying Artificial Intelligence, San Francisco	2017
	Disruptive Innovation in Law Conference, Sydney, Australia	2017
	Rising Stars Workshop, Pittsburgh	2016
	Robert Bosch Research, Palo Alto	2016
	INFORMS Annual Meeting, Nashville	2016
	Stanford Data Science Retreat, Palo Alto	2016
	Future Law: Watson and Beyond (Panel Discussion), Stanford Law School	2016
	CodeX Center, Stanford Law School, Palo Alto	2016
	KDD Workshop on Data Science for Social Good, New York	2014
	University of Chicago Computation Institute, Chicago	2014
	Stanford HCI Retreat, San Francisco	2013
	Yahoo IR Summer School, Bangalore, India	2011
	Indian Institute of Science Talk Series, Bangalore, India	2011
	Grace Hopper India Chapter, Bangalore, India	2011

Community Service	**Co-organizer:**	
	Workshop on Debugging Machine Learning Models at International Conference on Learning Representations (ICLR)	2019
	Workshop for spreading awareness about STEM fields among middle school girls	2016
	Stanford's Girls Teaching Girls To Code (GTGTC)	2015
	Women in Data Science for Social Good Group, UChicago	2014
	Grace Hopper India Conference	2011

Area Chair:

ICML - *International Conference on Machine Learning*	2019
NeurIPS - *Advances in Neural Information Processing Systems*	2019
INFORMS Annual Meeting	2019

Program Committee:

AISTATS - *International Conference on Artificial Intelligence and Statistics*	2019
AAAI - *AAAI International Conference on Artificial Intelligence*	2011, 2019
ICML - *International Conference on Machine Learning*	2018
ICLR - *International Conference on Learning Representations*	2018 - 2019
IJCAI - *International Joint Conference on Artificial Intelligence*	2018 - 2019
WWW - *International World Wide Web Conference*	2017 - 2018
NIPS - *Advances in Neural Information Processing Systems*	2016 - 2017
KDD - *ACM SIGKDD Conference on Knowledge Discovery and Data Mining*	2015 - 2017
CIKM - *ACM Conference on Information and Knowledge Management*	2011, 2017
ICML Workshop on Interpretable Machine Learning	2016 - 2017
NIPS Workshop on Interpretable Machine Learning	2016
SDM - *SIAM International Conference on Data Mining*	2015
UAI - *Conference on Uncertainty in Artificial Intelligence*	2011

Journal Reviewer:

TWEB - *ACM Transactions on the Web*	2017
PLOS ONE - *Public Library of Science ONE*	2017
EJOR - *European Journal of Operational Research*	2017
TKDD - *ACM Transactions on Knowledge Discovery from Data*	2016
TKDE - *IEEE Transactions on Knowledge and Data Engineering*	2015

Other:

Mentor, Stanford Science Penpals	2017
Member, Ph.D. Student Selection Committee, Stanford Computer Science	2016
Mentor and Sponsor, Children International	2013 - Present
Member, Stanford AI Women Group	2014 - Present