Pramod Kaushik Mudrakarta

email: pramodkaushik@google.com

http://pramodkaushik.com
https://www.linkedin.com/in/pramkaush

Employment	**Google, Sunnyvale**, USA	Nov 2019 – present

Software Engineer (full-time)

Google, Mountain View, USA   Jun – Sep 2017 & Jun – Sep 2018
Software Engineering Intern in Research, Mobile Vision
Host: Dr. Mark Sandler
Software Engineering Intern, Google Brain
Host: Dr. Ankur Taly

Amazon.com, Seattle, USA   Jun – Sep 2016
Applied Scientist Intern, Personalization
Mentor: Vijai Mohan

Max Planck Institute, Tübingen, Germany   May – Aug 2008 & 2009 – 2011
Intern, Research Assistant & Scientist
Adviser: Dr. Gunnar Rätsch (now a professor at the ETH Zürich, Switzerland)

Education   **The University of Chicago**, USA   2014 – 2019
Ph.D. in Computer Science
Adviser: Prof. Risi Kondor
Thesis: Challenges in Modern Machine Learning: Multiresolution Structure, Model Understanding and Transfer Learning

Saarland University, Germany   2012 – 2014
M.Sc. in Computer Science
Adviser: Prof. Matthias Hein (now at the University of Tübingen, Germany)
Thesis: Minimization of K-way Balanced Graph Cuts with Applications to Clustering

University of Tuebingen, Germany   2009 – 2011
Visiting Student in Bioinformatics

Indian Institute of Technology Bombay, India   2005 – 2009
B.Tech. in Computer Science and Engineering
Adviser: Prof. Sundar Vishwanathan
Thesis: Flowshop Scheduling

Peer-reviewed Publications   K For The Price Of 1: Parameter Efficient Multi-task And Transfer Learning   ICLR 2019
Pramod Kaushik Mudrakarta, Mark Sandler, Andrey Zhmoginov, and Andrew Howard
International Conference on Learning Representations 2019

Parameter-efficient Transfer and Multitask Learning   NeurIPS 2018
Pramod Kaushik Mudrakarta, Mark Sandler, Andrey Zhmoginov, and Andrew Howard
Neural Information Processing Systems 2018, Workshop on Continual Learning

Did the Model Understand the Question?   ACL 2018

Pramod Kaushik Mudrakarta, Ankur Taly, Mukund Sundararajan, and Kedar Dhamdhere
Proc. of the 56th Annual Meeting of the Assoc. for Comp. Linguistics (Volume 1: Long Papers)

Multiresolution Matrix Compression   AISTATS 2016

Nedelina Teneva, **Pramod Kaushik Mudrakarta**, and Risi Kondor
Proc. of the 19th Intl. Conf. on Artificial Intelligence and Statistics
Winner of notable student paper award (given to top 3 papers)

The pMMF Multiresolution Matrix Factorization Library   NIPS 2015

Risi Kondor, **Pramod Kaushik Mudrakarta**, and Nedelina Teneva
Neural Information Processing Systems 2015, Demonstrations track

Tight Continuous Relaxation of the Balanced K-cut Problem   NIPS 2014

Syama Sundar Rangapuram, **Pramod Kaushik Mudrakarta**, and Matthias Hein
Advances in Neural Information Processing Systems 27

Oqtans: the RNA-seq Workbench in the Cloud for Complete and Reproducible Quantitative
Transcriptome Analysis   Bioinformatics 2014

Vipin T Sreedharan, Sebastian J Schultheiss, Géraldine Jean, André Kahles, Regina Bohnert,
Philipp Drewe, Pramod Kaushik Mudrakarta, Nico Görnitz, Georg Zeller, and Gunnar Rätsch
Bioinformatics, Volume 30

Preprints   Asymmetric Multiresolution Matrix Factorization   2019

Pramod Kaushik Mudrakarta, Shubhendu Trivedi, and Risi Kondor
arXiv:1910.05132

It Was the Training Data Pruning Too!   2018

Pramod Kaushik Mudrakarta, Ankur Taly, Mukund Sundararajan, and Kedar Dhamdhere
arXiv:1803.04579

A Generic Multiresolution Preconditioner for Sparse Symmetric Systems   2017

Pramod Kaushik Mudrakarta and Risi Kondor
arXiv:1707.02054

Parallel MMF: A Multiresolution Approach to Matrix Computation   2015

Risi Kondor, Nedelina Teneva, and **Pramod Kaushik Mudrakarta**
arXiv:1507.04396

mTim: Rapid and Accurate Transcript Reconstruction from RNA-Seq Data   2013

Georg Zeller, Nico Goernitz, Andre Kahles, Jonas Behr, Pramod Kaushik Mudrakarta, Soeren
Sonnenburg, and Gunnar Rätsch
arXiv:1309.5211

Patents   Parameter-Efficient Multi-Task and Transfer Learning   2020

Mark Sandler, Andrey Zhmoginov, Andrew Gerald Howard, and **Pramod Kaushik Mudrakarta**
US Patent App. 16/577,698

Awards		
	Travel award, Google	2018
	University Unrestricted (UU) research fellowship	2016
	Notable student paper award, AISTATS	2016
	Travel grant, Graduate Council, The University of Chicago	2015
	Travel grant, Neural Information Processing Systems (NIPS) Foundation	2014
	Fellowship, Graduate School of Computer Science, Saarland University	2012 − 2014
	Best project prize, Databases and Information Systems course, IIT Bombay	2007
	All-India-Rank 45 (among $\sim$300,000) in the joint entrance exam to the IITs	2005

Talks		
	Did the Model Understand the Question?, IBM Research, Almaden, CA	2019
	Understanding Question Comprehension, and Generalizability in Transfer Learning, AllenAI, Seattle, WA	2019
	What Do Deep Neural Networks Learn?, Amazon, Palo Alto, CA	2019
	Did the Model Understand the Question?, Salesforce, Palo Alto, CA	2019
	Did the Model Understand the Question?, Vanguard, Malvern, PA	2019
	Did the Model Understand the Question?, PathAI, Boston, MA	2019
	Did the Model Understand the Question?, Microsoft, Bellevue, WA	2019
	Did the Model Understand the Question?, Microsoft, Cambridge, MA	2019
	Did the Model Understand the Question?, Rasa.ai	2019
	AI for Business Leaders, DX Summit, Chicago, IL	2018
	Did the Model Understand the Question?, ACL conference, Australia	2018
	Analyzing Deep Neural Networks for NLP, MSLD, Notre-Dame, IN	2018
	Multiresolution Matrix Factorization, Amazon, Seattle, WA	2016
	Parallel Multiresolution Matrix Factorization, NIPS demo, Canada	2015

Teaching Experience

AI/Machine Learning: 5 courses at 2 universities, including one course with focus on large-scale data analysis using Amazon AWS and Apache Spark. Designed homeworks, held tutorial sessions, reviewed exams, and provided one-on-one support to students

Computer Science Fundamentals: 5 courses at the University of Chicago. Conducted labs, graded homeworks and exams, and designed homeworks. Themes were object-oriented and functional programming; homeworks were inspired from various fields of science

Opensource Work

Adversarial examples for question answering: Code for computing attributions to question words, and crafting adversarial examples for deep neural networks performing question answering on visual, tabular and text data.

pMMF: A high-performance parallel Multiresolution Matrix Factorization library in C++ (with Nedelina Teneva and Risi Kondor).

Balanced Graph Clustering: MATLAB/C++ library for computing a k-way clustering of a graph via balanced cuts for unsupervised and transductive cases (with Syama Sundar Rangapuram and Matthias Hein).

Hidden Markov SVMs: MATLAB/C++ library implementing Hidden Markov Support Vector Machines (with Georg Zeller and Gunnar Rätsch).

Reviewing	TPAMI (2021), NAACL (2021), ACL (2021, 2020), EMNLP (2020),
	NeurIPS (2019 & 2018), ICML (2019), ICLR (2019),
	UAI (2020 & 2019), ACM IDDA (2020, 2018), AAAI (2016)

Technical
Skills

Programming: C/C++, Python, Java, MATLAB, Lisp
Software: TensorFlow, PyTorch, Theano, Amazon AWS, Apache Spark, LAPACK, Git
Typesetting: LaTeX, Beamer, Microsoft PowerPoint

Conferences Attended		
Association for Computational Linguistics (ACL)	2018
Midwest Speech and Language Days (MSLD)	2018
Neural Information Processing Systems (NeurIPS)	2015 & 2016
Prospects in Applied Mathematics (PAM)	2014
Max-Planck Advanced Course on the Foundations of Computer Science	2012 & 2013

| Languages | English (native/bilingual), Telugu (native/bilingual), German (fluent), Hindi (fluent) |

Volunteer Experience		
Judge, University of Chicago Undergraduate STEM Symposium	2016
Judge, Illinois Louis Stokes alliance for minority participation symposium	2016
Mentor, IMPACT program, The University of Chicago, USA	2015 & 2016
Elected positions in university student councils in Germany and India	2007 − 2008 & 2013
Organizer, Inter-cultural activities, Saarland University, Germany	2013