

Gauri Jagatap

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EDUCATION

AUG 2016 -Present	Doctor of Philosophy (PhD) in ELECTRICAL ENGINEERING Iowa State University (GPA: 3.91/4)
AUG 2010	Bachelor of Engineering (Hons.) in ELECTRICAL AND ELECTRONICS ENGINEERING
-MAY 2015	Master of Science (Hons.) in PHYSICS BITS Pilani University , India (GPA: 8.69/10)

PROGRAMMING LANGUAGES AND FRAMEWORKS

Python, MATLAB, C, TensorFlow, PyTorch

RESEARCH INTERESTS

Machine Learning, Statistical Learning, Signal Processing, Optimization

WORK EXPERIENCE

AUG 2016 -Present	Research Assistant at Iowa State University , Ames, Iowa Phase retrieval, super-resolution imaging, learning theory, non-convex optimization.
MAY 2018	Research Intern at Mitsubishi Electric Research Laboratories (MERL) , Cambridge, Massachusetts.
-AUG 2018	Multi-modal active imaging.
JUL 2015	Project Assistant at Indian Institute of Science , Bengaluru, India
-JUL 2016	Axial super-resolution of ultrasound images using compressed sensing.

JOURNAL ARTICLES

JAN 2019	G. Jagatap and C. Hegde, "Sample-efficient algorithms for recovering structured signals from magnitude-only measurements", <i>to appear</i> , IEEE Transactions on Information Theory . (Paper).
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CONFERENCE PROCEEDINGS

JUL 2019	G. Jagatap and C. Hegde, "Linearly convergent algorithms for learning shallow residual networks", Proc. of IEEE International Symposium on Information Theory (ISIT), 2019. (Paper).
OCT 2018	G. Jagatap , Z. Chen, C. Hegde and N. Vaswani, "Model corrected low rank ptychography", Proc. of IEEE International Conference on Image Processing (ICIP), 2018. (Paper).
JUN 2018	G. Jagatap and C. Hegde, "Towards sample-optimal methods for solving random quadratic equations with structure", Proc. of IEEE International Symposium on Information Theory (ISIT), 2018. (Paper).
APR 2018	G. Jagatap , Z. Chen, C. Hegde and N. Vaswani, "Sub-diffraction imaging using Fourier ptychography and structured sparsity", Proc. of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2018 (Oral presentation). (Paper).
APR 2018	Z. Chen, G. Jagatap , S. Nayer, C. Hegde and N. Vaswani, "Low rank Fourier ptychography", Proc. of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2018. (Paper).
DEC 2017	G. Jagatap and C. Hegde, "Fast, sample-efficient algorithms for structured phase retrieval", Adv. in Neural Information Processing Systems (NIPS), 2017. (Acceptance rate: 20.93%). (Paper).

ARTICLES

Under review

FEB 2019	G. Jagatap , Z. Chen, S. Nayer, C. Hegde and N. Vaswani, "Sub-diffraction Super-resolution Imaging for Structured Data", 2019. (Paper)
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RESEARCH PROJECTS

- Inverse imaging with magnitude-only measurements. ([code](#))
 - Phase retrieval using structured sparsity: utilizing underlying structure (such as block and tree sparsities) in images to develop fast and memory efficient algorithms to reconstruct images from absolute-valued Gaussian measurements.
- Image and video super-resolution via ptychography. ([code](#))
 - Developed fast and memory efficient algorithm for super-resolution of multiplexed microscopic images by using sparsity priors.
 - Super-resolution for slowly changing microscopic videos, by utilizing low-rank priors.
- Optimization and landscape analysis of ReLU networks. ([code](#))
 - Introduced a novel technique of alternating minimization in the context of training ReLU networks.
 - Convergence analysis for learning networks of ReLUs via alternating minimization and gradient descent.

GRADUATE COURSES

Iowa State University

Data Analytics for ECpE, Deep Machine Learning, Optimization for Machine Learning, Convex Optimization, Nonlinear Programming, Detection and Estimation Theory, Steganography and Digital Image Forensics

GRADUATE COURSE PROJECTS

Iowa State University

MAY 2017	Sparse PCA using truncated and inverse power methods for topic extraction from text data, EE 525.
MAY 2017	Non-negative matrix factorization using orthogonal gradient method and successive projection method for topic extraction from textual database, IE 631.
MAY 2018	Image in-painting for engineering datasets via deep projection models, ME 592.
DEC 2018	Optimization landscape of ResNets as compared to linear predictors under different initializations with Stochastic Gradient Descent, ComS 578.

WORKSHOPS AND SYMPOSIA

JUN 2017	G. Jagatap and C. Hegde, “Fast and sample-efficient algorithms for structured phase retrieval”, Midwest Machine Learning Symposium (MMLS) 2017 .
DEC 2017	G. Jagatap and C. Hegde, “Phase retrieval using structured sparsity: A sample efficient algorithmic framework”, Women in Machine Learning (WiML) 2017 Workshop .

SCHOLARSHIPS AND AWARDS

OCT 2017	Student Travel Award for NIPS 2017
NOV 2017	WiML 2017 Travel Grant
AUG 2016 -	Research Assistant, Iowa State University
2011 - 15	INSPIRE Scholarship, Department of Science and Technology, Govt. of India

TEACHING ASSISTANTSHIPS

SPRING 2018	EE 525:DATA ANALYTICS IN ELECTRICAL & COMPUTER ENG, Iowa State University
SPRING 2014	BITS C386:QUANTUM INFORMATION & COMPUTING, BITS Pilani University
FALL 2012	PHY F110:PHYSICS LABORATORY, BITS Pilani University

REVIEWING

Journal articles:

IEEE Transactions on Information Theory (TIT), 2018.

IEEE Transactions on Signal Processing (TSP), 2018.

Conference articles:

International Conference on Signal Processing and Communications (SPCOM), 2018.

Women in Machine Learning (WiML) Workshop, 2017.

PROFESSIONAL ACTIVITIES

Event coordinator, [Data Science Reading Group](#), **Iowa State University**.

updated on May 1, 2019