Ameya Joshi

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EDUCATION

JAN 2020 - *Present*	Doctor of Philosophy (PhD) in ELECTRICAL ENGINEERING **New York University** (GPA: 3.89/4.0) Advisor: Dr. Chinmay Hegde
AUG 2018 - DEC 2019	Doctor of Philosophy (PhD) in ELECTRICAL ENGINEERING **Iowa State University** (GPA: 3.78/4) Advisors: Dr. Chinmay Hegde, Dr. Soumik Sarkar
AUG 2010 - MAY 2014	Bachelor of Engineering (Hons.) in ELECTRICAL AND ELECTRONICS ENGINEERING **BITS Pilani University**, India (GPA: 7.98/10)

PROGRAMMING LANGUAGES AND FRAMEWORKS

Python, C, C++, Shell, TensorFlow, PyTorch, OpenCV, CUDA, Matlab

RESEARCH INTERESTS

Deep Neural Networks, Generative Models, Robust Machine Learning (Adversarial attacks), Computer Vision

WORK EXPERIENCE

JAN 2020 - *Present*	**Graduate Research Assistant** at **NYU Tandon School of Engineering**, New York City, NY Adversarial Attacks and Defenses for Deep Models, Physics Informed Generative Models, Neural PDE Solvers, Generalization Theory for Neural Networks
AUG 2018 - DEC 2020	**Graduate Research Assistant** at **Iowa State University**, Ames, Iowa Adversarial Attacks and Defenses for Deep Models, Physics Informed Generative Models, Neural PDE Solvers
MAY 2016 - JUL 2018	**Lead (previously Sr.) Computer Scientist** at **SigTuple Inc.**, Bengaluru, India Worked on building ML informed systems for pathology and ophthalmology. Led a team of 5 data scientists. Two papers published at ISBI'18. One patent granted by Indian PTO. One patent application under review.
FEB 2015 - MAY 2016	**Member of Technical Staff** at **Tonbo Imaging**, Bengaluru, India Developed and deployed robust embedded systems (including linux kernel dev.) for night vision and IR devices for long range surveillance. Contributed to deployment of tracking and detection algorithms for IR imaging.
JUL 2014 - FEB 2015	**Computer Vision Engineer** at **Ducere Technologies**, Hyderabad, India Developed a computer vision system for obstacle detection used for navigation by the visually impaired. Also conceptualised and prototyped an image-to-Braille device for the visually impaired.

PUBLICATIONS

Conferences and Workshops

1. A. Joshi, M. Cho, V. Shah, B. Pokuri, S. Sarkar, B. Ganapathysubramanian, and C. Hegde. Invnet: Encoding geometric and statistical invariances in deep generative models. In *Asso. of Adv. of Artif. Intell. (AAAI)*, 2020

2. A. Joshi, A. Mukherjee, S. Sarkar, and C. Hegde. Semantic adversarial attacks: Parametric transformations that fool deep classifiers. In *Int. Conf. on Computer Vision (ICCV)*, 2019

3. A. Mukherjee, A. Joshi, S. Sarkar, and C. Hegde. Semantic domain adaptation for deep classifiers via gan-based data augmentation. In *NeurIPS Workshop on ML for Autonomous Driving (ML4AD)*, 2019

4. A. Joshi, V. Shah, S. Ghosal, B. Pokuri, S. Sarkar, B. Ganapathysubramanian, and C. Hegde. Generative models for solving nonlinear partial differential equations. In *NeurIPS Workshop on ML for Physical Sciences (ML4PS)*, 2019

5. A. Mukherjee, A. Joshi, S. Sarkar, and C. Hegde. Attribute-controlled traffic data augmentation using conditional generative models. In *CVPR Workshop on Vision for All Seasons (VAS)*, 2019

6. S. Athar, A. Vahadane, A. Joshi, and T. Dastidar. Weakly supervised fluid filled region localization in retinal oct scans. In *ISBI*. IEEE, 2018

7. A. Vahadane, A. Joshi, K. Madan, and T. Dastidar. Detection of diabetic macular edema in optical coherence tomography scans using patch based deep learning. In *ISBI*. IEEE, 2018

8. A. Mahurkar, A. Joshi, N. Nallapareddy, P. Reddy, M. Feigin, A. Kadambi, and R. Raskar. Selective visualization of anomalies in fundus images via sparse and low rank decomposition. In *ACM SIGGRAPH 2014 Posters*, SIGGRAPH '14, 2014

Preprints

1. S. Botelho, A. Joshi, B. Khara, S. Sarkar, C. Hegde, S. Adavani, and B. Ganapathysubramanian. Deep generative models that solve pdes: Distributed computing for training large data-free models. arXiv:2007.12792, 2020

2. M. Cho, A. Joshi, and C. Hegde. ESPN: Extremely sparse pruned networks. arXiv:2006.15741, 2020

Patents

1. A. Joshi et al. Method and system for detecting disorders in retinal images. Indian Patent 313571, 2018. US patent pending

2. J. Rampure, A. Joshi, et al. Method for automated detection of lesions maps and classification of retinal diseases using retinal scans. Patent pending, 2018

GRADUATE COURSES

Iowa State University
Deep Learning, Optimization for Machine Learning, Random Processes, Special Topics on Stat. Machine Learning

SCHOLARSHIPS AND AWARDS

2018	2nd Place, MRS OpenData Challenge, Material Research Society
2010 - 14	Merit-cum-Need Scholarship, **BITS Pilani**
2007	National Talent Search Scholar (Top 1000 students) , **NCERT**, India