Bhavya Vasudeva

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Education

University of Southern California 2021-Present
Ph.D. in Computer Science
Advisor: Prof. Vatsal Sharan

Indian Institute of Technology Roorkee 2016-2020
B. Tech. in Electronics and Communication Engineering (GPA: 9.362/10, Rank: 3/84)
Thesis: Compressive Sensing MRI Reconstruction using GANs
Advisors: Prof. Saumik Bhattacharya & Prof. P. M. Pradhan

Research Interests

Theoretical Foundations of Deep Learning, Robustness to Distributional Shifts

Publications and Preprints

Implicit Bias and Fast Convergence Rates for Self-attention
B. Vasudeva*, P. Deora*, C. Thrampoulidis *Preprint; Submitted*

Simplicity Bias of Transformers to Learn Low Sensitivity Functions
B. Vasudeva*, D. Fu*, T. Zhou, E. Kau, Y. Huang, V. Sharan *Preprint out soon; Submitted*

Mitigating Simplicity Bias in Deep Learning for Improved OOD Generalization and Robustness
B. Vasudeva, K. Shahabi, V. Sharan *SCIS Workshop@ICML 2023; Submitted*

Fast Test Error Rates for Gradient Methods on Separable Data
P. Deora*, B. Vasudeva*, V. Sharan, C. Thrampoulidis *HiLD Workshop@ICML 2023; ICASSP 2024*

Compressed Sensing MRI Reconstruction with Co-VeGAN: Complex-Valued Generative Adversarial Network
B. Vasudeva*, P. Deora*, S. Bhattacharya, P. M. Pradhan *WACV 2022*

LoOp: Looking for Optimal Hard Negative Embeddings for Deep Metric Learning
B. Vasudeva*, P. Deora*, S. Bhattacharya, U. Pal, S. Chanda *ICCV 2021*

Structure Preserving Compressive Sensing MRI Reconstruction using Generative Adversarial Networks
P. Deora*, B. Vasudeva*, S. Bhattacharya, P. M. Pradhan *CVPR Workshops 2020*

(*equal contribution)

Awards and Academic Achievements

- USC **WiSE travel grant** for attending ICML 2023 *2023*
- Selected for **EEML** and **CMMRS** Summer Schools *2021*
- **Singhal's Tech. for Society Award** for best undergraduate thesis at institute level *2020*
- **Viney K. and Sunita Jain Award** for academic excellence, IIT Roorkee *2020*
- **3AI Pinnacle Student of the Year Award** for undergraduate thesis *2020*
- **S. N. Bose Scholars Program**, among 50 students selected across India for an internship in the US *2019*
- Third position, **International Robotics Challenge** at Techfest'17, IIT Bombay *2017*
- Secured IIT JEE Advanced **All India Rank 978**, 99.5 percentile *2016*
- Secured IIT JEE Mains **All India Rank 336** among 1.2 million candidates *2016*
- Awarded **Kishore Vaigyanik Protsahan Yojana** (KVPY) science fellowship by IISc Bangalore *2015*
- Awarded **National Talent Search Examination** (NTSE) scholarship by the Government of India *2014*

Skills

· **Languages**: Python, MATLAB, LaTeX
· **DL Frameworks**: Pytorch, Tensorflow, Keras

Service

· **Reviewer**: ICML 2024, ICLR 2024, NeurIPS 2023, SCIS Workshop@ICML 2023
· **Top Reviewer**: NeurIPS 2023
· **Volunteer**: ICML 2021, ICLR 2021

Work Experience

ISI Kolkata | Visiting Researcher *June'20 - June'21*
Advisors: Prof. Saumik Bhattacharya & Prof. Umapada Pal

Northwestern University | Undergraduate Intern, SN Bose Scholar *May'19 - July'19*
Advisor: Prof. Yuan Yang

Teaching and Mentorship Experience

· **Teaching**
- TA for CSCI567: Machine Learning in Fall'22
- TA for CSCI699: Theory of Machine Learning in Fall'23

· **Mentoring**
- Luke Pratt, SHINE'22 summer research program (K-12 STEM outreach)
- Devin Martin, SURE'22 summer research program (USC BS CS)
- Kameron Shahabi (USC BS-MS CS)
- Youqi Huang, SURE'23 and CURVE'23-24 research programs (USC BS CS)
- Elliott Kau (USC BS-MS CS)
- Jung Whan Lee (USC MS CS)