Bhavya Vasudeva

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Education

Ph.D., University of Southern California 2021-2026 (exp.)
Major: Computer Science
B. Tech., Indian Institute of Technology Roorkee 2016-2020
Major: Electronics and Communication Engineering CGPA: 9.362/10, Rank: 3/84

Interests

Theory of Machine Learning, Generalization, Adversarial Robustness, Causality

Publications

1. **B. Vasudeva***, P. Deora*, S. Bhattacharya, U. Pal, S. Chanda. LoOp: Looking for Optimal Hard Negative Embeddings for Deep Metric Learning, **accepted** in *IEEE/CVF ICCV*.
2. **B. Vasudeva***, P. Deora*, S. Bhattacharya, P. M. Pradhan. Compressed Sensing MRI Reconstruction with Co-VeGAN: Complex-Valued Generative Adversarial Network, **under review** in *IEEE/CVF WACV*.
3. P. Deora*, **B. Vasudeva***, S. Bhattacharya, P. M. Pradhan. Structure Preserving Compressive Sensing MRI Reconstruction using Generative Adversarial Networks, in *IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW)*, pp. 2211-2219, 2020. (peer-reviewed, h5-index: 73)
4. Y. Yang, **B. Vasudeva**, H. H. Refai, F. He. Multi-Phase Locking Value: A Generalized Method for Determining Instantaneous Multi-frequency Phase Coupling, **under review** in Springer Non-linear Dynamics.
5. **B. Vasudeva**, P. Deora, P. M. Pradhan, S. Dasgupta. Efficient Implementation of LMS Adaptive Filter based FECG Extraction on an FPGA, *IET Healthcare Technology Letters*, pp. 125-131, vol. 7, no. 5, 2020. (peer-reviewed)

(*equal contribution)

Research Experience

VISITING RESEARCHER — ISI Kolkata
Advisors: Prof. Saumik Bhattacharya & Prof. Umapada Pal — June'20 - June'21
- **Finding Optimal Hard Negatives for Deep Metric Learning** — Preprint
- **Learned ISP for RAW to RGB conversion** — Code | Paper

UNDERGRADUATE RESEARCHER — IIT Roorkee (Bachelor Thesis)
Advisors: Prof. Saumik Bhattacharya & Prof. P. M. Pradhan — June'19 - July'20
- **Complex-Valued GAN for CS-MRI Reconstruction** — Code | Preprint | Slides
- **Structure Preserving CS-MRI Reconstruction using GANs** — Code | Paper

UNDERGRADUATE INTERN — Northwestern University
Advisor: Prof. Yuan Yang — May'19 - July'19
- **Quantifying Various Types of Phase Coupling** — Preprint | Slides

UNDERGRADUATE RESEARCHER — IIT Roorkee
Advisors: Prof. P. M. Pradhan & Prof. S. Dasgupta — May'18 - Nov'18
- **FPGA Implementation of FHR Monitoring System** — Paper

Other Projects

- **Low-light Image Enhancement** Code | Report — IIT Roorkee | Spring'19

Skills

Programming Languages Python, C, C++
Libraries & Tools Keras, MXNet, PyTorch, TensorFlow, Matlab, Git, LaTeX

Service

Volunteer ICLR 2021, ICML 2021

Awards and Achievements

2021 Selected for **EEML** and **CMMRS** Summer Schools
2020 **Singhal's Tech. for Society Award** for best bachelor thesis at institute level
2020 **Viney K. and Sunita Jain Award** for academic excellence by IIT Roorkee
2020 Finalist of **INAE Innovative Student Projects Award**, a national level award for bachelor thesis
2020 **3AI Pinnacle Student of the Year Award** for bachelor thesis
2019 **S. N. Bose Scholars Program**, among the 50 students selected across the country
2017 Third position, **International Robotics Challenge** at Techfest'17, IIT Bombay
2016 IIT JEE Advanced **All India Rank 978**, 99.5 percentile
2016 IIT JEE Mains **All India Rank 336** among 1.2 million candidates
2015 **Kishore Vaigyanik Protsahan Yojana**, awarded fellowship in Science stream by IISc Bangalore
2014 **National Talent Search Examination**, awarded scholarship by the Government of India