

Charantej Reddy POCHIMIREDDY

Postdoctoral Scholar at Penn State College of IST

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RESEARCH INTERESTS

Machine Learning, Deep Learning, and Signal Processing

WORK EXPERIENCE

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| 08- 2024 | Postdoctoral Scholar at PENN STATE COLLEGE OF IST
Working on problems in machine learning, deep learning, and computer vision, with intersection with psychology and biology. |
| 05-07 2024 | Research Intern at INTEL, Hyderabad
Worked on unsupervised adversarial attacks targeting foundation deep learning models. |
| 05-12 2022 | Visiting researcher at SWINBURNE UNIVERSITY OF TECHNOLOGY, Australia
(part of Joint Ph.D. program)
Worked on problems in Signal processing and Graph learning. |
| 07-08 2019 | Research Intern at TCS INNOVATION LABS, Pune
Worked on generating time series data using generative adversarial networks. |
| 08-12 2017 | Senior Associate Software Engineer at MATHWORKS INDIA PVT. LTD., Hyderabad
Worked on traffic sign detection and recognition and logo recognition using CNNs. |
| 02-07 2017 | Image Processing Engineer at UURMI SYSTEMS PVT. LTD., Hyderabad
Worked on pedestrian detection using deep learning (in MATLAB) and compressing convolutional neural networks for real-time application. |
| 07-11 2016 | Application Support Engineer at MATHWORKS INDIA PVT. LTD., Bangalore
Helped customers to solve technical problems using MATLAB and Simulink and developers to apply the customer-facing knowledge to projects within the company. |

EDUCATION

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| MAY 2024 | Joint Ph.D. in COMMUNICATION AND SIGNAL PROCESSING, IIT Hyderabad , Hyderabad and Swinburne University of Technology , Melbourne
Thesis: "Fast and Efficient DFT Computation for Signals with Structured Support"
Advisor: Dr. Aditya Siripuram Co-Advisor: Dr. Jingxin Zhang
CGPA: 9.5/10 |
| JUNE 2016 | Masters in COMMUNICATION AND SIGNAL PROCESSING, IIT Hyderabad , Hyderabad
Thesis: "Sparsity based spatio-temporal video quality assessment"
Advisor: Dr. Sumohana Channappayya
CGPA: 9.55/10 |
| MAY 2013 | Bachelors in ELECTRONICS AND COMMUNICATION, SNIST, JNTU Hyderabad , Hyderabad
CGPA: 77.02/100 |

PUBLICATIONS

- [1] Charantej Reddy Pochimireddy, Aditya T. Siripuram, and Sumohana S. Channappayya. "Can Perceptual Guidance Lead to Semantically Explainable Adversarial Perturbations?" In: *IEEE Journal of Selected Topics in Signal Processing* (2023), pp. 1–11. DOI: [10.1109/JSTSP.2023.3258253](https://doi.org/10.1109/JSTSP.2023.3258253).
- [2] Charantej Reddy Pochimireddy, Aditya Siripuram, and Brad Osgood. "Fast DFT Computation for Signals with Structured Support". In: *IEEE Transactions on Information Theory* (2023), pp. 1–1. DOI: [10.1109/TIT.2023.3329804](https://doi.org/10.1109/TIT.2023.3329804).
- [3] Charantej Reddy Pochimireddy, Aditya Siripuram, and Brad Osgood. *Numerical Stability of DFT Computation for Signals with Structured Support*. 2024. arXiv: [2401.16044](https://arxiv.org/abs/2401.16044) [eess.SP]. URL: <https://arxiv.org/abs/2401.16044>.
- [4] P Charantej Reddy, Aditya Siripuram, and Brad Osgood. "Some results on convolution idempotents". In: *2020 IEEE International Symposium on Information Theory (ISIT)*. IEEE. 2020, pp. 1462–1467.
- [5] P Charantej Reddy, V S S Prabhu Tej, and Aditya Siripuram. "Fast DFT computation for signals with spectral support". In: *2021 National Conference on Communications (NCC)*. 2021, pp. 1–6. DOI: [10.1109/NCC52529.2021.9530137](https://doi.org/10.1109/NCC52529.2021.9530137).
- [6] P Charantej Reddy, V S S Prabhu Tej, Aditya Siripuram, and Brad Osgood. "Computing the Discrete Fourier Transform of signals with spectral frequency support". In: *2021 IEEE International Symposium on Information Theory (ISIT)*. 2021, pp. 2381–2386. DOI: [10.1109/ISIT45174.2021.9518104](https://doi.org/10.1109/ISIT45174.2021.9518104).
- [7] B Subbareddy, P Charantej Reddy, Aditya Siripuram, and Jingxin Zhang. "A survey of signal processing based graph learning techniques". In: *2019 1st International Conference on Industrial Artificial Intelligence (IAI)*. IEEE. 2019, pp. 1–6.

TEACHING ACTIVITIES

- Head teaching assistant for various signal processing and machine learning courses at IIT Hyderabad.
- Designed and conducted hands-on lab sessions for the Professional Certification Program in AI and Emerging Technologies (AIET) brought together by IIT Hyderabad and TalentSprint.

AWARDS AND RECOGNITIONS

- Recipient of the **Qualcomm Innovation Fellowship (QIF-2021)**.
- Mentor for BTech EE student team that was placed sixth worldwide in IEEE VIP Cup 2019.

COMPUTER SKILLS

Programming: C, PYTHON
Tools: MATLAB, Simulink, Tensorflow, Pytorch

INTERESTS AND ACTIVITIES

Technology, Cricket