Charantej Reddy Pochimireddy

Postdoctoral Scholar in Data Sciences at Penn State College of IST
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RESEARCH INTERESTS

Machine Learning, Deep Learning, and Signal Processing

WORK EXPERIENCE

08- 2024 | **Postdoctoral Scholar in Data Sciences at PENN STATE COLLEGE OF IST**
Exploring challenges in machine learning, deep learning, and computer vision at the intersection of 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

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.

[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.

[3] Charantej Reddy Pochimireddy, Aditya Siripuram, and Brad Osgood. *Numerical Stability of DFT Computation for Signals with Structured Support*. 2024. arXiv: 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.

[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.

[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 Tech- nologies (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