Avi Amalanshu

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ABOUT ME

I am an undergraduate student at IIT-KGP. I am looking forward to a career in research. I am actively looking for research internships in distributed or federated learning, reinforcement learning, and vision.

EDUCATION

Dual Degree (B.Tech+M.Tech)
Indian Institute of Technology Kharagpur
B.Tech Electronics & Electrical Comm. Engg.
M.Tech Vision & Intelligent Systems
Minor Computer Science & Engineering
GPA: 9.03/10.00
Guide: Prof. Jithin Ravi
2020 - 2025

INTERESTS

I am broadly interested in online, real-time and information constrained aspects of Machine Learning. I have also been exploring Communication Networks and Distributed Systems.

HIGHLIGHTS

- A journal publication and A* conference poster invite
- Top ≈15% in my department
- Seasoned programmer (C/C++, Python, MATLAB)
- A long list of hands-on projects
- Ranked in the prestigious JEE exam
- Awarded a branch change to the coveted E&ECE program

WEB PRESENCE

avi-amalanshu
avi-amalanshu
avi-amalanshu.github.io
@avi_amalanshu

HONORS & AWARDS

2023 - SURF, Purdue University
2023 - SRIP, IIT Gandhinagar
2022 - Poster Invitation, NeurIPS 2022
2022 - MLRC 2021, PapersWithCode
2021 - Branch Change, IIT Kharagpur

EXTRACURRICULARS

Scrabble, Word Games, Quiz, Guitar, Drums, Swimming, Basketball

EXPERIENCE

Purdue University - West Lafayette, US-IN — May '23 – Aug '23
Summer Undergraduate Research Fellow
- Guided by Prof. David Inouye, Probabilistic and Explainable AI Lab, ECE, Purdue.
- Worked on Localized Deep Learning in Decentralized and Dynamic Environments.

Autonomous Ground Vehicle - Kharagpur, IN-WB — Jun '21 – ongoing
Deep Learning Team Leader (Aug '23 – ongoing)
- Appointed after an organizational reshuffle.
- Responsible for directing the research efforts in robotic perception of a student-run research group.

Software and AI Team Member (Jun '21 – Aug '23)
- Worked on problems of robotic perception, particularly trajectory prediction.
- Participated in various conference workshop competitions on deep learning.
- Won the Machine Learning Reproducibility Challenge, 2021.
- One of 15 selections out of 300+ applicants. One of 3 who completed all 5 selection tasks. Tasks were to program a broad range of image processing problems.

KEY PROJECTS

Localized Deep Learning in Decentralized and Dynamic Environments — Aug '23
- A Research Experience for Undergraduates under SURF'23 at Purdue
- Guided by Prof. David Inouye

MLRC 2022 — Feb '23
- Lead the reproduction of two state-of-the-art A* conference papers. (*Hamilton et. al. STEGO: Unsupervised Semantic Segmentation by Distilling Feature Correspondences* and *Zheng, et. al CLRNet: Cross Layer Refinement Network for Lane Detection*)
- Conducted literature review and reading groups. Devised novel experiments based on the papers. Edited the reports.

MLRC 2021 — Mar '22
- Reproduced a state-of-the-art A* conference paper (*Mangalam et. al From Goals, Waypoints & Paths To Long Term Human Trajectory Forecasting*). Showed its transfer learning capability.
- Conducted literature review and reading groups. Ported the code to PyTorch Lightning. Reproduced some experiments. Wrote the report.
- Report published in ReScience C 2021 journal, invited to present poster at NeurIPS 2022.

Course Projects — Ongoing
Machine Learning (CS60050)
- Rice Variety Classification using Naive Bayesian Learning
- Heart Disease Prediction using Support Vector Machines
- Seed Type Determination using K-Means and Single-Linkage Clustering

Neuronal Coding of Sensory Information (EC60004)
- Cat Auditory Nerve Fiber Responses to Tones and Speech
- Research Proposal (Exploring Texture Perception in Non-Human Primates)

Information Retrieval (CS60092)
- Efficient and Fast Image Retrieval

Computational Foundations of Cyber-Physical Systems (CS61063)
- Privacy Aspects in Cyber-Physical Systems

Do-It-Yourself Lab (DY17003)
- Hand-Gesture Controlled Healthcare Robot

PUBLICATION

[1]Shukla, A., Roy, S., Chawla, Y., **Amalanshu, A.**, Pandey, S., ... Chakravarty, D. (2022). [RE] From Goals, Waypoints Paths To Long Term Human Trajectory Forecasting. ML Reproducibility Challenge 2021 (Fall Edition). Retrieved from https://openreview.net/forum?id=HV2zgpM7n0F