

Amandeep Kaur

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EDUCATION

Arizona State University

PhD in Computer Science, advised by Dr. Hannah Kerner

Aug'24 - Present

Indraprastha Institute of Information and Technology Delhi

Undergraduate student in Computer Science and Engineering

Jul'18 - Jul'22

GPA: 8.76/10.0

WORK EXPERIENCE

KernerLab - ASU | PhD student, advised by Dr. Hannah Kerner

Aug'24 - Present

- Studying the impact of the spatial distribution of pretraining data on global downstream tasks for Geo-Foundational models, aiming to propose data parameters for generalizable model training.
- Interested in understanding the impact of data distribution(pretraining and finetuning) on large models.

Google Deepmind | PreDoctoral Researcher, advised by Alok Talekar, Dr. Gaurav Aggarwal

Jul'22 - Jul'24

- Supported key engagement with the government of India addressing food and water security, which was formalized under a **MoU with the ministry of agriculture**.
- Developed ML models to predict **pan India** crop maps using 10m resolution satellite imagery. Currently at 80accuracy for top-5 crops. Working with **multi-source large-scale masked pretraining on transformer models**.
- Devised **dataset creation methodology** in absence of standard Indian datasets and performance metrics.
- **Created data pipelines from scratch to process TBs of data** for large scale model training.

Royal Bank of Scotland - Natwest Group | Software Engineer Intern

May'21 - Jul'21

- Reduced development & testing time by **refactoring the monolithic code base** into separate layers, persisting intermediate outputs so the layers could be altered and tested individually.
- Cut company costs by **migrating to an affordable data store** between various front end systems and an internal ledger postings creation system.

Midas Lab - IIITD | Student Researcher, advised by Dr. Rajiv Ratn Shah

Aug'21 - Nov'21, Feb'22 - May'22

- Increased accuracy of a **head gesture assisted typing technology** from 86% to 92%(+6%) by adding two camera feeds from various angles to improve **head-pose detection**.
- Introduced self attention mechanism and new modalities like gyroscope and accelerometer to get another increase of +4%.
[Demo], [Poster]

PUBLICATIONS

1. **Agricultural Season Detection At Scale - First author**, Oral@AGU, 2023
2. **Towards Live, Farm-Level Nation Wide Crop Monitoring - Second author**, Oral@EGU, 2024
3. **Farm-Level, In-Season Crop Identification for India - Second author**, Preprint

KEY SKILLS

- **Languages:** Proficient in Python, comfortable in Java, C++, Javascript, HTML, CSS
- **ML & AI:** PyTorch, TensorFlow, HuggingFace, Jax, Jaxline, Keras, scikit-learn, pandas, Numpy, Scipy
- **Tools:** QGIS, Git/Github, VsCode, Google Colab, Jupyter Notebook, Weights&Biases

FEATURED POSITIONS

- **Python Readability Approver** @ Google Deepmind, approved fellow Googlers code to ensure python coding standards.
- **Speaker** @ Google For India(G4I'22) [Talk], presented team's work.
- **Co-founder** @ GitaMitra, organised weekly meetups to talk about spirituality in daily life through Gita.
- **Mentor** @ Climate Tech Startup Meet 2023 organised by Google, talked to Indian startups in climate space.
- **Host** for Aayush Patel, Intern @ Google Deepmind (w/ Ishan Deshpande)
- **Volunteer** @ Google Booth, ICCV 2023, talked to students about opportunities at Google.
- **Student Mentor** helping 8 new joining undergraduate students @ IIITD