Aditya Pola

Email : adityapola@gmail.com
University Mail : ai24metch02001@iith.ac.in

Research Statement

I am broadly interested in figuring out how to implement human level visual (perception and cognition) generalization in silicon.

Education

- **Indian Institute of Technology, Hyderabad** — Kandi, India
  Research based Masters in Artificial Intelligence (8.3/10) — *Jan. 2024 - Ongoing*
  - **Computer Vision with limited Supervision**: Ongoing research efforts on measuring the capability of vision transformers as syntactic reasoners through a mechanistic lens.

- **Birla Institute of Technology and Science** — Pilani, India
  M.Sc.(Hons.) Physics and B.E.(Hons.) Manufacturing Engineering (6.05/10) — *Aug. 2016 - March 2021*

Publications

- Where does an LLM begin Computing an Instruction? — *UniReps Workshop, NeurIPS '25*
  ***Aditya Pola**, Vineeth N. Balasubramanian*

- Towards Logic-Enhanced Concept-Based Learning — *WACV '26*
  *Deepika Vemuri, Gautham Bellamkonda, **Aditya Pola**, Vineeth N. Balasubramanian*

Experience

- **Indian Institute of Technology, Hyderabad** — Hyderabad, India
  Research Associate under Prof. Vineeth N Balasubramanian — *January 2023 - December 2023*
  - **Computer Vision with limited Supervision**: Carrying out research on Object-centric methods as a means to compositionality and out-of-distribution generalization

- **Ivy** — London, Remote
  Research Engineer Intern — *September 2022 - December 2022*
  - **Framework Transpiler**: Carried out the initial design process of a transpiler that would enable transpilation of code between various deep learning frameworks. This was adopted into applying for the Innovate UK Smart Grant.

- **Happymonk AI Labs** — Bangalore, India
  Data Scientist — *July 2021 - January 2022*
  - **Face Recognition Project**: Improved in-house facial recognition algorithms by implementing margin based softmax methods in distributed training settings with a test accuracy of 95.72% on a large database of faces.

- **Saama Technologies** — Chennai, India
  Intern at the research team — *December 2018 - January 2019*
  - **AutoML and Generative networks**: Contributed to the AutoML project by researching active learning-based hyperparameter optimization methods and assisting in the in-house implementation of variational autoencoders.

- **Tata Institute of Fundamental Research** — Mumbai, India
  Masters Thesis under Prof. Shriganesh Prabhu — *July 2020- March 2021*
  - **Optimization algorithms**: Developed and compiled data-driven optimization techniques like Nelder-Mead, Basin hopping to solve for optical parameters of materials under Time-Domain-Spectroscopy.

Conference Engagements

- **ACML 2022**: Student volunteer
- **Sub-reviewed conferences**: NeurIPS '24, ICLR '24, NeurIPS '23

Open Source Contributions

- **PettingZoo**: Contributed to major version update. Rewrote an existing multi-agent RL environment using Pymunk as the physics engine.

Teaching and others

- TA for AI5100: Deep Learning
- Compute admin for the resources of Lab1055 managing 15+ servers

Relevant Coursework

Interpretability in AI, Deep Learning, Foundations of Machine Learning, Statistical Mechanics

Technical Skills

- **Programming Languages**: Python, C, MATLAB, HTML, CSS, LaTeX
- **Deep-learning Frameworks**: Pytorch, torch.distributed
- **Production Frameworks**: Kafka, NATS, FAISS