Samyak Rawlekar

657-273-2442 | samyakr2@illinois.edu | Website | GitHub

Education

University of Illinois Urbana-Champaign — Illinois, USA
Doctor of Philosophy in Electrical and Computer Engineering — *Aug.* 2023 – *Ongoing*
***Advisor**: Dr. Narendra Ahuja*

New York University — New York, USA
Masters of Science in Computer Engineering — *Sept.* 2021 – *May* 2023
***Thesis:** Learned Feature Compression* ***Advisor:** Dr. Yao Wang*

Indian Institute of Technology, IIT Dharwad — Dharwad, India
Bachelor of Technology in Electrical Engineering — *Aug.* 2017 – *May* 2021

Research Experience

Graduate Research Assistant: 3D Reconstruction from Videos — June 2022 – Sept 2022
Coordinated Science Laboratory - Dr.Narendra Ahuja — *Urbana, IL*

- Developed a novel algorithm for the 3D reconstruction of articulated objects in a monocular video. [**Paper**]

AI Research Intern: Self-Supervised, Representation Learning [**Report**] — June 2022 – Sept 2022
NYU Langone Health - Dr.Cem Deniz, Dr.Sumit Chopra — *Manhattan, NY*

- Developed a joint **weakly and self-supervised based representation learning** model for medical images.
- Our approach proposed a novel fusion of images and clinical reports from MIMIC-CXR dataset.

Graduate Research Assistant: Learned Compression, Visual Analytics — Sept 2021 – Present
Video Lab - NYU - Dr.Yao Wang — *Brooklyn, NY*

- Developed a **feature compression** model for **advanced visual analytics** on low-end mobile devices. [**Paper**]
- Led the team in developing a **scalable** variant of the YOLOv5 **object detection** model. [**Report**]

Machine Learning Co-op: Time-Series Forecasting — Aug 2020 – Jan 2021
CSIR-NEERI – - Dr.Nitin Labhsetwar — *Remote*

- Spearheaded the project of **time-series forecasting** of the novel coronavirus daily cases.
- Incorporating the effect of environmental parameters with the **multivariate time series model**.

Publications

Peer-reviewed conference papers

- **Improving Multi-label Recognition using Class Co-Occurrence Probabilities**
  Samyak Rawlekar*, Shubhang Bhatnagar*, VP Srinivasulu, Narendra Ahuja
  CVPR Meta Food Workshop, **CVPRW 2024**

- **S3O: A Dual-Phase Approach for Reconstructing Dynamic Shape and Skeleton of Articulated Objects from Single Monocular Video**
  Hao Zhang, Fang Li, **Samyak Rawlekar**, Narendra Ahuja
  International Conference on Machine Learning, **ICML 2024**

- **Learning Implicit Representation for Reconstructing Articulated Objects**
  Hao Zhang, Fang Li, **Samyak Rawlekar**, Narendra Ahuja
  International Conference on Learning Representations, **ICLR 2024**

- **Feature Compression for Rate Constrained Object Detection on the Edge**
  Zhongzheng Yuan, **Samyak Rawlekar**, Siddharth Garg, Elza Erkip, Yao Wang
  Multimedia Information Processing and Retrieval, **IEEE MIPR 2022**

- **Radiology Reports Improve Visual Representations Learned from Radiographs**
  Haoxu Yuan, **Samyak Rawlekar**, Sumit Chopra, Cem Deniz
  Medical Imaging with Deep Learning, **MIDL 2023**

Journal Articles

- **Split Computing With Scalable Feature Compression for Visual Analytics on the Edge**
  Zhongzheng Yuan, **Samyak Rawlekar**, Siddharth Garg, Elza Erkip, Yao Wang
  IEEE Transactions on Multimedia, 2024

- **Improving performance of DL predictive models for COVID-19 by incorporating environmental parameters**
  Roshan Wathore, **Samyak Rawlekar**, Saima Anjum, Ankit Gupta, Hemant Bherwani, Nitin Labhasetwar, Rakesh Kumar
  Gondwana Research, 2022

Teaching and Research Positions

- Research Assistant with Dr. Narendra Ahuja, **CVRL, UIUC** — Aug 2023 - Ongoing
- Research Mentor, Promoting Undergraduate Research in Engineering (**PURE**), **UIUC** — Aug 2023 - Dec 2023
- Research Assistant with Dr. Sumit Chopra, **CILVR Lab, NYU** — Sept 2022 - May 2023
- Research Assistant with Dr.Yao Wang, **Video Lab, NYU** — Sept 2021 - May 2023
- Teaching Assistant Image and Video Processing, **NYU** — Jan 2023– May 2023
- Teaching Assistant Machine Learning, **IIT Dharwad** — Aug 2021– Nov 2021

Honors & Awards

- Recipient of the prestigious **Joan and Lalit Bahl Fellowship** - ECE Dept at UIUC. — Aug 2024 - May 2025
- Recipient of the prestigious **Academic Fellowship** - ECE Dept at UIUC — Aug 2023 - July 2024
- Recipient of the prestigious **Academic Fellowship** - Fully-funded Masters Program at NYU — Sept 2021 - May 2023
- Secured International Rank 4 in the finals of 19^{th} National Science Olympiad(NSO) organized by SOF, 2017
- Among top 10% in the Center for National Standard Examination in Physics 2016-17, held by IAPT

Technical Skills

Languages: Python, Matlab, C/C++
Software Tools: PyTorch, TensorFlow, Keras, Linux, Vim, Slurm

Relevant Course Work

Graduate
- Computer Vision
- Image and Video Processing
- Machine Learning
- Deep Learning
- Probability and Stochastic Processes

Undergraduate
- Deep Learning
- Speech Processing
- Optimization Theory and Algorithm
- Linear Algebra
- Calculus