Samyak Rawlekar

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Education

University of Illinois Urbana-Champaign — Illinois, USA
Doctor of Philosophy in Electrical and Computer Engineering ***GPA:*** 4.0/4.0 — *Aug.* 2023 – *Ongoing*
Advisor*: Dr. Narendra Ahuja*

New York University — New York, USA
Masters of Science in Computer Engineering ***GPA:*** 3.97/4.0 ***(Top*** *2****%)*** — *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 ***GPA:*** 7.89/10 ***(Dept.Rank*** 14*)* — *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**

- **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

- **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

- **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