Ruchit Rawal

email— website — linkedin — github

Education

Netaji Subhas Institute of Technology, University of Delhi
B.E. in Electronics and Communication Engineering *Aug'17-May'21*
CGPA : 8.07/10 (80.7%)

Research Experience

1. **Research Intern**, BrAIN, Max Planck Institute for Software Systems *Sep'22 - Present*
   Adviser: Prof. Mariya Toneva *Saarbrücken*
   - Developing an interpretability framework based on quantifying the similarity in behavior of two (NLP) models under specific perturbations (e.g. misspellings, word substitution, negation, etc).
2. **(Research) Project Assistant**, VCL, Indian Institute of Science *March'21 - July'22*
   Adviser: Prof. Anirban Chakraborty *Bangalore (Remote)*
   - Led & contributed to several projects centered around data-efficient adversarial robustness that resulted in multiple first-author publications at WACV-23, WACV-22, CVPRW-22, BMVC-21
3. **Research Intern**, Goethe University *Mar'20 - Sep'20*
   Adviser: Prof. Gemma Roig *Frankfurt (Remote)*
   - Experimented with a diverse set of convolutional neural network (CNN) architectures, optimizers, etc, to disentangle their effects on predicting brain responses in the human visual cortex (EVC & IT) using CNNs.
4. **Research Intern**, PIET *Jul'19 - Sep'19*
   Adviser: Prof. Shakti Kumar *Panipat (Remote)*
   - Investigated the use of various population-based search heuristics (such as genetic and big-bang-big-crunch algorithms and their hybrid variants) for neural architecture search and training.

Research Work

Conference Proceedings

1. **DE-CROP: Data-efficient Certified Robustness for Pretrained Classifiers**
   Gaurav Kumar Nayak*, **Ruchit Rawal***, Anirban Chakraborty
   Winter Conference on Applications of Computer Vision (WACV), 2023. [Paper][Code]
2. **DAD : Data-free Adversarial Defense at Test Time**
   Gaurav Kumar Nayak*, **Ruchit Rawal***, Anirban Chakraborty
   Winter Conference on Applications of Computer Vision (WACV), 2022. [Paper][Code]
3. **MMD-ReID: A Simple but Effective solution for Visible-Thermal Person ReID** (Oral)
   Chaitra Jambigi*, **Ruchit Rawal***, Anirban Chakraborty
   British Machine Vision Conference (BMVC), 2021. [Paper] [Code]

Preprints & Workshops

4. **Data-free Defense of Black Box Models Against Adversarial Attacks**
   Gaurav Kumar Nayak, Inder Khatri, Shubham Randive, **Ruchit Rawal**, Anirban Chakraborty
   Pre-print [Paper][Code]
5. **Robust Few-shot Learning Without Using any Adversarial Samples**
   Gaurav Kumar Nayak, **Ruchit Rawal**, Inder Khatri, Anirban Chakraborty
   Pre-print [Paper][Code]
6. **Dynamics of Dataset Bias and Robustness**
   Prabhu Pradhan*, **Ruchit Rawal***,
   ICML Workshop on Principles of Distribution Shift (PODS), 2022. [Paper]
7. **Holistic Approach To Measure Sample-Level Adversarial Vulnerability and Its Utility in Building Trustworthy Systems**
   Gaurav Kumar Nayak*, **Ruchit Rawal***, Rohit Lal*, Himanshu Patil, Anirban Chakraborty
   Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops, 2022. [Paper] [Code]
8. **Rendezvous between Robustness and Dataset Bias: An empirical study**
   Prabhu Pradhan*, **Ruchit Rawal***, Gopi Kishan
   NeurIPS pre-registration Workshop, 2020. [Paper]
9. **Generalizing across the (in)visible spectrum** (Oral)
   Ruchit Rawal*, Prabhu Pradhan*
   ICML Workshop on Extreme Classification, 2020. [Paper] [Code]
10. **Climate Adaptation: Reliably Predicting from Imbalanced Satellite Data** (Oral)
    Ruchit Rawal*, Prabhu Pradhan*
    Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops, 2020. [Paper] [Code]

Related Professional Skills & Coursework

Languages: Python, C++, C, R, Javascript, MATLAB
Framework and Tools: PyTorch, Tensorflow, Keras, Open-CV, LaTeX
Relevant Coursework: Computer Programming, Data Structures, Image Processing, Computer Networks, Operating Systems, Probability and Communication Theory, Multivariate Calculus, Linear Algebra, Digital Signal Processing, Pattern Recognition, Numerical Methods

Awards

1. Selected to attend the Summer School on Computer Vision 2019 at IIIT Hyderabad. One among the **Top-20** participants from a pool of over 250 PhD, graduates and undergraduates. Reward entails a potential travel grant to CVPR 2020 and ICCV 2020 apart from a cash prize.