Sharat Agarwal

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sharat29ag.github.io

Research Interest

My research interest currently lies in computer vision and Deep Learning; research topics include Active Learning, Data Fairness and Domain Adaptation. For comprehensive and effective training of deep models, our focus should be on proposing methods to utilize the available data efficiently. Thus, my research investigates visual data's contextual aspect and uses it to train deep networks effectively.

Education

- **Indraprastha Institute of Information Technology Delhi** — Delhi, India
  PhD Candidate, Computer Science and Engineering — *August 2017 - Present*

  Thesis: Context Is All You Need

  Advisors: Dr. Saket Anand and Dr. Chetan Arora

  Courses: Machine Learning, Deep Learning, Advanced Computer Vision, Computer Vision, Image Processing, Probability and Random Process, Natural Language Processing

- **Graphic Era University** — Dehradun, India
  Bachelor of Technology - Computer Science and Engineering; GPA: 8.8 — *July 2012 - June 2016*

  BTP: Human Activity Recognition

  Advisor: Dr. Vikas Tripathi

  Courses: Operating Systems, Data Structures, Analysis Of Algorithms, Networking, Databases, Automata

Technical Exposure

- **Languages**: Python, C, C++
- **Frameworks**: Scikit, NLTK, SpaCy, PyTorch, TensorFlow, OpenCV, Matlab

Publications

- **S. Agarwal**, S. Anand and C. Arora, *"Reducing Annotation Effort by Identifying and Labeling Contextually Diverse Classes for Semantic Segmentation Under Domain Shift"* IEEE Winter Conference on Applications of Computer Vision **(WACV), 2023** [PDF][Code]
- **S. Agarwal**, S. Muku, S. Anand and C. Arora, *"Does Data Repair Lead to Fair Models? Curating Contextually Fair Data To Reduce Model Bias"* IEEE Winter Conference on Applications of Computer Vision **(WACV), 2022** [PDF][Code]
- **S. Agarwal**, H. Arora, S. Anand and C. Arora, *"Contextual Diversity for Active Learning"*, European Conference on Computer Vision **(ECCV), 2020**.[PDF][Code]
- V. Tripathi, **S. Agarwal**, A. Mittal, D. Gangodkar, *"Improved Dynamic Time Warping Based Approach for Activity Recognition"*, Frontiers of Intelligent Computing: Theory and Applications **(FICTA), 2017**.
- V. Tripathi, Piyush Bhatt, **S. Agarwal**, M. Semwal, *"Modified Dense Trajectory for Real Time Action Recognition"*, International Journal of Control Theory and Applications,**(IJCTA), 2016**.

Academic Projects

- **Domain Adaptation for Semantic Segmentation**: Course: Deep Learning
- **Detecting people with Down Syndrome**: Course: Image Processing
- **Pairwise Confusion Loss for Semantic Segmentation**: Course: Advanced Computer Vision
- **Depression Detection Using Tweets**: Course: Natural Language Processing
- **Quora Question Duplicate Detection**: Course: Machine Learning
- **Driver Drowsiness Detection on Long Videos**: Course: Computer Vision
- **Improved Study of Heart Disease Detection using Data Mining**: Course: Data Mining for Health Care

Professional Service

- **Reviewed Journal**: TPAMI
- **Reviewed Conference**: ICCV, ECCV, CVPR, WACV
- **Attending Google Research Week 2023, Bengaluru.**
- **Program Committee**, COMSNETS 2023, Workshop on Connected Vehicles & Autonomous Driving.
- **Committee Member**, ICVGIP Data Challenge 2021
- **Deep Learning Tutorial** , AI Assisted Data Analytic (AIDA) 2020, IIITD
- **Machine Learning Tutorial**, Economics Workshop 2019, IIITD

Teaching Assistant

- **CSE-544 Computer Vision**, Winter 2021
- **CSE-343 Machine Learning**, Monsoon 2020
- **CSE-661 Affective Computing**, Winter 2020
- **CSE-343 Machine Learning**, Monsoon 2019
- **CSE-641 Deep Learning**, Winter 2019
- **CSE-540 Digital Image Processing**, Monsoon 2018
- **CSE-600A Object Oriented Programming**, Monsoon 2017