ARPIT GARG

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LinkedIn | GitHub| Google Scholar

RESEARCH STATEMENT

I am zealous about trustworthy and reliable machine/deep learning and computer vision. My PhD research addresses the Computer Vision (CV) based robustness of noisy label image classification [1, 3, 2] on large real world data sets with a touch of multimodality. I have expertise in probabilistic [1, 3] and generative modeling [1] and experience with GANs, NeRFs, Diffusion Models, and Natural Language Processing (NLP), Machine Learning, Deep Learning [4, 5]. Published research in prestigious conferences including **Core A*:** ***ECCV-24*** [3], **Core A:** ***WACV-23/21*** [1, 4], and **Q1:** ***Neurocomputing*** [2] .

WORK & RESEARCH EXPERIENCE

- **TikTok**, Machine Learning Research Inten, 10/2024, Adelaide, AU
  Research Multimodality: BLIP, CLIP, LLaVa, LLaVa-NeXt

- **Rising Sun Pictures**, Machine Learning Research Scientist, 06/2023 - 09/2023, Adelaide, AU
  Research Works: Deep Fakes / Face Swap, Gaze Estimation / Redirection, Out-of-Distribution Detection (novel), Generative Modelling, Super-Resolution, Gaussian Splatting
  Credits: Madmax: Furiosa, Deadpool, Mickey17, LaBrea

- **Adelaide Business School, UoA**, Machine Learning Research Assistant, 03/2022 – 03/2023, Adelaide, AU
  Outcome: Natural Language Processing based solution for the market analysis on c-suite speech reaction for $5,000$ *companies*

- **CREST, UoA**, Machine Learning Applied Science Intern, 07/2020 – 01/2021, Adelaide, AU
  Outcome: Skill-space-based recommendation system using broader novel embedding vectors on $200,000$ *experts using various Natural Language Processing approaches*

- **CREST, UoA**, Machine Learning Research Assistant, 11/2019 – 02/2020, Adelaide, AU
  Outcome: Automated Deep Learning based security-patch management system using $10,000$ *patches*

- **DRDO, Defence**, Computer Vision Applied Research Intern, 12/2018 – 03/2019, Jodhpur, IN
  Outcome: Digital Image Processing and Computer Vision Algorithms for analyzing millions of satellite images

- **WESEE, Navy**, Software Engineering Applied Intern, 05/2018 – 07/2018, Delhi, IN
  Outcome: Designed 20 *weapons and ammunition algorithms for naval ships and submarines, "currently deployed - live"*

Skills

Programming Skills: Python | Java | C | C++ | LaTeX
Knowledge: Computer Vision | Natural Language Processing (text and audio) | Machine - Deep Learning | Algorithms | Mathematics | Probability and Statistics
Frameworks: Pytorch | TensorFlow | Numpy
Familiar: Solidity | Neo4j | MySQL | R | Blockchain | Docker
Soft Skills: Problem solver | Pragmatic | Innovator | Fast-paced

EDUCATION

Australian Institute for Machine Learning & UoA
• **Ph.D., Computer Science**
Advisors: Prof Gustavo Carneiro, Dr Rafael Félix
Topic: Noisy-label image classification via probabilistic and generative approaches on real world large data sets
11/2021 - 2024, Adelaide, AU

University of Adelaide (UoA)
• **MSc., Data Science**, *GPA: 6.75 / 7.0*
Advisors: Dr Rafael Félix, Dr Lingqiao Liu, Dr Rita Garcia
Topic: Unpaired image-to-image translation via GANs and whale audio classification prototypes
07/2019 - 05/2021, Adelaide, AU

RTU
• **B.Tech, Computer Science**, *GPA: 6.00 / 7.0*
Topic: Nvidia Self-driving car simulation using raspberry-pi
08/2015 - 05/2019, Jaipur, IN

ACTIVITIES

Teaching: Lecturer | TA | Course Developer and admin
Reviewing: ICCV | NeurIPS | ICONIP | WACV | BMVC
Membership: ACS | ACM | IEI | IAENG
Volunteering: Ambassador, AIML | IPSS, UoA | Fringe | JLF
Recent Talks: WACV 2023, Hawaii (Topic: Noisy-label image classification [1]) | AIML (Topic: Research impact and journey)

AWARDS & HONORS

AWS CCP | IBM Bluemix | Adelaide Graduate Award | Coursera | GlobalIQ | Talking with Aussies

Publications

[1] Arpit Garg, Cuong Nguyen, Rafael Felix, Thanh-Toan Do, and Gustavo Carneiro. Instance-dependent noisy label learning via graphical modelling. In *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision*, pages 2288–2298, 2023.

[2] Arpit Garg, Cuong Nguyen, Rafael Felix, Thanh-Toan Do, and Gustavo Carneiro. Pass: Peer-agreement based sample selection for training with noisy labels. *arXiv preprint arXiv:2303.10802*, 2023.

[3] Arpit Garg, Cuong Nguyen, Rafael Felix, Thanh-Toan Do, and Gustavo Carneiro. Instance-dependent noisy-label learning with graphical model based noise-rate estimation. In *Proceedings of the European Conference on Computer Vision (ECCV)*, 2024.

[4] Parshwa Shah, Arpit Garg, and Vandit Gajjar. Per-vis: Person retrieval in video surveillance using semantic description. In *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision*, pages 41–50, 2021.

[5] Atul Kumar Verma and Arpit Garg. Blockchain: An analysis on next-generation internet. *International Journal of Advanced Research in Computer Science*, 8(8), 2017.