Vedant Nanda

vnanda@mpi-sws.org | nvedant07.github.io | nvedant07 | @_nvedant_

Education

University of Maryland & Max Planck Institute for Software Systems — *MD, USA & SB, Germany*

Ph.D. in Computer Science — *2019 - now*

- Research Interests: Trustworthy Deep Learning: Fairness, Robustness, and Efficiency
- Advisors: Krishna P. Gummadi (MPI-SWS) and John P. Dickerson (University of Maryland)

University of Maryland, College Park — *College Park, MD, USA*

M.S. in Computer Science — *2019 - 2022*

- Advisor: John P. Dickerson
- TA for CMSC 320 (Intro to Data Science), Fall 2019

Indraprastha Institute of Information Technology (IIIT) Delhi — *New Delhi, India*

B.Tech. in Computer Science and Engineering — *2015 - 2019*

- **GPA: 9.47/10**, in top 5% of institute
- Part of dean's list for academic excellence for all years
- Selected Coursework: Numerical Methods, Calculus-I, Calculus-II, Machine Learning, Collaborative Filtering, Information Retrieval, Designing Human-Centered Systems, System Administration, Network Administration

Conference Publications

Diffused Redundancy in Pre-trained Representations — *NeurIPS*

Vedant Nanda, Till Speicher, John P. Dickerson, Krishna P. Gummadi, Soheil Feizi, Adrian Weller — *2023*

Code: github.com/nvedant07/diffused-redundancy

What Happens During Finetuning of Vision Transformers: An Invariance Based Investigation — *Conference on Lifelong Learning Agents (CoLLAs)*

Gabriele Merlin, **Vedant Nanda**, Ruchit Rawal, Mariya Toneva — *2023*

Do Invariances in Deep Neural Networks Align with Human Perception? — *AAAI (Oral)*

Vedant Nanda, Ayan Majumdar, Camila Kolling, John P. Dickerson, Krishna P. Gummadi, Bradley C. Love, Adrian Weller — *2023*

Code: github.com/nvedant07/Human-NN-Alignment

Rawlsian Fairness in Online Bipartite Matching: Two-sided, Group, and Individual — *AAAI*

Seyed A. Esmaeili, Sharmila Duppala, Davidson Cheng, **Vedant Nanda**, Aravind Srinivasan, John P. Dickerson — *2023*

Earlier version appeared as extended abstract at AAMAS 2022

Measuring Representational Robustness of Neural Networks Through Shared Invariances — *ICML (Long Oral)*

Vedant Nanda, Till Speicher, Camila Kolling, John P. Dickerson, Krishna P. Gummadi, Adrian Weller — *2022*

Code: github.com/nvedant07/STIR

Fairness Through Robustness: Investigating Robustness Disparity in Deep Learning — *FAccT*

Vedant Nanda*, Samuel Dooley*, Sahil Singla, Soheil Feizi, John P. Dickerson — *2021*

* Equal Contribution; Code: github.com/nvedant07/Fairness-Through-Robustness

Balancing the Tradeoff between Profit and Fairness in Rideshare Platforms during High-Demand Hours — *AAAI*

Vedant Nanda, Pan Xu, Karthik A. Sankararaman, John P. Dickerson, Aravind Srinivasan — *2020*

Also presented at AIES 2020 (Oral); Code: github.com/nvedant07/rideshare-fairness-peak

On the Long-term Impact of Algorithmic Decision Policies: Effort Unfairness and Feature Segregation through Social Learning — *ICML*

Hoda Heidari *, **Vedant Nanda** *, Krishna P. Gummadi — *2019*

* Equal Contribution; Code: github.com/nvedant07/effort_reward_fairness

Leveraging Facebook's Free Basics Engine for Web Service Deployment in Developing Regions — *ICTD*

Siddharth Singh*, **Vedant Nanda***, Rijurekha Sen, Satadal Sengupta, Ponnurangam Kumaraguru, Krishna P. Gummadi — *2017*

* Equal Contribution

Workshops and Posters

Learning to Explain Machine Learning — *CHI workshop on Human-Centered Explainable AI*

Vedant Nanda*, Duncan McElfresh*, John P. Dickerson — *2021*

* Equal Contribution

Technical Challenges for Training Fair Neural Networks — *ICLR workshop on Responsible AI*

Valeriia Cherepanova*, **Vedant Nanda***, Micah Goldblum, John P. Dickerson, Tom Goldstein — *2021*

* Equal Contribution

Unifying Model Explainability and Robustness via Reasoning Labels — *NeurIPS workshop on Safety and Robustness in Decision Making*

Vedant Nanda, Junaid Ali, Krishna P. Gummadi, Muhammad Bilal Zafar — *2019*

Stop the KillFies! Using Deep Learning Models to Identify Dangerous Selfies — *WWW workshop on Modelling Social Media*

Vedant Nanda, H.Lamba, D.Agarwal, M.Arora, N.Sachdeva, P.Kumaraguru — *2018*

Empirical Analysis of Facebook's Free Basics — *SIGMETRICS (poster)*

S.Singh*, **Vedant Nanda***, R.Sen, S.Ahmad, S.Sengupta, A.Phokeer, Z.A.Farooq, T.A.Khan, P.Kumaraguru, I.A.Qazi, D.Choffnes, K.P.Gummadi — *2017*

* Equal Contribution

Work Experience

Amazon AWS — *WA, USA*

Applied Science Intern — *June 2023 - August 2023*

Manager: Tiffany Deng as part of AWS Bedrock

Amazon AWS — *Cambridge, UK*

Applied Science Intern — *November 2022 - January 2023*

Manager: Muhammad Bilal Zafar as part of AWS Clarify

University of Maryland, College Park — *MD, USA*

Research Assistant — *Jan 2020 - Present*

Advisor: John P. Dickerson

Max Planck Institute for Software Systems — *Saarbrücken, Germany*

Research Assistant — *Aug 2019 - Present*

Advisor: Krishna P. Gummadi

University of Maryland, College Park — *MD, USA*

Teaching Assistant, CMSC320: Intro to Data Science — *Aug 2019 - Dec 2019*

Advisor: John P. Dickerson

Max Planck Institute for Software Systems — *Saarbrücken, Germany*

Research Intern — *May 2018 - Aug 2018*

Advisor: Krishna P. Gummadi

Precog, IIITD — *New Delhi, India*

Research Intern — *May 2017 - Aug 2017*

Advisor: Ponnurangam Kumaraguru

Honors & Awards

2019-20	Dean's Fellowship, University of Maryland.
2018	Best TA award for Data Structures and Algorithms.
2018	Selected for SN Bose scholars program. Awarded to top 50 undergrad and masters students across India.
2018	Selected for MPI-SWS internship program.
2016, 17, 18, 19	Dean's List for academic excellence.
2016, 17, 18, 19	Received Chairman Merit scholarship of Rs. 100,000.
2015	KVPY fellowship.
2015	All India Rank of 804 in JEE mains out of 1.5 million candidates.

Presentations/Talks

2023	Thesis Proposal at University of Maryland.
2022	Talk at University of Cambridge Machine Learning Group. Hosted by Adrian Weller.
2022	Oral Talk at International Conference on Machine Learning (ICML), Baltimore, Maryland.
2022	Talk at Computer Vision and Machine Learning seminar @ MPI-INF, virtual.
2022	Talk at ML Tea @ MPI-SWS, virtual.
2021	Talk at UMD Fairness in AI Seminar, *joint with Valeriia Cherepanova*, virtual. Link.
2021	Paper QnA at Conference on Fairness Accountability and Transparency (FAccT), virtual. Link.
2020	Oral talk at Conference on AI, Ethics and Society (AIES), NYC, USA

Service

Reviewer	ASONAM 2019
	WWW 2020, 2021
	AAAI 2021
	CVPR 2021
	ICML 2021, 2023
	ICCV 2021
	NeurIPS 2021
	ICLR 2023
Other	UMD Graduate Admission Reviewer 2020
	ELLIS PhD Admission Reviewer 2023

PhD Coursework

Grade: A-	PHYS 798J: Science and Tech Policy, by Rosina Bierbaum and Sylvester Gates
Grade: A	CMSC 828L: Existential Threats from AI, by David Jacobs
Grade: A	CMSC 634: Empirical Research Methods in Computer Science, by Michelle Mazurek
Grade: A+	CMSC 828I: Advanced Techniques in Visual Recognition and Learning, by Abhinav Shrivastava
Pass	(At MPI-SWS) Presentation Skills, by Rose Hoberman
Grade: A	CMSC 764: Advanced Numerical Optimization, by Tom Goldstein
Grade: A	CMSC 828M: Applied Mechanism Design for Social Good, by John P. Dickerson
Grade: A	CMSC 726: Machine Learning, by Soheil Feizi
Grade: A	CMSC 723: Computational Linguistics I, by Hal Daumé III

Skills

ML	PyTorch, Lightning, HuggingFace, Numpy, Tensorflow
Other	Matplotlib, Pandas, Git, Django, Java, Android Studio, C/C++, R

References

1. **Prof. Krishna P. Gummadi**
   Scientific Director
   Max Planck Institute for Software Systems
2. **Prof. John P. Dickerson**
   Associate Professor, Computer Science
   University of Maryland, College Park