Education

**University of Maryland & Max Planck Institute for Software Systems**

*MD, USA & SB, Germany*

- **Ph.D. in Computer Science**
  - 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**
  - 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**
  - 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

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

**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

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

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

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

* 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. Sankaraman, John P. Dickerson, Aravind Srinivasan

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

* Equal Contribution; Code: github.com/nvedant07/effort_reward_fairness
Leveraging Facebook’s Free Basics Engine for Web Service Deployment in Developing Regions

Siddharth Singh*, Vedant Nanda*, Riju Senha Sen, Satadal Sengupta, Ponnurangam Kumaraguru, Krishna P. Gummadi

* Equal Contribution

Workshops and Posters

Learning to Explain Machine Learning

Vedant Nanda*, Duncan McElfresh*, John P. Dickerson
* Equal Contribution

Technical Challenges for Training Fair Neural Networks

Valeriia Cherepanova*, Vedant Nanda*, Micah Goldblum, John P. Dickerson, Tom Goldstein
* Equal Contribution

Unifying Model Explainability and Robustness via Reasoning Labels

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

Stop the KillFies! Using Deep Learning Models to Identify Dangerous Selfies

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

Empirical Analysis of Facebook’s Free Basics

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

Work Experience

Amazon AWS

Applied Science Intern
Manager: Tiffany Deng as part of AWS Bedrock

Amazon AWS

Applied Science Intern
Manager: Muhammad Bilal Zafar as part of AWS Clarify

University of Maryland, College Park

Research Assistant
Advisor: John P. Dickerson

Max Planck Institute for Software Systems

Research Assistant
Advisor: Krishna P. Gummadi

University of Maryland, College Park

Teaching Assistant, CMSC320: Intro to Data Science
Advisor: John P. Dickerson

Max Planck Institute for Software Systems

Research Intern
Advisor: Krishna P. Gummadi

Precog, IIITD

Research Intern
Advisor: Ponnurangam Kumaraguru

October 30, 2023

Vedant Nanda · Résumé
### Honors & Awards

| Year | Description |
|------|-------------|
| 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, 2017, 2018, 2019 | Dean's List for academic excellence. |
| 2016, 2017, 2018, 2019 | 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

| Year | Description |
|------|-------------|
| 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 Valeriiia 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