

Vedant Nanda

✉ vnanda@mpi-sws.org | 🏠 nvedant07.github.io | 📧 nvedant07 | 🐦 @_nvedant_ | 📄 v4e3_1

Education

University of Maryland & Max Planck Institute for Software Systems

MD, USA & SB, Germany

PH.D. IN COMPUTER SCIENCE

2019 - now

- RESEARCH INTERESTS: TRUSTWORTHY MACHINE LEARNING, EMPIRICALLY UNDERSTANDING DEEP LEARNING
- 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

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](https://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](https://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](https://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](https://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](https://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

VEDANT NANDA*, DUNCAN McELFRESH*, JOHN P. DICKERSON

* EQUAL CONTRIBUTION

*CHI workshop on Human-Centered
Explainable AI*

2021

Technical Challenges for Training Fair Neural Networks

VALERIA CHEREPANOVA*, VEDANT NANDA*, MICAH GOLDBLUM, JOHN P. DICKERSON, TOM GOLDSTEIN

* EQUAL CONTRIBUTION

ICLR workshop on Responsible AI

2021

Unifying Model Explainability and Robustness via Reasoning Labels

VEDANT NANDA, JUNAID ALI, KRISHNA P. GUMMADI, MUHAMMAD BILAL ZAFAR

*NeurIPS workshop on Safety and
Robustness in Decision Making*

2019

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

VEDANT NANDA, H.LAMBA, D.AGARWAL, M.ARORA, N.SACHDEVA, P.KUMARAGURU

*WWW workshop on Modelling Social
Media*

2018

Empirical Analysis of Facebook's Free Basics

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

* EQUAL CONTRIBUTION

SIGMETRICS (poster)

2017

Work Experience

Amazon AWS

APPLIED SCIENCE INTERN

ADVISOR: MUHAMMAD BILAL ZAFAR

Cambridge, UK

November 2022 - January 2023

University of Maryland, College Park

RESEARCH ASSISTANT

ADVISOR: JOHN P. DICKERSON

MD, USA

Jan 2020 - Present

Max Planck Institute for Software Systems

RESEARCH ASSISTANT

ADVISOR: KRISHNA P. GUMMADI

Saarbrücken, Germany

Aug 2019 - Present

University of Maryland, College Park

TEACHING ASSISTANT, CMSC320: INTRO TO DATA SCIENCE

ADVISOR: JOHN P. DICKERSON

MD, USA

Aug 2019 - Dec 2019

Max Planck Institute for Software Systems

RESEARCH INTERN

ADVISOR: KRISHNA P. GUMMADI

Saarbrücken, Germany

May 2018 - Aug 2018

Precog, IIITD

RESEARCH INTERN

ADVISOR: PONNURANGAM KUMARAGURU

New Delhi, India

May 2017 - Aug 2017

Honors & Awards

2019-20	Dean's Fellowship, University of Maryland.
2018	Best TA award for Data Structures and Algorithms given by the institute.
2018	Selected for SN Bose scholars program, to spend summer'18 at a US university. Awarded to top 50 undergrad and masters students across India. Declined for internship at MPI-SWS.
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

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
ICCV 2021
NeurIPS 2021
Other UMD Graduate Admission Reviewer 2020

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, Numpy, Pandas, Keras, Tensorflow
Other Matplotlib, 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