

# Vedant Nanda

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## 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
- TA FOR CMSC 320 (INTRO TO DATA SCIENCE), FALL 2019
- ADVISORS: KRISHNA P. GUMMADI (MPI-SWS) AND JOHN P. DICKERSON (UNIVERSITY OF MARYLAND)

### 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

### 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

CHI workshop on Human-Centered Explainable AI

VEDANT NANDA\*, DUNCAN MCELFFRESH\*, JOHN P. DICKERSON

2021

\* EQUAL CONTRIBUTION

### Technical Challenges for Training Fair Neural Networks

ICLR workshop on Responsible AI

VALERIJA 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

## 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

### University of Maryland, College Park

RESEARCH ASSISTANT

ADVISOR: JOHN P. DICKERSON

MD, USA

Jan 2020 - 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 ASSISTANT

ADVISOR: KRISHNA P. GUMMADI

Saarbrücken, Germany

Aug 2019 - Present

### 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 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

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

## PhD Coursework

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### 1. PHYS 798J: Science and Tech Policy

SPRING 2021 BY PROF. ROSINA BIERBAUM AND PROF. SYLVESTER GATES, GRADE: A-

### 2. CMSC 828L: Existential Threats from AI

SPRING 2021 BY PROF. DAVID JACOBS, GRADE: A

### 3. CMSC 634: Empirical Research Methods in Computer Science

FALL 2020 BY PROF. MICHELLE MAZUREK, GRADE: A

### 4. CMSC 828I: Advanced Techniques in Visual Recognition and Learning

FALL 2020 BY PROF. ABHINAV SHRIVASTAVA, GRADE: A+

### 5. (At MPI-SWS) Presentation Skills Course

SUMMER 2020 BY PROF. ROSE HOBERMAN

### 6. CMSC 764: Advanced Numerical Optimization

SPRING 2020 BY PROF. TOM GOLDSTEIN, GRADE: A

### 7. CMSC 828M: Applied Mechanism Design for Social Good

SPRING 2020 BY PROF. JOHN P. DICKERSON, GRADE: A

### 8. CMSC 726: Machine Learning

FALL 2019 BY PROF. SOHEIL FEIZI, GRADE: A

### 9. CMSC 723: Computational Linguistics I

FALL 2019 BY PROF. HAL DAUMÉ III, GRADE: A

## Skills

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ML	PyTorch, Python, Numpy, Pandas, Keras, Tensorflow
Other	Matplotlib, Git, Django, Java, Android Studio, C/C++, R, MATLAB, SVN

## References

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### 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