

## EDUCATION

**Massachusetts Institute of Technology***S.M. (2019), Ph.D. (expected 2021), Media Arts and Sciences (Media Lab)**Committee: Alex Pentland (chair), Tommi Jaakkola, Gauri Joshi and Arya Mazumdar*Advisor: [Alex Pentland](#)**Harvard University***Post-Baccalaureate Fellow (2017), Department of Economics*Advisor: [Edward Glaeser](#)**Indian Institute of Technology Delhi***Dual Degree (2016), M.Tech. Computer Science, B.Tech. Electrical Engineering*Advisor: [Sumeet Agarwal](#)

## EXPERIENCE

**Media Lab and Institute for Data, Systems and Society, MIT***Graduate Research Assistant*

September 2017 - current

Advisor: [Alex Pentland](#)**Facebook AI***Graduate Research Intern*

May 2020 - September 2020, May 2018 - September 2018

Advisors: [Dhruv Mahajan](#) and [Laurens van der Maaten](#)**University of California, Berkeley***Computer Vision Engineer*

May 2016 - September 2016

Advisor: [Allen Yang](#)**Massachusetts Institute of Technology***Research Intern*

May 2015 - August 2015, May 2014 - August 2014

Advisor: [Ramesh Raskar](#)**Virginia Tech***Research Intern*

May 2013 - August 2013

Advisor: [Dhruv Batra](#)

## PUBLICATIONS

**P3. Provably Efficient Cooperative Multi-Agent Reinforcement Learning with Function Approximation****Abhimanyu Dubey** and Alex Pentland

Preprint; in submission to ICML 2021.

**C16. Adaptive Methods for Large-Scale Domain Generalization****Abhimanyu Dubey**, Vignesh Ramanathan, Alex Pentland and Dhruv MahajanIEEE Computer Vision and Pattern Recognition (CVPR), 2021 (to appear, as **Oral**)**C15. No-Regret Algorithms for Private Gaussian Process Bandit Optimization****Abhimanyu Dubey**

International Conference on Artificial Intelligence and Statistics (AISTATS), 2021 (to appear)

**C14. Differentially-Private Federated Linear Bandits****Abhimanyu Dubey** and Alex Pentland

Neural Information Processing Systems (NeurIPS), 2020 (Spotlight)

**C13. Kernel Methods for Cooperative Contextual Bandits****Abhimanyu Dubey** and Alex Pentland

International Conference on Machine Learning (ICML), 2020

**C12. Robust Algorithms for Heavy-Tailed Multiagent Bandits****Abhimanyu Dubey** and Alex Pentland

International Conference on Machine Learning (ICML), 2020

**C11. Private and Byzantine-Tolerant Cooperative Decision-Making****Abhimanyu Dubey** and Alex Pentland

International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2020.

**C10. Sparsely-Networked Evolution Strategies**Dhaval Adjudah, Dan Calacci, **Abhimanyu Dubey**, Peter Krafft, Esteban Moro and Alex Pentland

International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2020.

- C9. Thompson Sampling on Symmetric  $\alpha$ -Stable Bandits**  
Abhimanyu Dubey and Alex Pentland  
International Joint Conference on Artificial Intelligence (IJCAI), 2019
- C8. Defense Against Adversarial Images using Web-Scale Nearest Neighbors Search**  
Abhimanyu Dubey, Laurens van der Maaten, Zeki Yalniz, Yixuan Li and Dhruv Mahajan  
IEEE Computer Vision and Pattern Recognition (CVPR), 2019 (Oral)
- W6. Reducing Leakage in Distributed Deep Learning for Health Data**  
Praneeth Vepakomma, Otkrist Gupta, Abhimanyu Dubey and Ramesh Raskar  
AI for Social Good, International Conference on Learning Representations (ICLR Workshops), 2019
- C7. Maximum-Entropy Fine-Grained Classification**  
Abhimanyu Dubey, Otkrist Gupta, Ramesh Raskar and Nikhil Naik  
Neural Information Processing Systems (NeurIPS), 2018
- W5. Evaluating GANs on Explicitly Parameterized Distributions**  
Shayne O'Brien, Matt Groh, and Abhimanyu Dubey  
Correcting Trends in Machine Learning, Neural Information Processing Systems (NeurIPS Workshops), 2018
- C6. Coreset-Based Neural Network Compression**  
Abhimanyu Dubey, Moitrey Chatterjee and Narendra Ahuja  
European Conference on Computer Vision (ECCV), 2018
- C5. Pairwise Confusion for Fine-Grained Visual Classification**  
Abhimanyu Dubey, Otkrist Gupta, Pei Guo, Ryan Farrell, Ramesh Raskar and Nikhil Naik  
European Conference on Computer Vision (ECCV), 2018
- C4. Sparse Representations for Embedding Image Macros**  
Abhimanyu Dubey, Esteban Moro, Manuel Cebrian and Iyad Rahwan  
International World Wide Web Conference (WWW), 2018
- W4. Prediction Propagation for Domain Adaptation**  
Bjarke Felbo, Michiel Bakker, Abhimanyu Dubey, Sadhika Malladi, Alex Pentland and Iyad Rahwan  
Learning with Limited Labeled Data, International Conference on Machine Learning (ICML Workshops), 2018
- C3. TuringBox: An Experimental Platform for the Evaluation of AI Systems (Demo)**  
Ziv Epstein, Blakeley H. Payne (and 8 others, including Abhimanyu Dubey)  
International Joint Conference on Artificial Intelligence (IJCAI), 2018
- P2. A Survey of Private Distributed Deep Learning**  
Praneeth Vepakomma, Tristan Swedish, Ramesh Raskar, Otkrist Gupta and Abhimanyu Dubey  
arXiv Preprint (Survey), 2018
- W3. Regularizing Prediction Entropy Enhances Deep Learning with Limited Data**  
Abhimanyu Dubey, Otkrist Gupta, Ramesh Raskar, Iyad Rahwan and Nikhil Naik  
Learning with Limited Data, Neural Information Processing Systems (NIPS Workshops), 2017
- C2. Pyramidal Spatial Transformer Networks for Modeling Image Virality**  
Abhimanyu Dubey and Sumeet Agarwal  
ACM Multimedia Conference (ACM MM), 2017
- C1. Deep Learning the City: Quantifying Urban Perception at a Global Scale**  
Abhimanyu Dubey, Nikhil Naik, Devi Parikh, Ramesh Raskar, and Cesar A Hidalgo  
European Conference on Computer Vision (ECCV), 2016
- W2. Examining Representational Similarity in ConvNets and the Primate Visual Cortex**  
Abhimanyu Dubey, Jayadeva, and Sumeet Agarwal  
Biological and Artificial Vision, European Conference on Computer Vision (ECCV Workshops), 2016 (Spotlight)
- W1. Deep Convolutional Networks for Modeling Image Virality**  
Abhimanyu Dubey and Sumeet Agarwal  
Web-Scale Vision and Social Media, European Conference on Computer Vision (ECCV Workshops), 2016

## P1. Coreset-Based Adaptive Tracking

Abhimanyu Dubey, Nikhil Naik, Dan Raviv, Rahul Sukthankar and Ramesh Raskar  
arXiv Preprint, 2015

## AWARDS AND GRANTS

<b>Snap Research Scholarship</b> Prize of USD 10,000 awarded in recognition of research ability in machine learning and computer vision.	2019
<b>NeurIPS 2018 Student Travel Prize</b> Awarded by the NeurIPS Foundation to graduate student presenting research at the conference.	2018
<b>MIT Media Lab Travel Grant for ECCV 2018</b> Awarded by the MIT Media Lab to present research at ECCV 2018.	2018
<b>MIT Media Lab Travel Grant for NIPS 2017</b> Awarded by the MIT Media Lab to present research at NIPS 2017.	2018
<b>NeurIPS 2018 Student Travel Prize</b> Awarded by the NeurIPS Foundation to graduate student presenting research at the conference.	2018
<b>MIT Emerging Worlds Fellowship</b> 2-year fellowship awarded by the MIT Emerging Worlds Program to pursue graduate studies in AI and social good.	2017
<b>Advanced Standing in Computer Science and Engineering, IIT Delhi</b> Awarded advanced standing for a graduate degree in Computer Science and Engineering at IIT Delhi for academic performance in related coursework.	2014
<b>Semester Merit Award for top-performing students, IIT Delhi</b> Awarded twice for placing in the top 7% students based on grade-point average for that term.	2011-2012

## ACADEMIC TALKS

<b>Federated Reinforcement Learning with Privacy Guarantees</b> MIT Media Lab Student Seminar	October 2020
<b>Adaptive Methods for Real-World Domain Generalization</b> Facebook AI Computer Vision Seminar	August 2020
<b>Cooperative Bandit Learning with Heavy Tails</b> International Conference on Machine Learning 2020	July 2020
<b>Kernel Methods for Cooperative Multi-Agent Contextual Bandits</b> International Conference on Machine Learning 2020	July 2020
<b>Private and Byzantine-Proof Decision-Making</b> International Conference on Autonomous Agents and MultiAgent Systems 2020	May 2020
<b>Robust Cooperative Decision-Making for Heavy-Tailed Bandits</b> MIT Machine Learning Tea	September 2019
<b>Thompson Sampling for Symmetric <math>\alpha</math>-Stable Bandits</b> International Joint Conference on Artificial Intelligence 2019	August 2019
<b>Defense Against Adversarial Images using Web-Scale Nearest Neighbors Search</b> IEEE/CVF Computer Vision and Pattern Recognition 2019	June 2019
<b>Thompson Sampling for Symmetric <math>\alpha</math>-Stable Bandits</b> MIT Machine Learning Retreat	April 2019
<b>Addressing Intra-Class Similarity in Fine-Grained Visual Classification</b> MIT CSAIL Computer Vision Seminar	February 2019
<b>Adversarial Defense via Large Scale Nearest Neighbor Prediction</b> Facebook Research Computer Vision Seminar	August 2018

<b>Adversarial Defense via Large Scale Nearest Neighbor Prediction</b> Facebook AI Research (FAIR) Computer Vision Seminar	July 2018
<b>Regularization Techniques for Fine-Grained Classification</b> MIT Media Lab Machine Learning Seminar	May 2018
<b>Sparse Matching for Embedding Image Macros</b> WWW Conference on World Wide Web 2018	April 2018
<b>Regularizing Prediction Entropy Enhances Deep Learning with Limited Data</b> NIPS 2017 Workshop on Learning with Limited Data	December 2017
<b>Modeling Global Urban Perception</b> IIT Delhi Machine Learning Seminar	December 2016
<b>Contrasting Representations in Mammalian Vision and Human Vision</b> ECCV Workshop on Biological and Artificial Vision, 2016	October 2016
<b>Modeling Image Virality using Convolutional Neural Networks</b> Indian Workshop on Machine Learning	July 2016

## ACADEMIC SERVICE

### Teaching

Teaching Assistant, MIT 9.520 Statistical Learning Theory (grad-level class with 100+ students)	Fall 2019
Teaching Assistant, MIT 6.S191 Introduction to Deep Learning (undergrad class with 200+ students)	IAP 2017
Teaching Assistant, IIT Delhi ELL881 Deep Learning (grad-level class with 60+ enrollment)	Fall 2016
Teaching Assistant, IIT Delhi ELL774 Machine Learning (grad-level class with 60+ enrollment)	Spring 2016

### Research

Reviewer for CVPR, NeurIPS, ICML, AISTATS, ICLR, ECCV, ICCV, AAAI	2018-present
Reviewer, International Journal of Computer Vision (IJCV)	2018-present
Reviewer, IEEE Transactions on Neural Networks and Learning Systems	2017-present
Reviewer, IEEE Robotics and Automation Letters	2017-present
Reviewer, Digital Signal Processing, Elsevier	2017-present

### Advising

URO Supervisor for Alhamzah Alnufaili, MIT EECS	September 2019-present
URO Supervisor for Sooraj Boominathan, MIT EECS	March 2018-June 2018
URO Supervisor for Soumya P Ram, MIT EECS	December 2017-January 2018

### Community

Organizing Committee of the Machine Learning Across MIT (MLxMIT) Initiative	2019-present
Organizer of the Machine Learning Seminar at the MIT Media Lab	2017-2018
Organizer of the Deep Learning Reading Group at IIT Delhi	2016
Student Volunteer, Very Large Databases (VLDB) 2016	2016

## OTHER

Published writer for <i>HackerNoon</i> and <i>Bullshit.ist</i>	2016
Student Volunteer, National Association for the Blind, New Delhi	2015
Student Volunteer, National Service Scheme, IIT Delhi	2014
National Finalist, Code.Fun.Do (Microsoft Hackathon) at IIT Delhi	2014
Regional Semi-finalist, Croma Tech Grandmasters, New Delhi	2014
<i>Chief Editor</i> , Board of Student Publications, IIT Delhi	2013
Activity Head, IIT Delhi Open House	2012
Regional Finalist, HackU (Yahoo! Hackathon) at IIT Delhi	2011

References available on request.