

Amartya Sanyal

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Education

D.Phil in Computer Science (Advisor : Dr. Varun Kanade and Dr. Philip H.S. Torr)

UNIVERSITY OF OXFORD, ST. HUGH'S COLLEGE

Passed with Minor Corrections

2017 - 2021

B.Tech. in Computer Science and Engineering (Minor in Linguistics Theory)

INDIAN INSTITUTE OF TECHNOLOGY, KANPUR

CPI - 9.4/10.0

2013 - 2017

Professional Experience

Postdoctoral Fellow, ETH AI Center and Max Planck Institute for Intelligent Systems

WITH PROF. FANNY YANG AND PROF. BERNHARD SCHÖLKOPF

Zürich & Tübingen

October 2021 - Now

Research Assistant, University of Oxford

WITH PROF. PHILIP H.S. TORR

Oxford, UK

June 2021 - September 2021

Part Time Researcher, Facebook AI Research

WITH DR. EDWARD GREFENSTETTE

London, UK

November 2020 - April 2021

Grants

2022

Awarded an Hasler Stiftung Grant of 50,000 CHF, Principal Investigator of a project "Understanding the Interaction of Privacy and Fairness in modern ML Algorithms"

ETH Zürich

Teaching

INSTRUCTOR

'22 **Co-Instructor— Projects in Machine Learning Research**, Dept. of Computer Science, ETH Zürich

'22 **Co-Instructor— Guarantees in Machine Learning**, Dept. of Computer Science, ETH Zürich

TUTOR

'21 **Tutor in Computational Learning Theory**, Dept. of Computer Science, University of Oxford

'19, '20 **Tutor in Theory of Optimization**, Department of Engineering Science, University of Oxford

'18, '19 **Tutor in Machine Learning**, Wadham College, Worcester College, Somerville College, University of Oxford

'18, '19, '20 **Tutor in Machine Learning**, Dept. of Computer Science, University of Oxford

'17 **Teaching Assistant in Computational Complexity**, Department Computer Science, University of Oxford

'14 **Academic Mentor**, Linear Algebra, Real Analysis and ODEs, IIT Kanpur

Academic Reviewing

JOURNAL REVIEWING

'22 **Transactions in Machine Learning Research**,

'20 **International Journal of Computer Vision**,

AREA CHAIR

'23 **Artificial Intelligence and Statistics (AISTATS)**,

CONFERENCE REVIEWING

'22 **NeurIPS2022, UAI2022, AISTATS 2022, ICML 2022**,

'21 **NeurIPS 2021, AISTATS 2021, ICLR 2022, ICML 2021**,

'20 **ICLR 2021, SODA 2020, NeurIPS 2020, ICML 2020, CVPR 2020, ECCV 2020**,

'19 **NeurIPS 2019**,

WORKSHOP REVIEWING

'21 **Workshop on Distribution Shifts**, NeurIPS 2021

'20 **Workshop on Dataset Curation and Security**, NeurIPS 2020

'20 **Reviewer for Workshop on Continual Learning**, ICML 2020

'19 **Critiquing and Correcting Trends in Machine Learning**, NeurIPS 2019

Research Experience

Facebook AI Research, Dr. Edward Grefenstette

RESEARCH INTERN, GENERALIZATION IN REINFORCEMENT LEARNING

London, UK

June 2020 - September 2020

Laboratory for Computational and Statistical Learning, Prof. Lorenzo Rosasco

Genoa, Italy

VISITING RESEARCHER, IMPLICIT REGULARIZATION OF GRADIENT DESCENT

June 2019 - July 2019

Twitter Cortex, Nicolas Koumchatzky

New York, NY, USA

RESEARCH INTERN, ADVERSARIAL GENERATION OF DISCRETE SEQUENCES

May, 2017 - August 2017

Montreal Institute of Learning Algorithms, Prof. Yoshua Bengio

Montreal, QC, Canada

RESEARCH INTERN, LANGUAGE MODELLING WITH ADAPTIVE SEGMENTATION

May, 2016 - July, 2016

Amazon.com - Guided by Dr. Atool Saroop and Dr. Rajeev Rastogi

Bengaluru, India

MACHINE LEARNING INTERN, COMPETITIVE PRICING WITH THE MACHINE LEARNING SELLER SERVICE TEAM

May, 2015 - July, 2015

Advised Students

'20	Sharan Gopal , Master's Student in Advanced Computer Science, University of Oxford
'21	Yaxi Hu , Master's Student in Statistics, ETH Zürich
'22	Piersilvio De Bartolomeis , Master's Student in Data Science, ETH Zürich
'22	Gizem Yüce , Master's Student in Data Science, ETH Zürich
'22	John Hill , Master's Student in Computer Science, Georgia Institute of Technology
'22	Angelo Gnazzo , Master's Student in Mathematics, ETH Zürich
'22	Francesco Pinto , D.Phil (Ph.D) Student, University of Oxford

Program Committees

2018	Wining and Dining Officer , St. Hugh's College MCR, University of Oxford
2019	Vice-President , St. Hugh's College MCR, University of Oxford
2015	Editor , Vox Populi, Campus Newsletter of IIT Kanpur, IIT Kanpur
2016	Coordinator , SIGML - Special Interest Group in Machine Learning, IIT Kanpur
2011	President , Social Welfare Group, St. Xaviers School, Raiganj, India
2015	Editorial Executive , Science And Technology Council - Core Team, IIT Kanpur

Awards & Visits

'22	ELLIS Member , ELLIS Society
'21-'23	ETH AI Center Postdoctoral Fellowships Award , Awarded by the ETH AI Center, Zürich, Switzerland
'17-'21	Turing Doctoral Studentship Award , Awarded by The Alan Turing Institute, London, UK
'19 & '20	Top Reviewer Award , ICML 2020, NeurIPS 2019
'14 & '16	Academic Excellence Award , Awarded to top 10% student, IIT Kanpur
'13	KVPY(Kishore Vaigyanik Pratyashona Yojana) , Awarded to 280 students nationally by the Gov. of India

Talks

July '22	The Alan Turing Institute ,	London
June '22	Department of Engineering Science, University of Oxford ,	Oxford
June '22	Department of Computer Science, University of Edinburgh ,	Edinburgh
Oct '21	Department of Statistics, ETH Zürich ,	Zürich
Feb '21	Department of Computer Science, Harvard University ,	Boston
Nov '20	Math Machine Learning seminar MPI MIS + UCLA, Max-Planck-Institut für Mathematik ,	Leipzig
Nov '20	Max-Planck-Institut für Informatik, Saarbrücken, Germany. ,	Saarbrücken
Oct '20	Machine Learning and Computer Vision Group, Institute of Science and Technology, Austria. ,	Vienna
Oct '20	Thoth team, Inria Grenoble Rhône-Alpes, France. ,	Grenoble
Sep '20	Department of Computer Science and Engineering, Indian Institute of Technology, Hyderabad. ,	Hyderabad
Aug '20	Department of Computer Science and Engineering, Indian Institute of Technology, Kanpur. ,	Kanpur

Conference and Journal Publications

Towards fast and effective single-step adversarial training

Pau Jorge, Amartya Sanyal, Adel Bibi, Ricardo Volpi, Gregory Rogez, Puneet K. Dokania, Philip H. S. Torr

Advances in Neural Information Processing Systems (NeurIPS), 2022

How unfair is private learning?

Amartya Sanyal, Yaxi Hu, Fanny Yang

Conference on Uncertainty in Artificial Intelligence (UAI) Oral Paper, 2022

Open Problem: Do you pay for Privacy in Online learning?

Amartya Sanyal, Giorgia Ramponi

Conference on Learning Theory (COLT), Open Problem, 2022

How Benign is Benign Overfitting ?

Amartya Sanyal, Varun Kanade, Philip H.S. Torr, Puneet K. Dokania

International Conference on Learning Representations (ICLR), Spotlight Paper, 2021

Progressive Skeletonization: Trimming more fat from a network at initialization

Pau Jorge, Amartya Sanyal, Harkirat S. Behl, Philip H. S. Torr, Gregory Rogez, Puneet K. Dokania

International Conference on Learning Representations (ICLR), 2021

Stable Rank Normalization for Improved Generalization in Neural Networks and GANs

Amartya Sanyal, Philip H.S. Torr, Puneet K. Dokania

International Conference on Learning Representations (ICLR), Spotlight Paper, 2020

Calibrating Deep Neural Networks using Focal Loss

Jishnu Mukhoti, Amartya Sanyal, Viveka Kulharia, Stuart Golodetz, Philip H. S. Torr, Puneet K. Dokania

Advances in Neural Information Processing Systems (NeurIPS), 2020

TAPAS: Tricks to Accelerate (encrypted) Prediction As a Service

Amartya Sanyal, Matt Kusner, Adria Gascon, Varun Kanade

International Conference on Machine Learning (ICML), 2018

Optimizing non-decomposable measures with deep networks

Amartya Sanyal, Pawan Kumar, Purushottam Kar, Sanjay Chawla, Fabrizio Sebastiani

Springer, Machine Learning (2018). 2018

Agent based simulation of the evolution of society as an alternate maximization problem

A. Sanyal, S. Garg, A. Unmesh, H. Karnick

2017 International Conference on Behavioral, Economic, Socio-cultural Computing (BESCom), 2017

A Hybrid Deep Architecture for Face Recognition in Real-Life Scenario

Amartya Sanyal, Ujjwal Bhattacharya, Swapan K. Parui

Lecture Notes in Computer Science (Vol. 10481), 2016

Workshop and Preprint Publications

How robust are pre-trained models to distribution shift?

Yuge Shi, Imant Daunhawer, Julia E. Vogt, Philip H.S. Torr, Amartya Sanyal

ICML 2022: Workshop on Spurious Correlations, Invariance and Stability, 2022

A law of adversarial risk, interpolation, and label noise

Daniel Paleka, Amartya Sanyal

ICML 2022: Workshop on Responsible Decision Making in Dynamic Environments, 2022

Catastrophic Overfitting is a bug but also a feature

Guillermo Ortiz-Jimenez, Pau Jorge, Amartya Sanyal, Adel Bibi, Puneet Dokania, Pascal Frossard, Gregory Rogez, Philip H. S. Torr

ICML 2022: Workshop on New Frontiers In Adversarial Machine Learning, 2022

Robustness via Deep Low Rank Representations

Amartya Sanyal, Varun Kanade, Philip H.S. Torr, Puneet Dokania

ICML 2018: Workshop on Theory and Application of Deep Generative Models, 2018

Multiscale sequence modeling with a learned dictionary

Bart Merriënboer, Amartya Sanyal, Hugo Larochelle, Yoshua Bengio

ICML 2017: Workshop on Machine Learning in Speech and Language Processing, 2017