

Amartya Sanyal

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Education

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

Passed with Minor Corrections

UNIVERSITY OF OXFORD, ST. HUGH'S COLLEGE

2017 - 2021

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

CPI - 9.4/10.0

INDIAN INSTITUTE OF TECHNOLOGY, KANPUR

2013 - 2017

Professional Experience

Postdoctoral Fellow, ETH AI Center

Zürich, Switzerland

WITH PROF. FANNY YANG AND PROF. BERNHARD SCHÖLKOPF

October 2021 - Now

Research Assistant, University of Oxford

Oxford, UK

WITH PROF. PHILIP H.S. TORR

June 2021 - September 2021

Part Time Researcher, Facebook AI Research

London, UK

WITH DR. EDWARD GREFENSTETTE

November 2020 - April 2021

Grants

2022 **Awarded an Hasler Stiftung Grant of 50k 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 **IEEE Transactions on Information Theory**,

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

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

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

VISITING RESEARCHER, IMPLICIT REGULARIZATION OF GRADIENT DESCENT

Genoa, Italy
June 2019 - July 2019

Twitter Cortex, Nicolas Koumchatzky

RESEARCH INTERN, ADVERSARIAL GENERATION OF DISCRETE SEQUENCES

New York, NY, USA
May, 2017 - August 2017

Montreal Institute of Learning Algorithms, Prof. Yoshua Bengio

RESEARCH INTERN , LANGUAGE MODELLING WITH ADAPTIVE SEGMENTATION

Montreal, QC, Canada
May, 2016 - July, 2016

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

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

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

University of Oxford
University of Oxford
IIT Kanpur
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Awards & Visits

- '22 **ELLIS Member**,
- '21-'23 **ETH AI Center Postdoctoral Fellowships Award**, Awarded by the ETH AI Center
- '17-'21 **Turing Doctoral Studentship Award**, Awarded by The Alan Turing Institute
- '20 **Top Reviewer Award**, Awarded to top 33%reviewers
- '19 **Top Reviewer Award**, Awarded to top 400 reviewers
- '14 & '16 **Academic Excellence Award**, Awarded to top 10% student
- '13 **KVPY(Kishore Vaigyanik Pratyashona Yojana)** , Awarded to 280 students by the Gov. of India

Zürich, Switzerland
London, UK
ICML 2020
NeurIPS 2019
IIT Kanpur

Talks

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

London
Oxford
Edinburgh
Zürich
Harvard University
Leipzig
Saarbrücken
Vienna
Grenoble
Hyderabad
Kanpur

Conference and Journal Publications

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

Amartya Sanyal, Giorgia Ramponi

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

How unfair is private learning?

Amartya Sanyal, Yaxi Hu, Fanny Yang

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

The Intriguing Effects of Focal Loss on the Calibration of Deep Neural Networks

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

Under Submission, 2022

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

Under Submission, 2022

Robustness via Deep Low Rank Representations

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

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

Multiscale sequence modeling with a learned dictionary

Bart Merriënboer, Amartya Sanyal, Hugo Larochelle, Yoshua Bengio

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