Utkarsh Sharma

PhD 2021 (Machine Learning and Physics)
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https://u-sharma.github.io

Education

Johns Hopkins University — 2017 - 2021
PhD (Advsor: Jared Kaplan, co-creator of GPT-3)

Indian Institute of Technology Bombay — 2013 - 2017
Bachelor of Technology (Electrical Engineering)

Experience

X, the Moonshot Factory (Google X) — 2020
Research Intern (Machine Learning)

Tata Institute of Fundamental Research, Mumbai — 2015 - 2017
Visiting Researcher (Physics)

Humboldt University, Berlin — 2016
Visiting Researcher (Physics)

Science Communication

Three Minute Thesis Competition JHU, 2021: I was a finalist in the competition. The aim was to explain the entire PhD dissertation research to a **non-technical audience** in 3 minutes.

Physics Fair 2018, 2019: Participated in the Johns Hopkins physics fair to showcase physics research in a simple, practical manner to school students

Honors

Graduated in top 10 percentile — 2017
Class of 2017, IIT Bombay

Indian Institute of Teachnology, Joint Entrance Examination (IIT-JEE) — 2013
Ranked 101 out of over 500000 candidates

Indian National Physics Olympiad — 2013
Among top 35 achievers from across India

Indian National Mathematical Olympiad — 2013
Among top 35 achievers from across India

Regional Mathematical Olympiad — 2013
State Rank 5 in the state of UP, the largest state in India

Kishor Vaigyanik Protsahan Yojana (KVPY) fellowship — 2012-2013
Among top 100 awardees from across Indi

Projects

Luni-Solar Calendar (Panchanga) — 2020-2021
Designed singlehandedly from ground up using NASA's astronomical data.

COVID-19 Design Challenge: Optimal Routing Algorithm — March 2020
Organized by the Johns Hopkins Center for Bioengineering Innovation and Design. Our project was recommended by Dr Kevin Munjal, EMS System Director, Mount Sinai Health System, New York City

Publications (ML)

Explaining Neural Scaling Laws
Y. Bahri, E. Dyer, J. Kaplan, J. Lee, U. Sharma
arXiv:2102.06701 [cs.LG]

A Neural Scaling Law from the Dimension of the Data Manifold
U. Sharma, J. Kaplan
arxiv:2004.10802 [cs.LG]

Publications (Physics)

AdS_3 reconstruction with general gravitational dressings
H. Chen, J. Kaplan and U. Sharma.
arXiv:1905.00015 [hep-th]
DOI:10.1007/JHEP07(2019)141

Currents and radiation from the large D black hole membrane
S. Bhattacharyya, A. Mandal, M. Mandlik, U. Mehta, S. Minwalla, U. Sharma and S. Thakur.
arXiv:1611.09310 [hep-th]
DOI: 10.1007/JHEP05(2017)098

Unpublished Work

Optimization with Birkhoff Polytopes (Undergraduate Thesis)
https://u-sharma.github.io/BirkhoffPolytopes.pdf

Other Activities

Conferences: Bootstrap 2018, 2019 (Simons Bootstrap Collaboration),
Simons Collaboration on the Nonperturbative Bootstrap Annual Meeting, 2019