



Satvik Mishra

Nationality: Indian Gender: Male  Email address: samishr@sissa.it

EDUCATION AND TRAINING

PhD

SISSA [01/10/2022 – Current]

City: Trieste | Country: Italy | Website: <https://www.sissa.it/>

Master's Degree (Physics)

RWTH [06/10/2019 – 16/06/2022]

Address: Templergraben 55 , 52056 Aachen (Germany) | Website: <https://www.rwth-aachen.de> | Field(s) of study: Astroparticle Physics and Cosmology | Thesis: Analytical model for reionization from stars and the 21 cm temperature (Implementation in CLASS)

Bachelor's Degree (Physics)

St. Stephen's College [18/07/2016 – 24/05/2019]

Address: Sudhir Bose Marg University Enclave , 110007 Delhi | Website: <https://www.ststephens.edu> | Field(s) of study: Physics

CONFERENCES AND SEMINARS

[16/06/2025 – 20/06/2025] Sardinia

EuCAIFCon Oral and poster presentation at the *European AI for Fundamental Physics Conference*.

[22/09/2025 – 26/09/2025] Ljubljana

International Conference AI for SCIENCE Gave an oral presentation titled “*Diffusion based models for scalable and accurate field level generation*”.

[09/12/2024 – 12/12/2024] New York City

Cosmology and galaxy astrophysics with simulations and machine learning

PUBLICATIONS

[2025]

Large, fast and accurate HI intensity maps with latent overlap diffusion

Authors: Satvik Mishra, Roberto Trotta, Matteo Viel | Journal Name: MNRAS

[2026]

Cosmo-FOLD: Fast generation and upscaling of field-level cosmological maps with overlap latent diffusion

Authors: Satvik Mishra, Roberto Trotta, Matteo Viel

SKILLS

Computational Cosmology and Machine Learning

Computational Cosmology: CLASS, CAMELS, IllustrisTNG

Machine Learning: PyTorch, diffusion models,

Programming: Python, C

WORK EXPERIENCE

 **Cosmostat** – Crete, Greece

Workshop

[18/09/2023 – 22/09/2023]

Workshop on learning Machine Learning techniques for inferencing and image processing.

 **St.Stephen's College** – New Delhi, India

Project

[31/08/2017 – 27/02/2018]

Presented the project in a Poster Presenting Competition at the Indian National Science Academy on National Science Day. There were 2 posters titled-“Dark Energy and the Accelerated Expansion” and “Statistical methods in Astronomy”.

 **St.Stephen's College** – New Delhi, India

Volunteer Work

[19/07/2018 – 09/12/2018]

Member of the Astronomy Club, St.Stephen's College.

Gave and organized talks and workshops and held planet viewing sessions.

LANGUAGE SKILLS

Mother tongue(s): Hindi

Other language(s):

English

LISTENING C2 READING C2 WRITING C2

SPOKEN PRODUCTION C2 SPOKEN INTERACTION C2

Bengali

LISTENING B2 READING A2 WRITING A2

SPOKEN PRODUCTION B2 SPOKEN INTERACTION B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user