

# DR. SRASHTI GOYAL

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📍 Berlin, Germany

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Data Scientist with **5+ years of experience** in machine learning, statistical modeling, and scalable data pipelines. **Physics PhD** with deep expertise in Bayesian inference, distributed computing, and interdisciplinary research. Proven record of delivering production-ready ML tools and impactful scientific contributions. Passionate about sustainable innovation, human-AI interaction, and solving real-world challenges through data.

## EDUCATION & RESEARCH

### PhD in Physics (Gravitational Waves Astronomy)

International Center for Theoretical Sciences,  
Tata Institute of Fundamental Research (ICTS-TIFR)

📅 Aug 2019 - Sep 2023

📍 Bengaluru, India

- Pioneered a **ML algorithm using CNNs**, achieving 1000x faster compared to Bayesian methods for identification of strong lensing candidates from the observed data of colliding binary black-holes. [Code](#), [Publication](#)
- Developed **hypothesis testing with Bayesian inference** to rule out alternative gravity theories against Einstein's theory of relativity using the observed time series data in gravitational-wave detectors. [Code](#), [Publication](#)
- **Proposed a mathematical model of COVID-19** disease spread and various intervention strategies for different countries with **time-series data analysis**, voluntarily. [Code](#), [Publication](#)

### BS-MS Dual Degree in Physics

Indian Institute of Science Education & Research, Kolkata (IISER-K)

📅 Aug 2013 - June 2018

📍 Kolkata, India

- Master's Thesis: Dynamical analysis and **mathematical modelling** of wave-like patterns from a biological experiment. Simulated non-linear partial differential equations using **C & OPENMP**.
- Dynamical simulation of complex network of bio-chemical reactions.

## PROFESSIONAL EXPERIENCE

### Research Scientist in Astrophysics

Max Planck Institute for Gravitational Physics

📅 Oct 2023 - Ongoing

📍 Potsdam, Germany

- Contributed to GLoW, a Python package for wave diffraction modeling — enhanced sensitivity of detection by 10x. [Code](#), [Publication](#)
- **Forecast detection probabilities of diffraction effects** for upcoming space-based gravitational wave detector, called LISA, using **distributed computing**.

## SKILLS

### Technical Stack

Python

C

MATLAB

SQL

TensorFlow

Scikit-learn

OpenMP

GPU

LaTeX

Scipy

Pandas

### Data Science Expertise

Bayesian Inference

Deep Learning

Computer Vision

Statistical Modeling

Distributed Computing

### Tools

Gitlab CI/CD

Slurm

Condor

Docker

Jupyter

## ACHIEVEMENTS



12+ Publications

ORCID ID 0000-0002-4225-010X



2+ Open-source codes in LIGO GitLab

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15+ Conferences, 6+ Talks Across Australia, UK, EU, India.



99.5 percentile in JEE and JEST

Top ranker in competitive entrance exams



**DST-Inspire Fellowship Recipient 2013-2018.**

for Undergraduate Science Research

- Improved the accuracy of an existing Bayesian method to identify strongly lensed signals by 80%. [Publication](#)

## Gravitational Waves Data Scientist

LIGO Scientific Collaboration

📅 Oct 2020 – Ongoing

📍 Remote - worldwide

- Developed and deployed LensID, an automated ML pipeline for LIGO data analysis, processing 5K+ event pairs; enabled real-time identification of lensing candidates.
- Developed and deployed '**LensID**', an **ML pipeline** analyzing 5K+ LIGO event pairs. Identified the most statistically significant gravitational lensing candidate of the 2019–2020 run. [Code](#), [Publication](#)