

# Himanshu

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## EDUCATION

|  |                   |
|--|-------------------|
| <b>National Institute of Technology Karnataka, Surathkal</b>             | 2025 – Present    |
| <i>M.Tech in Computational Data Science</i>                              | <i>CGPA: 8.95</i> |
| <b>Indian Institute of Technology, Indore</b>                            | 2019 – 2021       |
| <i>M.Sc. Astronomy</i>   | <i>CGPA: 8.39</i> |
| <b>Delhi Technological University, Delhi</b>                             | 2014 – 2018       |
| <i>B.Tech. Engineering Physics (Major: Electronics, Minor: Robotics)</i> | <i>CGPA: 7.69</i> |

## RESEARCH EXPERIENCE

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|---|-------------------------|
| <b>Master's Thesis: Galaxy Clusters via Sunyaev–Zel'dovich Effect</b>   | 2019 – 2021             |
| <i>Indian Institute of Technology Indore</i>  | <i>Research Scholar</i> |
| – Performed data analysis and image processing of galaxy clusters using Monte Carlo methods.                  |                         |
| – Simulated Sunyaev–Zel'dovich effect images using Python and C++ with theoretical and experimental modeling. |                         |
| – Conducted MCMC parameter estimation on simulated and observational data showing strong agreement.           |                         |
| <b>Industrial Internship</b>  | June 2017 – July 2017   |
| <i>Central Electronics Limited, Uttar Pradesh</i>   | <i>Intern</i>           |
| – Tested piezoelectric elements for quality control and performance validation.                               |                         |
| – Analyzed electrical constants and capacitance values for product assessment.                                |                         |

## PROJECTS

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| <b>Time Series Forecasting of COVID-19</b>   <i>Python, ARIMA</i>                                |
| – Developed ARIMA-based forecasting model achieving predictions within 95% confidence intervals. |
| <b>Hamiltonian Monte Carlo for Parameter Estimation</b>   <i>Python, Bayesian Inference</i>      |
| – Implemented HMC for Supernova Ia cosmological data with ~70% acceptance rate.                  |
| – Achieved Gelman–Rubin convergence ratio ~0.96 across chains.                                   |
| <b>Importance Sampling for Cosmological Parameters</b>   <i>Python, Statistical Modeling</i>     |
| – Applied importance sampling techniques achieving ~88% sampling efficiency.                     |

## TECHNICAL SKILLS

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| <b>Languages:</b> Python, C++, C, SQL, JavaScript  |
| <b>Technologies:</b> Azure, TensorFlow, PyTorch, TensorRT, Tableau, Power BI                             |
| <b>Concepts:</b> Machine Learning, Monte Carlo Methods, MCMC, Time Series Analysis, Statistical Modeling |

## ACHIEVEMENTS & CERTIFICATIONS

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| <b>Microsoft Certified: Azure Data Scientist Associate</b> | 2025 |
| <i>Microsoft</i>   |      |
| <b>Poster Presentation</b>                                 | 2021 |
| <i>Astronomical Society of India</i>                       |      |