Research Interests	Computational astrophysics & cosmology, galaxy formation and evolution, compact objects, dark energy and dark matter, MHD, numerical simulations, big data, and applied ML
Education	PhD in Physics: AstrophysicsAug. 2023 - PresentGeorgia Institute of TechnologyAdvisor :
	Bachelor of Technology: Engineering PhysicsAug. 2018 - May 2022Delhi Technological University, IndiaOverall GPA: 7.43/10 Major GPA: 9.14/10
Awards and Honors	IAU symposium 377 monsoon school scholarship recipient2023Honorable Mention for work in applied ML presented at IMECE by ASME2022Member - DU IoE grant for establishing radio astronomy lab (INR 800,000)2022Special mention by DeepAI for novel work in super-resolution2021Scipy and PyData Global Impact scholar2021, 2022
Selected Research Experiences	Research internMay'22 - PresentNational Astronomical Observatory of JapanMentor - Dr. Maria Dainotti- Analysing optical x-ray data of Gamma-ray Burstsfrom Swift-BAT, BATSE andother datasets for GRB class density based on redshift Clustering GRB on the basis of prompt parameters using various clustering methodswith an emphasis on Gaussian Mixture Model and Bayesian Information Criterion,paper describing methodology and observations in progress
	Peering into the Radio Universe - DU IoE projectNov'21 - PresentDelhi UniversityMentor - Dr. T.R.Seshadri- Setting up a radio astronomy lab for research and outreach purposes facilitating inperson as well as remote observations with help from IUCAA. Currently fabricatingantennae and related electronic circuits to learn more about the radio loud universe
	Summer InternMay'21 - August'21Center for Computational Astrophysics, FIMentor - Dr. L Y Aaron Yung- Studied dark matter halos and their properties using IllustrisTNG. Explored ML algorithms and their limitations on merger trees to detect self-similarity across branches.
	Student Researcher, Fluid Mechanics groupFeb'21 - May'22Delhi Technological UniversityMentor - Dr. R.K.Singh- At FMG, we carried out both theoretical and experimental research in areas of Computational Fluid Mechanics and Scientific Machine Learning- Super-resolution reconstruction of turbulent flows with ML to upscale the resolution of images or videos and enable us to reconstruct high-fidelity images from LR data
	Modeling dust scattering and halos using GALEX dataMay'20 - Jan'21Indian Institute of AstrophysicsMentor - Dr. Jayant Murthy- Explored the evolution and nucleosystemesis of O and B type stars and the effect of

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	cosmic dust on scattering and star formation rates. Also worked on a around bright stars and deriving inferences from them.	nalysis of halos
Industrial	Consultant (Data Engineering) Ju	aly'22 - June'23
Experiences	Genpact - Deployed as a data engineer focusing on big data and scalable dat density businesses and processes by employing ML, Snowflake and PyS	alakes for high Spark
Publications and Preprints	Maria G. Dainotti, Shubham Bhardwaj, Anish Kalsi, Sachin Ven Narendra, Enrico Rinaldi, and Agnieszka Pollo Working title - 'GRB Optical and X-ray Plateau Properties Classifier vised Machine Learning', In progress	katesh , Aditya Using Unsuper-
	Sachin Venkatesh and Gaurav Pundir (2022). 'PackagE that geneR plotS due To gravitatiOnaL lEnsing' Res. Notes AAS 6 255	ates tIme delay
	Sachin Venkatesh et al., (2021). 'A comparative study of various Deep niques for spatio-temporal Super-Resolution reconstruction of Forced I lent flows', IMECE2021-69923, invited extension in progress for Physic	b Learning tech- sotropic Turbu- cs of Fluids
Talks and Posters	'A quick overview of PERISTOLE and its future' [Talk] - NANOGrav STARS telecon	Nov'22
	 'Deep Learning techniques for spatio-temporal Super-Resolution tion and how they can be extended to astronomy and astroph - International Mechanical Engineering Congress & Exposition, ASME The Canadian Astro-Particle Physics Summer Student Talk, SNOLA 	on reconstruc- hysics' [Talk] > Nov'21 .B Aug'21
	'Measure of biases in higher order precessing waveforms' [Pos NANOGrav Fall science meeting	ter] October 2021
	'A study of Chaos in planar three body systems' [Poster] Presision, Presidency University	September 2020
Skills	 Programming languages: Python, R, SQL, IDL/GDL, C++ Operating systems: Linux, Windows, HPC architectures, CUDA Software: LaTeX, ds9, Git, COMSOL, MATLAB 	
Conferences and Workshops	• IAU symposium 377 conference and monsoon school Selected for monsoon school on Early Disk-Galaxy Formation from JWST to the Milky Way	Feb'23
	• Code/Astro - Astronomy software development, Caltech Package developed - PERISTOLE 10.5281/zenodo.6744000	June'22
	NANOGrav Fall Science meeting	Oct'21
	• PyData Global 2021	Oct'21
	• Scipy 2021	July'21
	• EAS 2021 [Volunteer]	July'21
	• ESCAPE Summer School on Data Science for Astronom cle and Particle Physics, ESFRI	y, Astroparti- June'21
	• Sokendai Asia winter school, NAOJ Japan	Jan'21

	• IV Joint ICTP-Trieste/ICTP-SAIFR School on Cosmology	Jan'21
	• CfAO fall retreat, UCSC	Oct'20
	• Vienna Summer School on Gravitational Quantum Physics University of Vienna	Sep'20
	• Int'l Workshop on Astronomy and Relativistic Astrophysics University of Oklahoma	Sep'20
Independent Projects	Heavy Element Nucleosynthesis in GW170817 Investigating the evidence for neutron rich nucleosynthesis processes in the El of GW170817 event using data from FERMI and cross correlating the data of from LIGO	M Data btained
	Applying machine learning to CERN experiments A chain of 5 mini-projects to infer from the data generated by CERN openlab a online. Used several ML algorithms for Z boson mass measurement, particle de detector optimization, rare decay search and electromagnetic shower search	vailable etection,
	Radio Astronomy Data Analysis Recorded observations of various radio sources in the sky (Cygnus A, The Su using the SWAN Radio Telescope and analyzed the data. Worked on data and observation of the Vela Pulsar	un etc.) alysis of
Outreach and Mentoring	Mentor, Major League HackingJan. 2021 Appointed as a Mentor at Major League Hacking specializing in data scient analysis to help students in hackathons and in their projects	present nce and
	Mentor, SPARE-DEPTH, Delhi Technological University Dec. 2020 - - Mentoring sophomores and juniors on basic astronomy and astrophysics projecourses	present ects and
	Outreach & Technical Communicator , Vigyan Samagam, India Fee - Was involved with the LIGO-India project, the TMT and BARC's MACE to and coordinated logistics of public lectures	b. 2020 elescope