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EDUCATION

Degree	Institution	Year	Performance / Details
B.Tech : Energy Engineering (Minor in Computer Science)	Indian Institute of Technology Delhi	2022-2026	CGPA: 8.935 (out of 10), Department Rank 1
HSC : Class 12	Pace Junior College, Andheri, Mumbai	2022	85%
CBSE : Class 10	R.N. Podar School, Santacruz, Mumbai	2020	98.2%

AWARDS, GRANTS & SCHOLARSHIPS

Award / Recognition	Category	Year	Description / Basis of Selection
AIR 5762 - JEE Advanced	Competitive Exam	2022	National exam for IIT admissions; Top 0.3% among ~1.6 lakh candidates.
State Rank 217 - MHT-CET (99.83%ile)	Competitive Exam	2022	Ranked among top candidates in state-level engineering entrance (~6 lakh candidates).
335/340 - GRE General Test	Competitive Exam	2025	Verbal 169 (99%ile), Quantitative 166 (71%ile), Analytical Writing 4.0 (63%ile).
117/120 - TOEFL iBT	Competitive Exam	2025	Reading 29, Listening 28, Speaking 30, Writing 30; CEFR C2 level.
SPARC-UKIERI Fully Funded Research Visit (Cardiff University, Wales)	Research Grant	2025	Fully funded research project on smart load & energy efficiency modelling.
Summer Undergraduate Research Award (SURA)	Research Grant	2024	Funded project on ML-based optimization of perovskite solar cell composition.
Finalist - Solar Decathlon India 2024	National Competition	2023-24	Selected as finalist in national sustainability competition; prototype development & testing.
1st Place - Inter-Hostel Tech Contest (Net-Zero Roadmap)	University Competition	2025	Won among 16 teams; proposals partially adopted by IITD Infrastructure Office.
Top 7% Merit Award (x5)	Academic Merit	2023-24	Awarded to top 7% of ~1200 IITD students based on semester CGPA.
Department Change Award	Academic Merit	2023	Awarded to top 5% students eligible for branch change in first year.
IITD Endowment Scholarship (₹100,000)	Scholarship	2023	Based on Department Rank 1 among female students.
Remarkable Contribution to Himadri House Award	Leadership	2025	For leadership efforts with NSS and hostel community building.

TECHNICAL SKILLS

Category	Skills / Tools
Programming Languages	Python, Java, C++, Rust, MATLAB, SQL
Scientific & Engineering Software	ANSYS Fluent, MATLAB/Simulink, OpenModelica, EnergyPlus, PSCAD, SPICE, COMSOL (basic), Autodesk Inventor, AutoCAD
Data & ML Libraries	NumPy, Pandas, Polars, Dask, Scikit-learn, TensorFlow, PyTorch, XGBoost, OpenCV, SciPy, SymPy, Statsmodels, Matplotlib, Plotly, PyVista, Open3D, GeoPandas, xarray, h5py, Astropy, SunPy, NetworkX, Numba, Hugging Face Transformers
Analytics, Simulation & Forecasting	Time-series forecasting, sensitivity analysis, optimization models, scenario analysis, Monte-Carlo simulation, uncertainty quantification
Visualization & Reporting Tools	Power BI, Tableau, LaTeX, MS Office, Git
Web & Scripting	Bash, REST API basics, JSON/CSV automation

INTERNSHIPS

Organization / Role	Duration	Work & Contributions
Quantitative Research & Analytics, CIB Trading & Structuring - JPMorgan Chase & Co., Mumbai	May'25 - Jul'25	- Developed a pricing breakdown tool for shifts, bends, and upfront charges, eliminating multi-repricing loops and improving competitive pricing accuracy. - Built automated mailbot system to clean 100+ trade fields, remove outliers, and auto-generate monthly graphical client/product reports. - Monitored and reconciled JPMC custom baskets; supported structuring and pricing of exotic derivatives for client negotiations and new product launches. - **Pre-Placement Offer received.**
Solar Computational Astrophysics - Physical	May'24 - Jun'24	- Analyzed multi-wavelength solar observations from HMI, AIA, and MAST to study sunspot heating across 8000K-1MK atmospheric layers.

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Research Laboratory (PRL), Ahmedabad		- Built Python pipelines for image preprocessing, intensity mapping, noise filtering, and spatial profiling across HMI and H-alpha datasets. - Conducted exploratory data analysis and developed visualization modules (Matplotlib, Seaborn) to correlate solar activity signatures with temperature variations.
App Development & Content Design - Eduisfun Technologies Pvt. Ltd., Mumbai	Sep'22 - Oct'22	- Spearheaded the front-end content design for a gamified educational app targeting 11th-12th grade science students. - Developed back-end functionalities using Python, especially focusing on database management and API integration. - Collaborated with a multidisciplinary team to integrate educational content with gamification elements and marketing strategies. - **Pre-Placement Offer received.**

PROJECTS

Project Title / Guide	Duration	Details
Smart Building Thermal Load & Energy Efficiency Modeling — *Prof. Carlos Loo, Cardiff University, Wales*	Mar'25	- Built Python scripts to automate multilayer roof simulations in OpenModelica/MATLAB with insulation, materials, climate. - Automated simulation post-processing to generate thermal/radiation plots, extract daily peaks, and compile CSV datasets. - Developed Python tools for sensitivity analysis; dashboards to visualize cooling load reduction, insulation performance.
Finalist : Solar Decathlon India Competition, Residential Cooling Retrofit Technology Division	Aug'23 - May'24	- Led 15-member team to design net-zero room cooling technology using passive cooling techniques and computational modeling. - Built Python/MATLAB models for airflow optimization, thermal load estimation; automated parameter sweeps, visualization. - Developed post-processing script to quantify 10°C temperature drop, RH impact for Rs.15K desiccant ($CaCl_2$)-terracotta cooler.
Short-Term Load Forecasting for Day-Ahead Power Planning in Indian DISCOMs *(B.Tech. Project-II; A Grade)* — *Prof. K.A. Subramanian, IIT Delhi*	Jan'26 – May'26	- Built a 15-minute STLF framework for Indian DISCOMs using multi-year load and weather data with autoregressive, rolling, calendar, and weather features to model nonlinear demand dynamics, ramps, and peak amplification. - Developed a benchmarking and adaptive retraining pipeline across ML and deep learning models using chronological rolling validation, stress-day testing, leakage-safe feature engineering, and Bayesian hyperparameter optimization. - Formulated a physics-informed hybrid load model incorporating sectoral demand proxies, CDD/HDD elasticity, humidity effects, and load inertia for interpretable forecasting and cross-state validation.
Forecasting India's Transport Energy Demand/Supply and GDP Linkages *(B.Tech. Project-I ; A Grade)* — *Prof. K.A. Subramanian, IIT Delhi*	Jul'25 - Nov'25	- Built a hybrid long-term forecasting model integrating GDP-energy elasticity, nonlinear adoption curves, and residual displacement modeling to project India's transport energy demand to 2050. - Developed BAU, Conservative, and Accelerated Transition scenarios to evaluate fuel-mix evolution and decarbonization potential, showing a 10.4% emissions reduction under accelerated pathways. - Constructed Python-based simulation and dashboard tools for multi-parameter sensitivity sweeps, scenario visualization, and sectoral forecasting across EV, H_2, biofuels, and rail electrification outcomes.
Modeling & Control Simulation of 10 kW Solar PV System using AFEC Inverter — *Prof. Avanish Tripathi, IIT Delhi*	Nov'24	- Modeled AFEC inverter with SPWM/SVPWM and PLL control in MATLAB/Simulink, achieving MPPT, grid sync, unity PF. - Analyzed LCL filter design, DC-link stability, harmonic spectra, to meet IEEE-519 with THD < 5% under variable irradiance.
Machine Learning-Based Optimization of Perovskite Solar Cell Composition —	Jun'24 - Aug'24	- Built Python ML pipeline to evaluate LR, KNN, RF, XGBoost with automated feature testing, cross-validation for cell metrics. - Built preprocessing, normalization, visualization scripts for performance dashboards; project halted due to fabrication issues.

Prof. Trilok Singh, IIT Delhi		
First-Place Winner : IIT Delhi Sustainability Hackathon: Net-Zero 2030 Roadmap	Feb'25	- Proposed 10 MW solar PV, 22 MWh BESS, and 20 MW green H2 integration, projecting ~15,000 tCO2/year emissions reduction for campus operations. - Performed quant energy modeling with cost-benefit optimization for optimal technology scales and evaluate techno-economic feasibility of decarbonization pathways. - Designed complementary systems including 100 m^3/day biogas, 5 TPD plasma pyrolysis, and electrification of ~1,200 campus mobility vehicles; select recommendations partially incorporated by IIT Delhi Infra Dept for campus sustainability planning.
Sustainable Supply Chain Challenge : Maersk End-to-End Logistics — *Shri Ram College of Commerce*	Apr'25	- Developed strategy deck proposing Scope 3 emissions visibility, stakeholder coordination frameworks, and SME enablement models to improve sustainability across logistics value chains. - Designed a phased digital integration roadmap using centralized emissions reporting and API-based interoperability to enhance data transparency across multimodal freight networks.
Computer Vision Geometry & AR Systems — *Prof. Chetan Arora, IIT Delhi*	Jan'26 – Mar'26	- Developed a custom AR-tag detection and tracking pipeline with homography estimation, orientation decoding, inverse warping, and real-time 2D/3D augmentation on video and webcam streams. - Built a complete Structure-from-Motion pipeline with feature matching, Essential matrix estimation, pose recovery, triangulation, PnP-based incremental mapping, bundle adjustment, and sparse 3D reconstruction. - Implemented camera localization on unseen sequences using descriptor-based 2D–3D correspondence search, robust PnP, reprojection-error minimization, and trajectory drift analysis.
Deep Learning for Vision — *Prof. Chetan Arora, IIT Delhi*	Mar'26 – May'26	- Developed and benchmarked object detection pipelines across YOLO, Faster R-CNN+FPN, and Deformable DETR architectures, analyzing scale-wise/class-wise mAP, fine-tuning strategies, and synthetic-to-real domain adaptation. - Built satellite image classification models using ResNet-18, SE-ResNet, DeiT-3 Vision Transformers, and normalization-free transformer variants, with focal-loss ablations, attention analysis, and Grad-CAM interpretability.
Out-of-Core Query Execution Engine (Rust) — *Prof. Kaustubh Beedkar, IIT Delhi*	Mar'26 - May'26	- Implementing a disk-backed query engine under hard 64 MB memory cap, executing AST plans (Scan, Filter, Project, Sort, Cross) without materializing full relations in memory. - Built external sort with k-way merge and block-wise join execution, operating directly on raw disk blocks (binary row decoding, variable-length strings) with explicit spill to disk. - Reduced I/O via predicate pushdown and block-level buffering, managing anonymous-region scratch space for intermediate runs; optimizing for sequential access patterns and minimal block touches.

POSITIONS OF RESPONSIBILITY

Role	Duration	Description
Executive — National Service Scheme (NSS), IIT Delhi	Jul'23 - May'24	- Managed multiple community support initiatives across Delhi-NCR for visually impaired communities, elderly care homes, and campus animal welfare, coordinating 500+ volunteers across weekly outreach and support programs. - Led major events like Ujjwala Fest for Blind Women (with NAB), large-scale city-wide collection and cleanliness drives, and resource distribution campaigns.

UNOFFICIAL EXTRACURRICULARS

Activity	Level	Description
Sketching & Painting	School & College	Participated in numerous inter-school drawing competitions; attended multiple workshops during college.
Guitar	School & College	Completed five years of guitar training in school; organized and participated in jamming sessions in college.