

Anant Shukla

UG (IV Year I Semester)
B.Tech. (Civil Engineering)
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Indian Institute of Technology Roorkee

VERIFIED

Area of Interest

Applied ML, GenAI (LLM, RAG, CV), Data Analytics & Business Intelligence

Education

Year	Degree/Examination	Institution/Board	CGPA/ Percentage
2026	B.Tech. 3rd Year	Indian Institute of Technology, Roorkee	7.405
2022	Intermediate (Class XII)	Lucknow Public School	94.80 %
2020	Matriculate (Class X)	Lucknow Public School	96.20 %

Internships

Gen AI Intern | AI Velocity — May 2026 - July 2026

- Fine-tuned **7B LLMs** across all 3 post-training stages on the proprietary codebase to build a **Next Edit Suggestion (NES)** model for the in-house IDE, improving CCEval accuracy by **3.94%** and internalizing org-specific code patterns
- Enabled the new NES task with a **5.21%** gain on Zeta Eval while limiting CCEval accuracy regression to just **0.91%**

Co-Founder | Updesha Conxultancy Pvt. Ltd — December 2023 - Present

- Co-founded an early-stage education startup, leading strategy, operations, and stakeholder management

Summer Intern | VK Global Publications — May 2025 - July 2025

- Analyzed Amazon sales metrics via SQL, identifying impact segments & deploying strategies that increased sales by 18%
- Performed cohort analysis & **A/B testing** on marketing campaigns for sales forecasting, enabling data-driven budgeting

Machine Learning Intern | Eazeplace — December 2024 - January 2025

- Developed an ATS score calculator with Naive Bayes and TF-IDF, boosting resume-job match accuracy to **89%+**
- Built a student ID parser leveraging OCR, ML, and LLMs, achieving **95%+** extraction accuracy from **1,000+** cards

Projects

Automated Research Paper Summarizer & Fact-Checker | VLG, IITR — May 2026 - June 2026

- Designed a **LangGraph pipeline** using **Semantic Scholar API** to collate recent, highly cited online research papers
- Equipped the agent with **web-search** and **citation-lookup** tools to fact-check claims in each collated research paper
- Auto-summarized verified papers using **OpenAI API,** highlighting key findings and trends for quick, reliable review

Smart Campus Syllabus & Assignment Assistant | VLG, IITR — May 2026 - June 2026

- Engineered a **full-stack platform** using **React** and **FastAPI** to track courses, assignments, and academic deadlines
- Developed a **LangChain** agent with schedule and assignment context to plan students' days and suggest study tasks
- Implemented **RAG** over uploaded syllabi using **ChromaDB** and **OpenAI API** for precise, context-aware assignment help

Ganga Canal Cleanliness Drive | NSS IITR — October 2025 - November 2025

- Organized a cleanliness drive along **6.8 km** stretch at Upper Ganga Canal, mobilizing **12 teams of 1500+ volunteers**
- Directed riverbank **800kgs+ waste collection & segregation** efforts across a multi-day community initiative
- Partnered with **Swachh Bharat & Namami Gange Mission** for on ground sustainable waste management campaigns

Appetizer | Hostel Council, IIT Roorkee — January 2026 - Present

- Built a **FastAPI and SQL** meal-tracking system with biometric verification for **8,000+ hostel residents**
- Implemented meal opt-outs, automatic rebates and inter-messing through **REST APIs** across **15+ messes**
- Automated monthly AI reports for every mess using **Python jobs and OpenAI API** to minimize manual reporting effort

LIDAR-Driven Real-Time Road Object Perception for Smart Traffic Enforcement | CED, IITR — August 2026 - Present

- Built a LiDAR-based perception system to detect toll-barrier tailgating violations in real-time traffic
- Processed point-cloud data to track vehicle spacing and flag unsafe following-distance violations
- Targeted a low-cost enforcement alternative to camera systems that struggle with occlusion and glare

Decoding Customer Value | Consulting & Analytics Club, IIT Guwahati — May 2026 - June 2026

- Built an end-to-end customer-intelligence pipeline **(Python, SQL, Power BI)** for a D2C brand's **3,900** customers
- Validated two loyalty frameworks with no churn label; delivered a promo sunset plan and ideal customer profile

Local LLM Instrumentation, Tracing, and Replay Platform | Google Developer Students Club — June 2026 - July 2026

- Built llmscope, a **C++14 telemetry tool** that non-invasively hooks into a local model's forward pass for live tracing
- Captured tensor shapes, activations, and per-layer latency via an interactive terminal UI for real-time inspection

Stochastic Interest Rate Modeling and Prediction | Finance Club, IIT Roorkee — May 2026 - June 2026

- Implemented and calibrated the Cox-Ingersoll-Ross short-rate model on real 9-maturity yield curve data
- Reconstructed full yield curves from a single 3-month rate input, exceeding the 0.85 out-of-sample R2 bar
- Extended the base model with a jump-diffusion component to capture sudden real-market interest rate shocks

Redefining the Mobile Experience Through Generative AI | SocBiz, IIT Roorkee May 2026 - June 2026

- Designed Swiggy Sense, a **GenAI food agent** to tackle decision fatigue that traditional recommenders can't solve
- Built an **8-stage agent pipeline** (perceive, plan, guardrail, act, learn), cutting user decision time down to 30 sec
- Modeled a tiered revenue case (Rs. 746 cr to 2,385 cr) with 6 risk mitigations, projecting a **7.6x ROI** at scale

LLM Powered Code Review Agent with RAG over Codebase | Hostel Affairs Council May 2026 - June 2026

- Built a **RAG-based code review agent** that indexes a codebase for context-aware retrieval of prior code patterns
- Flagged bugs and style violations in pull requests against project-specific conventions using retrieved context

Agentic workflow for autoreplying emails | Hostel Affairs Council May 2026 - June 2026

- Built an LLM-based agentic pipeline to auto-triage and draft replies to routine hostel-affairs emails
- Designed intent-classification and prompt-chaining logic to route ambiguous queries to human review
- Reduced manual email response turnaround by automating first-pass drafting for common query types

Real-Time Cyclist Lateral Position Detection using CV | Accepted at WCTR 2026 January 2026 - May 2026

- **Co-authored a research paper** on real-time cyclist lateral position detection using monocular video
- Built a 4-stage **CV pipeline** (filtering, scanline edge detection, **RANSAC** fitting) on monocular video data
- Replaced costly LiDAR/GPS sensors with a low-height camera setup, cutting fit error 15 - 25% via weighting

Real-Time Multi-Class Vehicle Detection | Research Project, CED, IIT Roorkee May 2025 - Present

- Fine-tuned YOLOv11n on **5,300+** urban traffic images, classifying 8 vehicle types including CNG and E-rickshaws
- Achieved up to **93%** mAP50 accuracy and real-time detection for occluded vehicles in complex urban videos
- Utilized PyTorch, Ultralytics, OpenCV; future scope: edge deployment and scaling to **15+** vehicle classes

Smart Shopping Trolley That Follows Customer | Tinkering Lab, IIT Roorkee August 2023 - November 2023

- Designed an autonomous shopping trolley using YOLOv5 & OpenCV, enabling real-time tracking for customer in live trials
- Implemented Arduino UNO and I2C protocols, achieving **sub-100ms** response times & **98%** reliability across 20+ tests
- Conducted extensive testing to ensure reliability across various conditions, increasing accessibility

Credit Card Score Modeling via Classification & Risk Techniques | Finance Club, IIT Roorkee May 2025 - June 2025

- Analyzed **30k+ credit records** for default risk using SMOTE to address class imbalance and rare events
- Engineered 30+ features; trained logistic regression and XGBoost, achieving **0.91 recall and 0.87 F2**

Optimizing Air Travel Through Flight Delay Prediction | Society of Business, IIT Roorkee June 2025

- Analyzed **180k+ flight records** across 21 operational features to uncover delay patterns using big data techniques
- Assessed operational variables to uncover key delay drivers and **systemic risk factors** across airlines and routes
- Delivered **86% accurate model,** enabling airlines to target high-risk flights through analytics-driven strategies

Life Cycle Assessment of Products Enabling SHG Upliftment | Unnat Bharat Abhiyan September 2024 - October 2024

- Conducted **market analysis** on product demand, competitors & pricing, driving a **25% rise** in customer engagement
- Led candle-making workshops for **50+ SHG women,** boosting production efficiency & empowering rural entrepreneurs
- Managed financials, achieving **1 lakh+ revenue** & **20% reduction** in operational costs while meeting all profit targets

Automated Meta Data Generation | MARS, IIT Roorkee June 2025

- Built a **Python OCR/NLP metadata pipeline** with NER, zero-shot models and KeyBERT, cutting manual entry by **90%**
- Built a **FastAPI backend and web UI** for live uploads, metadata JSON export and scalable processing

Style Neural Transfer | ArIES, IIT Roorkee May 2024 - June 2024

- Engineered a neural network model using VGG19 architecture, blending content & artistic style across 15 datasets
- Reduced visual artifacts below **5%** through 100+ experiments & deep model optimization with **50+** layers
- Advanced deep learning using TensorFlow/Keras, achieving a Structural Similarity Index Measure score of **0.85**

Credit Card Financial Dashboard using Power BI | Self project May 2025 - July 2025

- Developed a Power BI dashboard for credit card data to track revenue **(+28.8%),** transactions, and customer counts
- Built **automated KPI monitoring & alert system** for predicting revenue anomalies & performance drops

Policy Brief on Leveraging AI for Inclusive Education | Policy Boot Camp 2024 May 2024 - June 2024

- Analyzed policy gaps in digital education, assessing AI tools impact for **10,000+ underserved students**
- Proposed policy actions for scalable AI adoption, improving educational equity by **22%** in pilot regions nationwide
- Used policy frameworks, stakeholder interviews & data visualization; future scope: publish findings, partner with EdTech

Geospatial Survey Camp | Civil Engineering Department, IIT Roorkee November 2024 - December 2024

- Led a team of **14 members,** directing fieldwork with Total Station, GNSS GPS, and QGIS to survey **900,000 sq. meters**
- Oversaw **DEM and contour map** generation, enabling detailed visualization for advanced engineering analysis
- Guided advanced terrain modeling and **GIS interpretation,** applying modern geomatics techniques for site planning

Awards / Scholarships / Academic Achievements

- **1533 Rated | Chess.com (Rapid)**
- **Co-authored a research paper accepted at WCTR 2026** on real-time cyclist lateral position detection using CV
- Invited as **Guest Speaker** | Udaan 5.0, inspiring **7,500+ students** on leadership across Maharashtra
- Secured **Top 3 | Bring Your Own Projects** 2026, Consulting and Analytics category
- Received **IITR Heritage Excellence Award '24** | Outstanding Academic, Co-curricular & Extra-curricular achievements
- **1st Rank** | In Policython Challenge'24 and presented at the OMI Hack-a-thon panel, showcasing key solutions
- Served the **Guard of Honour** | During 76th Independence Day, exemplifying discipline and ceremonial excellence

Skills

Computer languages	Python, C++, SQL
Software Packages	GenAI & Agents: RAG, LangChain, LLM APIs (OpenAI), Prompt Engineering, Vector DBs (FAISS), Agentic Pipelines ML: PyTorch, scikit-learn, XGBoost, SHAP Dev & Tools: FastAPI, React, REST APIs, Git, Power BI
Additional Courses	"Supervised Machine Learning: Regression and Classification" course by DeepLearning.AI "JPMorgan Chase & Co. - Excel Skills Job Simulation" from JPMorganChase

Positions of Responsibility & Extra Curriculars

Overall Coordinator | Hostel Affairs Council — January 2026 - Present

- Led and coordinated hostel operations for 8000+ residents, ensuring efficient administration across 18+ hostels
- Oversaw budgeting, resource allocation & vendor coordination for 10+ large scale events institute wide
- Developed tech platforms, streamlining hostel management processes and enhancing student engagement

Mentor | Student Mentorship Program — September 2025 - Present

- Mentored 5 freshmen through structured discussions, one-on-one counseling, & academicpersonal guidance.
- Supported smooth transition to college life by enabling networking with relevant professors and senior students.

Overall Finance Coordinator | Unnat Bharat Abhiyan, IIT Roorkee — January 2024 - Present

- Managing **Rs 5+ lakh** annual CSR budget for sustainable development across **5 villages** impacting **2,700+ residents**
- Directed financial operations for **200+ team members,** overseeing budgeting for projects benefitting **800+ students**
- Strengthened public relations and broadened outreach with government officials, NGOs, and industry stakeholders

Joint Secretary, Social Empowerment Through Upliftment | National Service Scheme, IIT Roorkee — June 2025 - Present

- Mobilized **1,000+ volunteers** to enhance efficiency and impact in Plantation Drives and Medicine Collection initiatives
- Directed **17** cross-functional teams for Flood Relief, Blood Donation, and Road Safety Month, ensuring seamless execution
- Fostered partnerships and sustainable solutions for socio-innovation, women empowerment, and rural development goals

Co-Captain | Cultural General Championship 2025 — February 2025 - April 2025

- Spearheaded **60+ artists** in **47 events** across **14 cups,** ensuring a **top-4 finish** for Purvanchal Pandas in Cultural GC
- Devised **event strategies** and optimized talent allocation, driving team performance through **data-driven analytics**

Senior Manager | Civil Engineering Consortium, IIT Roorkee — November 2023 - Present

- Launched **10+ strategic initiatives** like Weekly Discussions, Summer Projects & **Eklavya,** benefiting **700+ students**
- Streamlined event & stakeholder management, boosting student participation by **25%** & developing consulting talent

Public Policy Delegate | Rishihood University — June 2024 - July 2024

- Applied stakeholder mapping & impact assessment in **5+ policy cases,** optimizing engagement and regulatory analysis
- Drafted **3+ evidence-based policy briefs** with interdisciplinary teams, using data-driven and consultative frameworks

Member, Finance & Management | Kshitij - The Literary Society, IIT Roorkee — September 2023 - Present

- Managed budgets for five events annually, enhancing sponsorship by **20%** through strategic planning and outreach
- Oversaw magazine printing, distribution, and logistics, optimizing operations for seamless society management

Executive Member | Public Policy and Leadership Cell, IIT Roorkee — December 2024 - Present

- Coordinated **10+ policy forums,** engaging **200 stakeholders** in data governance, electoral, academia & tech-policies
- Led interdisciplinary research teams | Published **5 policy briefs** using quantitative analysis & econometric modeling

Undergraduate Teaching Assistant | Academic Reinforcement Program, IIT Roorkee — September 2024 - November 2024

- Guided **150+ first-year students** in TMI-102 & TMI-103, mentoring across **ML, robotics, and development** domains
- Delivered focused doubt-clearing sessions and skill-building workshops, strengthening technical foundations

Member, Operation & Planning | Think India, IIT Roorkee — October 2024 - Present

- Organized seminars on public policy, governance, and social issues, engaging **200+** students with expert speakers
- Led projects and discussions, promoting critical thinking and debate on national issues, enhancing intellectual growth

Executive Member | National Social Summit, IIT Roorkee — January 2024

- Handled operations for National Social Summit, ensuring seamless **event management** and **logistical coordination**
- Streamlined protocols to enhance efficiency, contributing to the summits success and improved event management

Co-Coordinator | Sangram'24 — January 2024 - April 2024

- Coordinated by managing logistics and scheduling for **500+ participants** across multiple disciplines
- Facilitated team registrations, event operations & execution, ensuring seamless conduct of large-scale tournaments

Anchor | Thomso'23 — October 2023

- Anchored the Battle of Bands, the largest open-air event at Thomso'23, IIT Roorkee, engaging a diverse audience

Research Publications

- Anant Shukla, Prof. Indrajit Ghosh, "Real-Time Cyclist Lateral Position Detection using CV", in WORLD CONFERENCE OF TRANSPORTATION RESEARCH, WCTR, 2026

References

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