

MANAV CHOUDHARY

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EDUCATION

Birla Institute of Technology & Science, Pilani Bachelor of Science, Computer Science { <i>GPA: 9.0/10</i> }	Expected 2027 <i>Online</i>
Kalinga Institute of Industrial Technology Bachelor of Technology, Computer Science & Engineering { <i>GPA: 8.5/10</i> }	Expected 2027 <i>Bhubaneswar, India</i>

PUBLICATIONS

A Machine Learning-Driven Approach to Identify Phytochemical Inhibitors of the *Pseudomonas aeruginosa* Quorum Sensing Regulator LasR *Manav Choudhary, et al. (2025)* [View Paper](#)

- **Methodology:** Developed a CatBoost QSAR regression model to screen phytochemicals from the IMPPAT database, utilizing AutoDock Vina for high-throughput molecular docking validation.
- **Outcome:** Achieved R^2 of 0.52 and RMSE of 1.10 kcal/mol, identifying critical molecular determinants (Fsp3, Ring Complexity) to guide the design of novel Quorum Sensing Inhibitors.

EXPERIENCE

Internal Quality Assurance Cell, KIIT University August 2025 - Present
Intern *Bhubaneswar*

- **Web Architecture:** Migrated the official IQAC portal to Next.js 15 and React Server Components. Replaced a legacy static site with a scalable architecture, reducing content update time by 90% [IQAC Website](#)
- **Data Engineering & Strategy:** Coordinated data aggregation across 22 university schools, ensuring 100% data completeness for global ranking submissions. This strategy supported the university's rise in THE World Rankings (Band 601-800 $\rightarrow$ 501-600).
- **Institutional Branding:** Managing central university events and external representation efforts, ensuring consistent brand messaging across student bodies and institutional partners.
- **AI Tooling:** Deployed "KIIT Intelligent Insight," an internal RAG-based tool that automates evidence retrieval for compliance audits, cutting manual search time by 95%.

PROJECTS

KIIT Intelligent Insight System (RAG & SDG Pipeline) — Python, LangChain, Pinecone

- **RAG Pipeline:** Built a semantic search engine to ingest 1,000+ unstructured institutional documents (policies, MoUs). Utilized vector embeddings to map content to specific UN SDGs with sub-second retrieval latency.
- **Impact:** Enabled non-technical staff to query complex institutional data using natural language (e.g., "List all Army-related initiatives").

CORAL: Distributed Bioinformatics Platform — Python, FastAPI, Redis, Docker [\[View Project\]](#)

- **System Design:** Engineered a microservices-based platform for eDNA analysis. Decoupled heavy bioinformatics tasks using Celery workers and Redis to prevent UI latency during large dataset processing.
- **Algorithmic Implementation:** Automated the integration of BLAST+ and HDBSCAN clustering algorithms to identify potential novel species from deep-sea samples, reducing analysis time from days to minutes.

ResHelp Tools: Workflow Automation Suite — Python, PyQt6, CI/CD [\[View Project\]](#)

- **Automation:** Developed a cross-platform desktop tool to parse and aggregate binding affinity metrics from 10,000+ molecular docking logs, eliminating manual data entry bottlenecks.
- **Implemented a GitHub Actions pipeline** to automatically build and package the application for Windows via PyInstaller.

LEADERSHIP

Google Developer Groups (GDG) on Campus
CyberSecurity Domain Lead

August 2024 - November 2025
KIIT-DU, Bhubaneswar

- Curriculum Design: Conceptualized and executed "GDG SecLabs," a 3-month bootcamp training 500+ students in network security, CTF strategies, and ethical hacking.
- Mentorship: Achieved a 4.8/5.0 satisfaction rating, effectively bridging the gap between theoretical coursework and practical security application.
- Top 5% on TryHackMe: Global ranking for proficiency in penetration testing and network defense.

SKILLS

Languages	Python, C++, TypeScript, JavaScript, Go, SQL
Core Stack	Next.js 15, React 19, FastAPI, Node.js, Tailwind CSS v4
Infrastructure	Docker, Git, Linux, Redis, AWS (Basic)
Security	OWASP Top 10, Burp Suite, Nmap