

# MANAS KUMAR THAKUR

New Delhi, India

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## Education & Achievements

### Bachelor of Technology in Computer Science(AIML)

*Dronacharya College of Engineering*

**Expected Graduation: 2027**

*CGPA: 7.5/10*

## Experience

### Backend Developer Intern

*OSS & Consulting*

**Feb. 2025 – May 2025**

*Remote, India*

- Designed and optimized relational database architecture to ensure scalability and efficiency.
- Developed and managed database schemas using PostgreSQL, enforcing best practices in normalization and indexing.
- Implemented query optimization techniques, reducing query execution time and improving system performance.
- Designed and developed RESTful APIs for seamless database interactions, ensuring secure and efficient data handling.
- Integrated secure authentication mechanisms, including JWT tokens and OAuth, ensuring data protection.
- Collaborated with backend and cloud teams to streamline data flow across distributed systems using AWS and GCP.

## Technical Projects

### SIH 2023 - Lithology Project | Machine Learning, Computer Vision

**December 2023**

- Developed an intelligent system for real-time object detection and classification using machine learning and computer vision.
- Utilized a multi-language approach, with the primary codebase in JavaScript, Python, Jupyter Notebook, and C++.
- Implemented advanced detection techniques to enhance accuracy and reliability in object classification.

### IDE 2024 - ML for Construction Progress Monitoring | Deep Learning, OpenCV, Python

**August 2024**

- Built a real-time ML-powered system for tracking construction progress through automated image analysis.
- Implemented an anomaly detection module to flag inconsistencies and prevent reporting errors.
- Enhanced efficiency by reducing reliance on manual progress tracking and improving data accuracy.

### Buildspace - Pothole Detection and GPS Tagging | YOLO, OpenCV, GPS API, Python

**September 2024**

- Developed a real-time pothole detection system using YOLO and OpenCV to identify road defects.
- Integrated GPS tagging to map detected potholes, providing precise location data for road maintenance teams.
- Optimized the system for deployment in smart city infrastructure to improve road safety.

### Building Thoughts - AI-Powered Diary | Ongoing

- Developing an AI-powered diary that interacts with users, responding intelligently to their entries.

## Technical Skills

**Programming Languages:** Python, R, SQL, C, C++

**Machine Learning & AI:** Supervised/Unsupervised Learning, Deep Learning, Transfer Learning, Computer Vision, Object Detection, NLP, Reinforcement Learning

**Frameworks & Libraries:** PyTorch, TensorFlow, Scikit-learn, FastAI, OpenCV, YOLOv8, Hugging Face, LangChain, SentenceTransformers, OpenAI API

**Model Architectures:** CNNs, RNNs, LSTMs, Transformers, U-Net, DINO, CLIP

**Data Science & Visualization:** Pandas, NumPy, Matplotlib, Seaborn, Plotly, Streamlit, Jupyter Notebook

**MLOps & Tools:** Weights & Biases, MLflow, Docker, Git, CUDA, NVIDIA Jetson, CI/CD

**Databases & Vector Stores:** PostgreSQL, MongoDB, Redis, LanceDB, Pinecone

## Leadership & Achievements

**Smart India Hackathon Winner:** SIH 2023 Winner, Automated lithology classification using AI and deep learning.

**Engineers Day Idea Competition(DCE):** Secured second place for designing a fire-resistant system for car accidents.

**IDE Bootcamp Selection:** Advanced to Phase 2 at Amity University Rajasthan, collaborating on innovations.

**AI Team - Deviators Club:** Worked on AI/ML projects, gaining hands-on experience in advanced technologies.