

ANAY SINHAL

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EDUCATION

University of Florida

M.S. Computer & Information Science and Engineering

Gainesville, FL

Aug 2025 - Present

- Began graduate coursework during **CISE Senior Certificate**, Spring 2025 (GPA: 3.91/4.00).
- Courses: Advanced Data Structures · Software Engineering · Computer Networks · UX Design.

JK Lakshmipat University

B.Tech. Computer Science & Engineering

Jaipur, India

Aug 2021 - Jun 2025

- CGPA: 8.76/10
- Semester Exchange, **Indian Institute of Technology Kanpur** - Spring 2024
- Semester Exchange, **Indian Institute of Technology Gandhinagar** - Fall 2022

RESEARCH INTERESTS

AI-driven healthcare diagnostics; mental-health analytics from social media and wearable sensors; medical-image enhancement and segmentation; multimodal contrastive learning and LLM-based NLP; high-performance & quantum computing for biomedical applications; explainable, trustworthy ML in clinical decision support.

RESEARCH EXPERIENCE

Indraprastha Institute of Information Technology Delhi (IIIT-D)

New Delhi

Research Assistant

Sep – Oct 2024

- Optimised multi-scale histogram-equalisation and denoising pipelines for dermoscopic / CT images, raising PSNR by ≈ 2.8 dB and lifting radiologist diagnostic hit-rate by 6 percentage points.
- Developed a Llama-2-based speaker-diarisation module; reduced diarisation error by 14% and packaged the tool in a reusable PyTorch library.

Sardar Vallabhbhai National Institute of Technology Surat (SVNIT)

Surat, India

Research Intern

May – Jul 2024

- Re-engineered a BERT + SimCSE contrastive-learning pipeline for depression detection on the “DepressionEmo” Reddit corpus; improved macro-F1 from 0.69 \rightarrow 0.81 (+12%).
- Introduced hard-negative mining and mixed-precision training, trimming GPU time by 38%.

Indian Institute of Technology Jammu (IIT-Jammu)

Jammu, India

Research Intern

Dec 2023 – Jan 2024

- Built an ensemble (Random Forest + XGBoost + MLP) model on 11.5M wearable-sensor records from nurses; achieved macro-F1 0.94 with <15 ms inference latency.
- Devised SMOTE-Tomek resampling that boosted chronic-stress recall 37%.

PROFESSIONAL EXPERIENCE

GeeksforGeeks

Noida

Software Development Intern

May – Sep 2024

- Built and refactored “Articles,” “Videos,” and “Quizzes” modules with Next.js, React, and legacy PHP, cutting load time by 28% and lifting organic click-through by 15%.
- Added structured-data tags and server-side rendering that pushed several high-traffic pages into Google’s top-10 results.

Dexpert Systems Pvt. Ltd.

Pune

Software Development Intern

Jun – Jul 2023

- Delivered a React front end and Spring Boot/Laravel backend integration for Zoho CRM, reducing lead-assignment latency from minutes to seconds.
- Implemented REST APIs with JWT auth; documented the endpoints and handed off clean Docker-compose stacks to ops.

PATENTS

A Stress Monitoring System Using Wearable Sensor Data Integrated with an Ensemble Machine-Learning Model.

Indian Patent Application No. 202511044124 — filed 7 May 2025, published 23 May 2025

PUBLICATIONS & SELECTED PRESENTATIONS

“AI-Driven Medical Diagnostic System: Incorporating Deep Learning for a More Effective Healthcare Model.”

4th IEEE World Conference on Applied Intelligence and Computing (AIC 2025), Delhi-NCR, India, 26 July 2025.

Accepted; presentation scheduled.

“Stress Monitoring in Healthcare: An Ensemble Machine Learning Framework Using Wearable Sensor Data.”

5th International Conference on Innovations in Computational Intelligence and Computer Vision (ICICV 2025), Jaipur, India, 4 June 2025. *Presented; proceedings in press.*

“Contrastive Learning and Large Language Models for Depression Detection from Social Media.”

2025 IEEE International Conference on Contemporary Computing and Communications (IC4 2025), Bangalore, India, 14 March 2025. *Presented; awaiting publication in IEEE Xplore.*

“High-Performance and Quantum Computing in Cancer Modeling: A Review and Hybrid HPC-Quantum Approach.”

Journal of Cancer Research & Clinical Oncology (Springer Nature). *Manuscript under peer review.*

PROJECTS

Navigator AI Console | *Next.js 14, TypeScript, LiteLLM, PostgreSQL, Redis, NextAuth* Jun 2025

- Built a Next.js 14 + TypeScript web console unifying chat, embeddings, and Whisper STT across 12 LLM endpoints via LiteLLM gateway; delivers token-streamed responses with ≤ 200 ms median latency.
- Added PostgreSQL + Redis metering and NextAuth auth to enforce a free-tier (first 2 requests) and 10-request daily quota; services ~ 300 user calls per day without SLA breaches.

P2P File-Sharing System | *Java, Networking, BitTorrent* CNT5106C, Jan - Apr 2025

- Re-implemented the BitTorrent protocol and designed a novel Disaster Mode (fountain coding + super-peer election) sustaining $>85\%$ goodput on a 40% loss testbed.
- Multi-threaded architecture moved 75 MB to 10 peers in <90 s— $4\times$ faster than a baseline BitTorrent client.

License Plate Management System | *Java, Red-Black Trees, CLI* COP5536, Mar - Apr 2025

- Engineered a custom Red-Black Tree to register, search, and range-query 100k plates in $O(\log n)$; 99th-percentile lookup = 0.4 ms.
- Integrated dual-fee revenue model and CLI; achieved 100% unit-test pass rate and processed benchmark workload in 2.3 s.

Intelligent Local News Analytics Platform | *Python, spaCy, BERTopic, BART, Flask* Apr 2025

- Created an end-to-end NLP pipeline that clusters $\geq 2k$ Seattle news items per day and flags emergent events with F1 0.83.
- Deployed a Flask + APScheduler dashboard providing 6-hourly updates; cut manual monitoring time by 90% for a pilot newsroom.

SKILLS

Programming & Scripting Languages: C, C++, Python, Java, JavaScript, Go, TypeScript, PHP, SQL, Bash
Frameworks / Libraries / DevOps / 3D: React.js, Next.js, Django, TensorFlow, Keras, PyTorch, Hugging Face, scikit-learn, OpenCV, Git, Docker, Unreal Engine 5, Blender, Zoho Creator, Figma

Professional & Transferable Skills: Leadership, Event Management, Technical Writing, Public Speaking, Time Management

COMMUNITY & LEADERSHIP

Student Placement Coordinator

JK Lakshmipat University, Jaipur, India

Aug – Nov 2023

- Ran day-to-day campus-recruitment logistics and tracking interview progress.

Core Coordinator (Tech), PrauduyoGeek Techfest '23

Atal Incubation Centre – JKL U, Jaipur, India

Aug – Sep 2023

- Led the tech of the university tech festival, supervising volunteers to deliver coding contests without schedule slips.

Volunteer, National Startup Day

Atal Incubation Centre – JKL U, Jaipur, India

Jan 2023

- Managed registration desks and coordinated speaker movements for a full-day entrepreneurship summit.