

# ANAY SINHAL

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## EDUCATION

### University of Florida

M.S. Computer & Information Science & Engineering

- Began graduate coursework during **CISE Senior Certificate**, Spring 2025 (GPA: 3.91/4.00).

Gainesville, FL, USA

Expected Fall 2026

### JK Lakshmipat University

B.Tech. Computer Science & Engineering

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

Jaipur, India

Aug 2021 - May 2025

## TECHNICAL SKILLS

**Languages:** Python, Java, JavaScript, TypeScript, Go, C++, SQL, Gleam

**AI/ML:** TensorFlow, PyTorch, Hugging Face, scikit-learn, OpenCV, NLP, Prompt Engineering, LLM Fine-Tuning

**Web Development:** React.js, Next.js, Node.js, Django, FastAPI, Spring Boot, HTML/CSS

**Databases:** PostgreSQL, Redis, MongoDB, SQL

**DevOps & Cloud:** Docker, Git, CI/CD, AWS (S3, EC2), Vercel, Bash Scripting

**Developer Tools:** Figma, Blender, Postman, Unreal Engine 5, Zoho Creator

## EXPERIENCE

### Intelligent Clinical Care Center (IC3), University of Florida

Graduate Student Assistant

- Develop and maintain scalable data pipelines using Python and Docker to ingest, harmonize, and process large-scale health datasets.
- Containerize data processing workflows, ensuring reproducible environments and streamlining the deployment of backend services

Gainesville, FL, USA

Sep 2025 – Present

### Indraprastha Institute of Information Technology Delhi (IIIT-D)

Research Assistant

- Engineered and deployed scalable full-stack applications for AI-powered medical diagnostic tools, utilizing a Next.js, Node.js, and PostgreSQL stack.
- Established CI/CD pipelines for automated testing and deployment, accelerating the delivery of software for models used in cancer detection and ECG analysis.

New Delhi, India

Sep – Oct 2024

### GeeksforGeeks

Software Development Intern

- Built & refactored key modules (“Articles,” “Videos,” “Quizzes”) with Next.js and React over legacy PHP, focusing on performance optimizations to enhance page responsiveness and user engagement.
- Added structured-data tags & server-side rendering that pushed several high-traffic pages into top results.

Noida, India

May – Sep 2024

### Sardar Vallabhbhai National Institute of Technology Surat (SVNIT)

Research Intern

- Developed a contrastive learning pipeline with BERT for depression detection on the DepressionEmo dataset, achieving a F1-score of 0.81.
- Outperformed other deep learning models, improving the F1-score by nearly 10% over a standard BERT implementation (0.74 → 0.81) by enhancing contextual text representation.

Remote

May – Jul 2024

### Indian Institute of Technology Jammu (IIT-Jammu)

Research Intern

- Built a stacking ensemble classifier (Random Forest, XGBoost, MLP) for stress detection using 11.5M wearable-sensor records from nurses, achieving a 93.7% macro F1-score with 14.5 ms inference latency.
- Implemented a SMOTE-Tomek hybrid resampling technique that boosted recall for the minority chronic stress class by 37% compared to standard oversampling methods.

Remote

Dec 2023 – Jan 2024

### Dexpert Systems Pvt. Ltd.

Software Development Intern

- Delivered a React front-end & 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 & handed off clean Docker-compose stacks.

Pune, India

Jun – Jul 2023

## PROJECTS

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### **Medlyze** | *Next.js 15, TypeScript, PostgreSQL/Prisma, NextAuth, Tailwind*

Oct 2025

- Built a privacy-first medical report pipeline with AES-256 file encryption, regex-based de-identification, and role-based access for patients and doctors.
- Implemented multimodal analysis for PDFs and images using LLM and vision models, plus longitudinal biomarker tracking and risk scoring dashboards.

### **Sepsis Sentinel** | *Python, FastAPI, XGBoost, React, Docker, PostgreSQL*

Jul 2025

- Developed an ML pipeline using XGBoost & LightGBM for early sepsis detection from EHR data, achieving an AUROC of 0.89 on clinical validation sets.
- Engineered a full-stack clinical decision support tool with a FastAPI backend & a React dashboard, reducing median detection time by 4 hours in simulations.

### **FinMate – Personal Finance Manager** | *Django, React, Chakra UI, D3, Plotly*

May - Jun 2025

- Integrated Plaid API & ML (Random Forest prediction, Isolation Forest anomaly detection) in Django backend; generates monthly PDF/CSV spend reports.
- React + Chakra UI dashboard with D3/Plotly visualisations; delivers personalised budget alerts via email & in-app notifications.

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

Jun 2025

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

### **CampusCupid** | *Go/Gin, PostgreSQL, React, Render.com*

CEN5036, Jan - Apr 2025

- Led 4-dev team building full-stack dating platform; implemented secure JWT auth, swipe-matching, & Cloudinary image storage.
- CI/CD on Render.com; Cypress E2E suite (100% pass) & load-test p95 latency  $< 150$  ms at 200 req/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 & 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.

## PATENTS & PUBLICATIONS

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### **Battery-Aware Super-Peer and Fountain Coding in Java P2P Systems.**

*Discover Internet of Things*, Oct 2025. DOI: 10.1007/s43926-025-00240-3

### **LoRA-Tuned Segment Anything Model for Few-Shot Polyp Segmentation in Colonoscopy Images.**

*Journal of Carcinogenesis*, Sep 2025. DOI: 10.64149/J.Carcinog.24.3.372-386

### **A Method for Disaster-Resilient Digital File Dissemination via Fountain-Coded Broadcast with Super-Peer Election and Sparse Acknowledgement.**

Indian Patent Application No. 202511063465 (published 18 July 2025)

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

Indian Patent Application No. 202511044124 (published 23 May 2025)

## RELEVANT COURSEWORK

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**Graduate Courses:** Distributed Operating Systems Principles, Analysis of Algorithms, Adv Data Structures, Computer Networks, Software Engineering, Data Science.

**Undergraduate Courses:** Object-Oriented Programming, Database Systems, Machine Learning, Computational Data Analysis, Big Data Visual Analytics.