Utkarsh Raj

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Education

Indian Institute of Technology, Patna, M.Tech in Artificial Intelligence   July 2024 – Persent

- **Coursework:** Advanced Machine Learning, Design and Analysis of Algorithms (DAA), Foundations of Computer Systems, Probability and Statistics, Technical Writing and Soft Skills

I.K Gujral Punjab Technical University, B.Tech in Computer Engineering   2020 – 2024

- **Coursework:** Data Structures and Algorithms, Operating Systems, Database Management Systems (DBMS), Computer Networks, Object-Oriented Programming (OOP), Software Engineering

Projects

StudyNotion – Full-Stack Ed-Tech Platform   Link| Github

- Developed an ed-tech platform for creating, consuming, and rating educational content using the MERN stack
- Designed a scalable backend with authentication, course management, and Razorpay payment integration
- Integrated Cloudinary for efficient media storage and implemented features like OTP authentication and dashboards
- Optimized performance with lazy loading, dynamic course creation, and a responsive UI

AI-Powered Career Coaching Platform   Link| Github

- Developed a Full Stack AI Career Coach application using Next.js, providing AI-driven career guidance
- Built an AI-enhanced resume builder, cover letter generator, and interview preparation tool for users
- Utilized NeonDB and Prisma for scalable database management and efficient data retrieval
- Integrated Inngest for real-time AI-driven career recommendations and workflow automation

AI Chat Application   Link| Github

- Developed an AI-powered chat application using Next.js 15, LangChain, and Claude 3.5 Sonnet for intelligent, real-time conversations
- Implemented secure authentication with Clerk and real-time data storage using Convex
- Optimized AI prompt caching and response efficiency using Anthropic API for cost-effective processing
- Integrated IBM WxFlows for data source connections, including YouTube transcripts and Google Books API

Brain Tumor AI   Link| Github|Model

- Developed a brain tumor detection model using TensorFlow and Keras with a Sequential CNN architecture
- Built a web application for users to upload MRI scans and receive AI-driven tumor predictions
- Applied deep learning techniques like Conv2D, MaxPooling2D, and Dropout for accurate classification
- Enhanced model performance using ImageDataGenerator for augmentation and Matplotlib for visualization

Technologies

Languages: Python, JavaScript, TypeScript, C++

Frontend: React.js, Next.js, Tailwind CSS, ShadCN UI

Backend: Node.js, Express.js, FastAPI, Flask, Django

Databases: MongoDB, PostgreSQL, NeonDB, Firebase

Machine Learning: TensorFlow, Keras, PyTorch, OpenCV, NumPy, Matplotlib

Tools Libraries: Prisma, Cloudinary, AWS S3, Framer Motion, Chart.js