

Deepak Silaych

deepaksilaych@gmail.com | 9001352750 | [Linkedin](#) | [Github](#) | [deepaksilaych.me](#)

WORK EXPERIENCE

FanTV AI

Mar 2025 – Present

Software Developer

- Developing an AI-powered text-to-video content generation platform to automate video creation for marketing.
- Optimizing image and video loading with Next.js Image component and CDN configurations to reduce load.
- Worked with tools like FFmpeg OpenCV for stitching scenes, adding transitions, and producing final outputs.

Google Summer of Code

May 2025 – Present

Contributor at MalariaGEN

- Developing an ML pipeline for genomic classification of malaria mosquitoes, targeting $\geq 85\%$ macro-F1 accuracy
- Designing a system to handle large-scale genomic data, addressing high dimensionality and class imbalance.
- Engineers features from raw genomic data and optimizes a LightGBM model, also exploring neural networks for enhanced classification.
- Focuses on deploying a user-friendly tool and REST API, integrated with MalariaGEN's ecosystem

MathKraft

Dec 2024 – Apr 2025

Software Intern

- Developed web games using Next.js, and developed custom frameworks to expedite future development.
- Built a configurable AI agent-based prompting system, allowing tutors to edit educational games.
- Built a pipeline to create a question bank involving scraping using Claude, AWS Bedrock for processing questions to convert from text to JSX, and EC2 systems to convert JSX to build files using Webpack.

Rent Prompt

Dec 2024 - Jan 2025

AI Intern

- Optimized text extraction by reducing processing time by 8 times for over 800 pages using batching and parallel processing.
- Designed a decomposer RAG system to break down complex user queries into sub-queries, retrieve the most relevant chunks, and utilize LLMs for delivering accurate and context-aware answers.
- Built versatile tools to extract and process information from diverse sources, such as webpages, APIs, and links, with added support for executing Java, Python, and C++ code, and analyzing CSV and PPTX files.
- Engineered a modular AI Agent framework, allowing users to customize and integrate tools for creating task-specific agents tailored to unique use cases

Draft AI

Jul 2024 – Aug 2024

Software Development Intern

- Developed a document editing web application with React and Syncfusion Document Editor, implementing real-time content synchronization, a draggable modal editor, and robust .docx file handling using various UI/UX libraries.
- Implemented Aadhaar ID integration utilizing Public Key Infrastructure and digital signature for authentication.
- Built a JS library using NLP to identify words within PDFs and generate input elements for modification.
- Developed a prompt section with text and file input capabilities to facilitate LLM based draft generation

Healthka

Aug 2023 – Sep 2023

Web Dev Intern

- Contributed to the modification of the admin dashboard, implementing new features such as search, sorting data
- Played a key role in integrating APIs, ensuring seamless communication between different components of the system. Revamped the main website, transitioning from a static layout to a dynamic and responsive platform built on React JS.
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EDUCATION

Indian Institute of Technology Bombay

Bachelor of Technology (B.Tech)

KEY PROJECTS

FinSearch: Financial Document Analysis System | [GitHub](#)

Dec 2024

Achieved 1st Position at InterIIT Tech Meet 13.0 for developing advanced RAG pipeline for financial analysis.

- Engineered a comprehensive RAG pipeline using LangGraph framework for analyzing 10-K filings, incorporating custom nodes for document grading, reranking, and metadata extraction.
- Implemented sophisticated question decomposition and answer generation system with GPT-4 and OpenAI embeddings.
- Developed custom vector store client with timeout mechanisms using Pathway, optimizing retrieval operations.
- Created an evaluation pipeline using LLM-based evaluators and EntityPrecision metrics for system benchmarking.

Mumbai Flood Warning System | [mumbaiflood.in](#)

Apr 2024 – Jul 2024

Led technical development in 20+ member team for city-wide monitoring platform serving 10,000+ weekly users.

- Architected and deployed full-stack solution using React JS (web), React Native (mobile), hosted on VPS.
- Engineered robust backend using Django, Celery, and Redis for automated data processing and alerts.
- Developed ML prediction system combining GFS weather data with historical station-level measurements.
- Implemented real-time flood reporting using Twitter API, NLP sentiment analysis, and Geopy location tracking.
- Designed scalable PostgreSQL-API pipeline to overcome firewall restrictions and handle growing user base.

Decentralized Trading Platform | [Video](#) | [GitHub](#)

Dec 2023

Achieved 1st Position in InterIIT Tech Meet 12.0 for the development of decentralized trading platform on Aptos

- Led the integration of Econia protocol, ensuring a secure foundation for the innovative trading platform.
- Led seamless integration with Petra wallet to enhance user security and accessibility over Aptos blockchain.
- Implemented market data & transaction APIs for real-time and streamlined financial transactions using FastAPI.

IITB SSO Integration Layer | [LIVE](#)

Oct 2024

Used by 15 Clubs and 2000 students

- Developing secure middleware to extend IITB's Single Sign-On system beyond institutional domains.
- Architecting middleware using Node.js to enable external domain access to IITB SSO while maintaining security.
- Implementing comprehensive security with OAuth 2.0, JWT tokens, origin validation, and IP whitelisting.
- Developed secure callback URL validation and rate-limiting mechanisms to protect against potential exploitation

Smart Surveillance System | [GitHub](#)

Dec 2023

Achieved 7th rank out of 50+ teams at Urban Futurism Competition, Techfest 2023.

- Enhanced low-quality video with gen- AI models, improving detail which reduced MSE from 0.08 to 0.02
- Implemented object and face recognition for identifying and tracking individuals using YOLO
- Ensured privacy-preserving surveillance through techniques like anonymizing faces (OpenCV) on public feed.

Real-Time Sign Language Recognizer | [Video](#) | [GitHub](#)

May 2023 – Jul 2023

- Developed sign language recognizer using CNN model with TensorFlow & Keras, achieving 97% accuracy.
- Applied OpenCV to integrate webcam input, optimizing data processing for enhanced real-time performance
- Utilized MediaPipe for hand tracking and pose estimation, enabling hand detection and gesture recognition.

POSITION OF RESPONSIBILITY

Institute Web Head | Institute Technical Council

Apr 2024 - Mar 2025

Part of a 25-member team spreading all the Technical activities of the Institute, catering to 10,000+ people

- Head of a 5-membered team responsible for maintaining the websites of the Institute Technical Council, clubs, Technical teams and all other technical activities in the institute or associated with the Institute authorities
- Leading the development of a comprehensive Technical General Championship Portal, serving as centralized platform for accessing scorecards, hostel performances, GC timelines, and other details related to Tech GCs

Department Web Secretary | Civil Engineering Associations

Apr 2023 - May 2024

Part of 18 membered department council responsible for catering to 900+ students with annual budget of 0.5 million INR

- Successfully ideated and organized many events such as cult night, department trip, fresher orientation, SOC
- Responsible for the development and maintenance of CEA website built on Angular used as CEA web presence