Shashank Tyagi

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Education

Indian Institute of Information Technology Nagpur   **Nov 2022 – Present**

Bachelor of Technology in Computer Science   *Nagpur, India*

- *Relevant Coursework:* **Data Structures and Algorithms**, **Database Management Systems**, **Computer Networks**, **Object-Oriented Programming**

Technical Skills

Languages: Python, C/C++, JavaScript, TypeScript
Web Development: Next.js, Node.js, express.js, Django, Flask
Databases: MongoDB, PostgreSQL, ChromaDB, MySQL, Supabase
ORM: Drizzle, Prisma
Deep Learning: CNN, Transformers, NLP, LSTM(proficient)
Developer Tools: Git, Postman, VS Code, Docker
Libraries: Pandas, Matplotlib, Langchain, TensorFlow, PyTorch

Achievements

- Competitive Programming: Codechef 4-star (Top 5%, Rating: 1801) and Leetcode Knight (Top 2.5%, Rating: 1991).
- Finalist in the Odoo Combat 2024 Hackathon (Top 3 out of 750 teams). Developed a production-ready CRM system that reduced client service time by 40%.
- Winner of the Hack-4-Future Hackathon. Created a Sign Language translation web app, enhancing translation accuracy by 30% over traditional systems.
- 1st Place at SVPCET TECHNEX'24 Hackathon (among 400 teams). Designed an automated attendance tracking system that cut the error rate by 90%.

Key Projects

Voice-Based Seller Simulation   **July 2024 – Aug 2024**

Next.js, TypeScript, Prisma, Vercel AI SDK, Langchain

- Developed a real-time, voice-driven sales-bot that mimics a salesperson's conversational style, resulting in a 30% reduction in response time.
- Utilized vector embeddings for product storage, increasing recommendation accuracy by 25%, while leveraging LangChain's RAG model to provide personalized product suggestions tailored to individual user preferences.
- Integrated automatic database querying using Vercel AI SDK, reducing latency to 0.05 ms%, which improved overall system efficiency and provided seamless access to product information.
- Engineered a flexible system capable of adapting its speaking style based on different seller personas, effectively managing up to 10 simultaneous topics and improving interaction quality by 15%.

Realtime Collaborative Workspace   **Aug 2024 – present**

Next.js 13, Drizzle ORM, Supabase, Tailwind, WebSockets

- Engineered a real-time collaborative workspace enabling multiple users to work simultaneously, incorporating real-time cursors, text selection, and presence indicators, improving team collaboration by 35%.
- Integrated Supabase with row-level security and real-time database synchronization, ensuring seamless collaboration and enhancing data security.
- Enhanced user experience by adding a custom rich text editor with emoji support, increasing engagement by 20% during collaboration.
- Implemented a payment gateway to support tiered subscription plans, including free plan restrictions and monthly billing, boosting monetization by 15%.
- Enabled real-time authentication with custom email-based 2FA and integrated payment management, improving account security by 30%.
- Utilized WebSockets to provide optimistic UI updates and support real-time collaboration and multiple cursors.

Text-Synth   Mar 2024 – Mar 2024

Python, PyTorch, Django, JavaScript

- Implemented a Transformer architecture based on the "Attention is All You Need" (2017) research paper using PyTorch, training models to achieve 97% accuracy on sentiment analysis tasks.
- Trained models for sentiment analysis (encoder), summarization, and chat completion (decoder), and text translation (encoder-decoder), reducing training time by 20% compared to traditional models.
- Built a GPT-like chat application in Django, allowing users to interact with the models in real-time, handling 50+ concurrent users efficiently.
- Integrated web-socket connections to support continuous chat functionality, enhancing real-time interaction with a 40% reduction in latency.