ABHINAV KUSHWAHA

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OBJECTIVE

A proactive Computer Science student with a strong foundation and real-world experience in Python, SQL, and full-stack development. Seeking to leverage data engineering and software skills to build scalable, customer-centric solutions and contribute to end-to-end product delivery in a dynamic engineering team.

EDUCATION

Vellore Institute of Technology   July 2022 - July 2026
Bachelor of Technology in Computer Science and Engineering *CGPA: 8.88*

Kendriya Vidyalaya   Apr 2020 - Jul 2021
12th Grade (Physics, Chemistry, Mathematics, Computer Science) *Percentage: 96%*

EXPERIENCE

Full-Stack Developer | Potato Head Media Works (finursingcollege.in)   *2024 - 2025*
- Architected a scalable Learning Management System (SaaS) for FI Group of Institutions using Next.js, implementing server-side logic and API routes to manage large datasets related to academic performance for over 500 users.
- Engineered optimized PostgreSQL queries and efficient data models, successfully reducing data retrieval latency by 40% for key analytics dashboards on the platform.

Freelance Software Developer (dms.splashnest.com)   *2022 – Present*
- Developed a comprehensive Daycare Management Application (PWA) that structured operational data, reducing administrative overhead for staff by 15% while mitigating platform dependence.
- Implemented dynamic dashboards that translated raw operational data into actionable insights for trend analysis, data-informed decision-making, and scheduling.

PROJECTS

Educational Resource Recommender with Graph RAG
- Developed a Graph RAG (Retrieval-Augmented Generation) system by fine-tuning a Llama-3.1 8B model with Unsloth for efficient, high-performance training on custom educational data.
- Engineered a dynamic knowledge graph from scratch, using FAISS for high-speed semantic search to retrieve relevant context for prompts, significantly improving response accuracy and relevance.
- Built an interactive UI with Gradio for real-time educational resource recommendations and knowledge graph visualization, demonstrating end-to-end system development.
- **Tech Stack:** Python, PyTorch, Llama 3.1, RAG, FAISS, Unsloth, Gradio, Knowledge Graphs.

High-Performance Visual Debugger (DKAD)   *Ongoing*
- Architected a novel Decoupled, Kernel-Assisted Debugging (DKAD) framework to solve the performance overhead of traditional C/C++ memory analysis tools like GDB and Valgrind.
- Leveraged eBPF for low-overhead, real-time tracing of Linux kernel events (memory allocation, scheduler switches), enabling a responsive UI with less than 1 percent performance impact, ideal for HPC analysis.
- **Tech Stack:** C++, Python, Linux Kernel, eBPF, GDB, System-Level Programming.

Rescue and Reconnaissance Bot (RRBot)   github.com/abhii2003/RRBOT
- Developed an IoT bot with a YOLOv5-based detection model achieving 92 percent accuracy, showcasing analytical and problem-solving skills.
- Integrated an ESP32-CAM with Supabase for real-time data processing and automated emergency alerts via the Vonage API.
- **Tech Stack:** Python, YOLOv5, OpenCV, Scikit-learn, ESP32-CAM, Supabase, Vonage API.

TECHNICAL SKILLS

Languages: Python, C++, Java, JavaScript/TypeScript, SQL, HTML/CSS
Full-Stack Development: React, Next.js, Node.js, Express.js, RESTful APIs, PostgreSQL, MySQL, Prisma ORM, Microservices
Data & Machine Learning: Data Modeling, Data Pipelines, Machine Learning, Statistical Methods
Cloud & DevOps: AWS, Google Cloud, DigitalOcean, Docker, Git, GitHub, CI/CD, Linux, System Design
Core CS: Data Structures, Algorithms, Object-Oriented Programming, Operating Systems
Professional Skills: Agile/Scrum Methodologies, Analytical Problem-Solving, Cross-functional Collaboration, Strong Communication