ADARSH SINHA

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LinkedIn — GitHub — Google Scholar — Portfolio

OVERVIEW

Software Developer specializing in Backend Engineering and AI solutions, with a strong foundation in building scalable, efficient, and reliable systems. Proficient in developing and deploying robust backend services, designing APIs, managing databases, and integrating machine learning models into production environments. Experienced in collaborating with cross-functional teams to deliver high-impact software solutions across industries.

EXPERIENCE

SDE 1

Vakeel AI, India — May 2025 – Present

- **Developed** scalable RESTful APIs and backend systems for high-throughput legal tech apps.
- **Managed** virtualized infrastructure using **Proxmox** and **LXC containers**.
- **Built** containerized services with **Docker** for reliable dev-to-prod environments.
- **Implemented** load balancing for high availability and traffic resilience.
- **Orchestrated** cloud infrastructure with CI/CD and infrastructure-as-code practices.
- **Collaborated** across teams to align backend systems with cloud-native and AI workflows.

Data Engineer

CertifyOS, New York, USA — Dec 2024 - Apr 2025

- **Developed** and maintained automated backend data workflows and ETL pipelines using Python and Apache Airflow, supporting scalable ingestion, transformation, and delivery processes.
- **Collaborated** with analysts, engineers, and stakeholders to design backend data systems optimized for business intelligence and reporting.
- **Integrated** multiple APIs and data sources into unified backend architectures, ensuring seamless access and system consistency across platforms.
- **Improved** data monitoring, error handling, and quality control processes to enhance system reliability and reduce operational overhead.
- **Explored** cloud-native backend solutions to improve pipeline scalability and adaptability for future deployments, leveraging **Google Cloud Platform (GCP)** and **Vertex AI** for experimentation and model integration.

Associate Software Engineer

Proeffico Solutions, Noida — Aug 2023 - Nov 2024

- **Spearheaded** the development of backend systems integrated with ML services, collaborating with cross-functional teams to deliver production-grade software solutions.
- **Built** a generative AI chatbot backend service, optimizing server-client communications and scalability.
- **Designed** and implemented DocGPT for NLP-based bulk data analysis, focusing on privacy-aware text summarization and entity extraction.
- **Provided** technical mentorship to junior developers on backend architectures, APIs, and efficient coding practices including **JWT token-based authentication** and **Agile methodologies**.
- **Implemented and maintained CI/CD pipelines** using tools like Jenkins and GitHub Actions for reliable backend deployments.

Software Developer Fullstack Intern

TechLadd, Pune — Jan 2023 - July 2023

- **Developed** scalable backend APIs using Django REST Framework and frontend systems with React.
- **Implemented** RESTful APIs ensuring robust client-server interactions.
- **Enhanced** backend performance through rigorous testing, profiling, and optimization.
- **Collaborated** with design teams to build consistent frontend-backend interfaces.
- **Supported** end-to-end deployment, backend debugging, and application maintenance, working within **Agile sprints** and improving deployment flow using **CI/CD practices**.

EDUCATION

B.E. in Computer Engineering

Thapar Institute of Engineering and Technology, Punjab, India   2020 - 2023

- Specialized in Artificial Intelligence and Data Engineering, with strong exposure to backend development, cloud computing, and scalable system design.
- Completed projects on AI-driven medical image analysis, predictive modeling, and large-scale data processing.
- Learned foundational principles of backend development, machine learning, and database management.
- Participated in research, contributing to peer-reviewed publications.

Diploma in Computer Engineering

Sri Sairam Polytechnic College, Tamil Nadu, India   2017 - 2020

- Gained strong foundational knowledge in programming, algorithms, backend development, and database systems.

SKILLS

- **Languages**: Python, JavaScript, SQL
- **Frameworks**: Django, Flask, FastAPI
- **Backend Development**: REST APIs, JWT Tokens, Microservices, System Design
- **ML & AI**: TensorFlow, Keras, PyTorch, Scikit-Learn, NLP, Generative AI, LLMs, GCP Vertex AI
- **Data Analysis**: Pandas, NumPy, Matplotlib, Seaborn, PySpark
- **DevOps**: Docker, Jenkins, CI/CD Pipelines (implemented and maintained in production)
- **Cloud & Hosting**: AWS, Google Cloud (GCP), Cloud Functions
- **Databases**: MySQL, PostgreSQL, MongoDB, Database Optimization
- **Tools**: Git, GitHub, Jupyter, VS Code, Apache Airflow, Hadoop
- **Methodologies**: Agile

RESEARCH PAPERS

Medical Image Fusion Using Improved Dual-channel PCNN (Springer Nature):This paper proposes a medical image fusion method in the non-subsampled shearlet transform (NSST) domain to combine a gray-scale image with the respective pseudo-color image obtained through different imaging modalities. The proposed method applies a novel improved dual-channel pulse-coupled neural network (IDPCNN) model to fuse the high-pass sub-images, whereas the Prewitt operator is combined with maximum regional energy (MRE) to construct the fused low-pass sub-image. A total of 28 diverse medical image pairs, 11 existing methods, and nine objective metrics were used in the experiment. Qualitative and quantitative fusion results show that the proposed method is competitive with and even outpaces some of the existing medical fusion approaches. The method also efficiently combines two gray-scale images, demonstrating its versatility and effectiveness in medical imaging.

PROJECTS

- **Medical Image Fusion Using Improved PCNN**: Developed robust backend codebase for image processing, resulting in a published paper.
- **Pose Detection**: Designed and deployed real-time backend models using TensorFlow.
- **Generative AI Chatbot**: Built and deployed a scalable chatbot backend using META's Llama models.
- **OCR API**: Created an efficient backend OCR service API with EasyOCR.

CERTIFICATIONS

- Data Structures in Python (Coding Ninjas, 2023)
- STEM Connect (Deloitte, 2023)
- Transformer-Based NLP Applications (NVIDIA, 2023)
- AI on Jetson Nano (NVIDIA, 2023)
- Data Foundations (Google, 2023)
- Full Stack Web Development (Udemy, 2023)

POSITION OF RESPONSIBILITY

- **Led** ML and Backend development teams at Proeffico Solutions.
- **Guided** the Capstone Project team to a published research paper.
- **Managed** the team during the EDGE Platform project, winning first place at the tech expo.