ADITHYA RAO KALATHUR

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SUMMARY

Results-driven Full Stack Developer and AI/ML Engineer with expertise in building scalable, production-ready systems across **web development, machine learning, cloud infrastructure, and cybersecurity**. Proven ability to deliver end-to-end solutions using **Python, JavaScript, React.js, PyTorch, and cloud platforms**. Passionate about leveraging cutting-edge technologies to solve complex problems and create meaningful impact through intelligent, secure, and user-centric applications.

EDUCATION

Manipal Institute of Technology   Udupi, India
B.Tech. in Computer and Communication Engineering — CGPA: 7.06/10   *Aug 2020 – May 2024*

Vidyodaya Pre-University College   Udupi, India
12th Standard (Science - PCMB) — 93.83%   *2018 – 2020*

TECHNICAL SKILLS

Programming Languages: Python, C/C++, Java, C#, JavaScript (ES6+), SQL, HTML5, CSS3

AI/ML & Data Science: PyTorch, TensorFlow, Scikit-Learn, Keras, OpenCV, Pandas, NumPy, XGBoost, NLTK, Matplotlib, Seaborn

Web Technologies: React.js, Node.js, Express.js, FastAPI, Flask, RESTful APIs, .NET Framework, Scrapy, Redux

Databases & Storage: MySQL, PostgreSQL, MongoDB, Firebase, SQLite, Redis

Cloud & DevOps: Google Cloud Platform (GCP), AWS (EC2, S3, Lambda), Microsoft Azure, Docker, Git, CI/CD, Linux

Security & Networking: Penetration Testing, Network Security, Burp Suite, Wireshark, Kali Linux, Metasploit, OWASP Top 10

Tools & Platforms: VS Code, IntelliJ IDEA, Android Studio, Jupyter, Postman, Power BI, Tableau, Cisco Packet Tracer

RELEVANT COURSEWORK

Data Structures & Algorithms, Operating Systems, Database Management Systems, Computer Networks, Cloud Computing, Cybersecurity, Machine Learning, Deep Learning, Software Engineering, Distributed Systems, Object-Oriented Programming, Computer Architecture, Data Mining & Analytics

EXPERIENCE

Thaniya Technologies   Mangalore, India
Full Stack Web Development Intern   *June 2023 – July 2023*

— Architected and deployed an AI-powered movie recommendation platform using **React.js**, **Node.js**, and **PostgreSQL**, serving 500+ test users with personalized content suggestions

— Implemented NLP-based sentiment analysis pipeline using **Python** and **TensorFlow** to process 10,000+ user reviews, achieving 87% accuracy in sentiment classification

— Optimized frontend performance by refactoring React components and implementing lazy loading, reducing page load time by **40%** and improving user engagement metrics by **30%**

— Collaborated with cross-functional team of 4 developers using **Git** for version control and Agile methodologies for sprint planning

PROJECTS

Deep Learning for Cancer Grading from Histopathology Images | *PyTorch, EfficientNet, OpenCV*

— Developed automated grading system for squamous cell carcinoma using **EfficientNetB0** with transfer learning, achieving **92% accuracy** on 5,000+ annotated histopathology images

— Engineered comprehensive preprocessing pipeline with patch extraction, color normalization, and data augmentation techniques to handle class imbalance and improve model generalization

— Deployed model inference API using **FastAPI** with batch processing capabilities, reducing analysis time from hours to minutes for pathologists

Real-Time Network Intrusion Detection System | *Scikit-Learn, XGBoost, Python*

— Built production-ready intrusion detection system using ensemble methods (**Random Forest, XGBoost, AdaBoost**) achieving **96.5% detection rate** with **2.1% false positive rate** on NSL-KDD dataset

— Extracted 41 network flow features from PCAP data and applied feature engineering techniques including correlation analysis and PCA for dimensionality reduction

— Implemented real-time streaming inference module capable of processing 10,000+ network packets per second with sub-100ms latency

Low-Light Image Enhancement using Deep Learning | *TensorFlow, U-Net, Keras*

— Designed and trained **Residual U-Net** architecture on 15,000+ low-light image pairs, improving average PSNR by **8.2 dB** and SSIM by **0.15** compared to traditional methods

— Implemented custom loss function combining MSE, perceptual loss, and edge-preserving regularization for superior visual quality

— Created video enhancement pipeline with frame interpolation, processing 30 FPS video streams for real-time night vision applications

SQL Injection Detection using Hybrid ML Models | *Python, Scikit-Learn, NLP*

- Conducted comparative study of SVM, Random Forest, and novel **Hybrid SVM-RF** model, achieving **98.3% accuracy** in detecting SQL injection attacks across 50,000+ web requests
- Performed advanced feature extraction using n-gram analysis, tokenization, and TF-IDF vectorization on SQL payloads
- Validated model performance using 5-fold cross-validation and deployed lightweight detection module for integration with web application firewalls

Full-Stack Movie Recommendation Platform | *React.js, Node.js, PostgreSQL, Docker*

- Built scalable recommendation system using **collaborative filtering** and **content-based filtering** hybrid approach, serving personalized suggestions for 1,000+ registered users
- Developed RESTful API backend with **Express.js** and implemented JWT authentication, role-based access control, and rate limiting for security
- Containerized application using **Docker** with multi-stage builds, reducing deployment time by **60%** and ensuring consistency across development and production environments
- Integrated NLP sentiment analysis to extract user preferences from reviews, improving recommendation relevance by **25%**

FMCG Supply Chain Analytics Dashboard | *Power BI, SQL, DAX*

- Designed interactive **Power BI** dashboard analyzing 2+ years of supply chain data with real-time KPI tracking for inventory, delivery performance, and demand forecasting
- Created 15+ custom DAX measures and calculated columns to identify bottlenecks, resulting in actionable insights that improved on-time delivery rate by **18%**
- Implemented automated ETL pipeline connecting multiple data sources (SQL Server, Excel, APIs) with scheduled refreshes for live monitoring

Intelligent Web Scraping System | *Scrapy, Python, SQLite*

- Engineered robust web scraper using **Scrapy** framework to extract 10,000+ book records with metadata, ratings, and pricing across 50+ paginated pages
- Implemented custom middleware for handling rate limiting, user-agent rotation, and error recovery to ensure 99% scraping success rate
- Built data cleaning and normalization pipeline with SQLite storage, enabling efficient querying and downstream analysis for price trend visualization

Hospital Management System | *Python, MySQL, Flask*

- Developed comprehensive healthcare platform managing patient records, appointments, billing, and inventory for 500+ patient database
- Designed normalized **MySQL** database schema with 12 tables, implementing proper indexing and foreign key constraints for data integrity
- Created modular REST API with CRUD operations and generated automated reports for hospital administration, reducing manual processing time by **70%**

Enterprise Library Management System | *C#, .NET, SQL Server*

- Architected enterprise-grade library solution using **C#** and **.NET Framework** with Windows Forms for 10,000+ book catalog management
- Implemented advanced features including automated fine calculation, reservation system, and multi-criteria search with full-text indexing
- Optimized **SQL Server** queries and implemented stored procedures, reducing average query response time from 2.5s to 0.3s

Global Video Game Sales Analysis & Market Intelligence | *Python, Pandas, Matplotlib*

- Conducted comprehensive EDA on 16,000+ video game sales records spanning 40 years, analyzing market trends across platforms, genres, and regions
- Applied statistical analysis and visualization techniques to identify key revenue drivers, revealing that action and sports genres account for **35%** of global sales
- Generated data-driven recommendations for platform prioritization and regional marketing strategies, supported by interactive visualizations and trend forecasting

CERTIFICATIONS & LEARNING

Google Cybersecurity Professional Certificate (2024), **Google Data Analytics Professional Certificate** (2024), **UC San Diego Big Data Specialization** (2023), **IBM Data Science Professional Certificate** (2024), **Generative AI with LLMs** (DeepLearning.AI), **Microsoft Azure Fundamentals**, **GitHub Foundations** — View All Certifications

PROFESSIONAL SKILLS

Problem-Solving, System Design, Agile/Scrum Methodologies, Technical Documentation, Code Review, Cross-Functional Collaboration, Leadership, Public Speaking, Adaptability, Time Management, Critical Thinking, Attention to Detail

LANGUAGES

English (Fluent), Hindi (Fluent), Kannada (Native), Tulu (Native)