Deepika Vusarthi

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CAREER OBJECTIVE

New-grad aspiring Data Scientist with strong Python, SQL, data structures, algorithms, and Linux fundamentals. Hands-on experience with data analysis, machine learning inference, and systems-level projects. Seeking admission to a Master's in Data Science program to deepen expertise in statistical modeling, machine learning, and large-scale data analytics to solve real-world problems.

EDUCATION

B.S. in Computer Science: - University of North Carolina Charlotte - Dec 2024

Dean's List: - Fall 2023 – Spring 2024

Relevant Coursework: Data Structures & Algorithms, Operating Systems/Parallel Programming, Computer Networks, Database Design, Probability & Statistics, Web App Development, Information Security & Privacy, Software Requirements & Project Management.

CERTIFICATIONS

- **Cisco Networking Academy** – Network Technician Career Path (Dec 2023) **|** Networking Basics (Dec 2023) **|** Introduction to IoT (Dec 2023)
- **DeepLearning.AI** – Finetuning Large Language Models (2024) **|** Building Systems with the ChatGPT API (2024) **|** ChatGPT Prompt Engineering for Developers (2024)

SKILLS

- **Languages:** Python (Pandas, NumPy), C/C++ (coursework & labs), SQL
- **Systems:** Linux, POSIX/Bash, sockets/networking (TCP/IP, HTTP)
- **ML/Infra:** PyTorch, scikit-learn, basic model serving, torch. profiler, ONNX (basics)
- **Databases:** MySQL, PostgreSQL, MongoD
- **Dev Tools:** Git/GitHub, GitHub Actions, Docker, VS Code, Jupyter
- **Methodologies:** Code reviews, Testing, Agile/Scrum, Jira, Slack

ACADEMIC PROJECTS

Networked Systems Lab - HTTP Server & Packet Analysis (Python, Linux) | Aug 2024 – Dec 2024

- Implemented a high-performance **HTTP/1.1 server** using asyncio and an epoll-backed event loop, supporting keep-alive connections and efficient static file caching for concurrent requests.
- Developed a **packet capture and analysis tool** with scapy/tcpdump to evaluate throughput and latency, tuning kernel socket buffers and Nagle's algorithm for optimized network performance.
- Built a **benchmarking and profiling harness** using wrk/ab and traced code paths with strace/perf, identifying regressions and optimizing system calls and context switches.

Employee Access & Audit System (C#/.NET Core, SQL Server) | Jan 2023 – May 2023

- Implemented **role-based authentication and authorization** with account lockout, audit trails, and centralized parameterized queries to prevent SQL injection, ensuring secure and compliant data access.
- Optimized **database indexing and query plans**, reducing report query times by ~25%; added transactional integrity and enhanced observability with structured logs and error categories for faster issue triage.

Travel Nano - Flask Full-Stack Platform (Flask, JS, SQL, Linux) | Jan 2024 – May 2024

- Developed a **modular Flask application** with authentication, content posting, commenting, and a currency conversion micro-feature using external APIs for real-time data.

- Designed and normalized a **relational database schema**, adding indexes and query hints to reduce median read latency by ~20% and improve overall performance.
- Implemented **input validation, rate limiting, and defence-in-depth measures** including CSRF protection and secure headers to ensure robust application security.
- Built features for **user interaction, authentication, and data sharing**, coordinating with stakeholders to streamline information flow and enhance user experience.

E-Commerce - Brazil Retail Store Business Case (MySQL) | Apr 2025 – Apr 2025

- Analysed a dataset of 100,000 e-commerce orders using **MySQL**, examining order status, pricing, and customer demographics to optimize operations and understand customer behaviour.
- Identified a 137% increase in order costs (2017–2018) and peak sales trends; recommended targeted discounts,
  improved logistics, and efficient inventory management to enhance business performance.

Big OTT Platform - Data Exploration and Visualization (Python Libraries) | May 2025 – Jun 2025

- Explored OTT catalog of 8,807 titles using **Python (pandas, numpy)**, revealing that 50% of content comes from the U.S., India, and U.K., helping understand regional content distribution.
- Analyzed 36.4% of recent content with **Python (matplotlib, seaborn)**; recommended expanding regional content, diversifying genres, and including older shows and movies to enhance catalog variety and appeal.
- Built dashboards and charts to highlight trends in release years, ratings, genres, and top directors, providing actionable insights for content strategy and decision-making.

PROFESSIONAL EXPERIENCE

Junior Software Engineer - Amy Soft Inc | March 2025 - Present

- Developed a lightweight **FastAPI service** around a PyTorch/ONNX model, adding asynchronous endpoints and request batching for efficient inference.
- Implemented basic monitoring with **Prometheus and Grafana** to track latency, throughput, and error rates, enabling proactive performance insights.
- Optimized pre-processing using Linux profiling tools (cProfile, perf), reducing runtime by ~10% during test executions.
- Containerized the service with **Docker** and established a **CI workflow** in GitHub Actions including linting, unit tests, and automated image builds.
- Deployed the service on **AWS EC2** with ENA enhanced networking, validated performance with wrk/vegeta, and authored a concise README/runbook with health checks and startup scripts.

Residential Operations & Data Support Assistant - UNC Charlotte | June 2024 - Dec 2024

- **Maintained** strict confidentiality of resident information while tailoring communications to students, colleagues, and HRL staff, ensuring compliance and clarity across interactions.
- **Streamlined** transaction records and feedback tracking in Excel, improving operational efficiency by ~10% and consistently delivering tasks on time in accordance with service standards.