SURYA TEJA JAKKA

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OBJECTIVE

Full-stack–oriented engineer with experience building **data-driven applications, automation pipelines, and backend services** using Python, SQL, and scripting, plus strong foundations in systems and embedded development. Developed a distributed web scraping and automation platform that processes **50,000+ records per day,** performs intelligent job matching on **50+ criteria**, and integrates automated email outreach with monitoring dashboards, demonstrating the ability to design and implement end-to-end application workflows. At Tata Consultancy Services, automated **15+ reporting workflows** and redesigned database schemas for **10,000+ records and 50,000+ transactions**, reducing report generation time from **4 hours to 15 minutes** and improving query performance by **60%**, showing strength in backend logic, data modeling, and performance tuning. Brings additional experience from research roles architecting data pipelines and time-series logging systems for sensor platforms, with attention to reliability, data quality, and long-running production behavior. Seeking a Full-Stack or Backend Developer role where strong backend and data skills can be combined with modern web frameworks to deliver reliable, scalable applications.

CORE COMPETENCIES

Languages & Frameworks

- Python (automation, data processing, backend scripts)
- SQL (SQL Server, PostgreSQL, MySQL) – schema design, complex queries, performance optimization
- C/C++ (systems and embedded logic, performance-sensitive components)
- MATLAB (data visualization and interactive UI for control/monitoring)

Web, Backend & Automation

- HTTP automation with Selenium and BeautifulSoup for large-scale data collection
- Scripted pipelines integrating scraping, filtering, matching, and outbound communication (email automation)
- Dashboarding and metrics tracking for applications and user-level KPIs

Databases & Data Modeling

- Relational schema design for high-volume operational data (10,000+ entities, 50,000+ transactions)
- Query optimization (indexes, joins, query rewrites) and reporting performance tuning
- Time-series data logging design for 50,000+ sensor readings per day

Tools & Practices

- Git/GitHub for version control and collaboration
- Linux/Windows environments, scripting, and automation workflows
- Data visualization (Matplotlib, Seaborn, Plotly, MATLAB)

Domain Knowledge

- Process automation, reporting systems, job search optimization tools, sensor and telemetry data flows

WORK EXPERIENCE

TATA Consultancy Services, Hyderabad, India

Assistant System Engineer – Trainee *(July 2021 – August 2022)*

- Automated 15+ manual reporting processes using SQL Server and scripted logic, reducing report generation time from 4 hours to 15 minutes (94% efficiency gain) and significantly improving internal stakeholder turnaround.
- Designed normalized database schemas for 10,000+ borrower records and 50,000+ transaction entries, establishing a clean data model that supports reliable, maintainable backend reporting and analytics.
- Refactored 25+ Excel-based workflows into robust SQL-backed reports and views, acting effectively as a backend developer for internal analytics applications and improving data accessibility for 50+ management users.
- Enhanced query performance by 60% using indexing, join optimization, and query restructuring, demonstrating capability to diagnose and resolve performance bottlenecks in data-driven backends.

Northern Arizona University, Flagstaff, AZ, USA

Research Associate – Datalogger Development (ECOSAIL Lab) *(August 2024 – Present)*

- Designed the data ingestion and logging layer for a custom environmental monitoring platform that records 50,000+ time-series sensor readings per day across 5+ sensor types at 1-minute intervals.
- Defined data structures, logging formats, and retention strategies to support downstream analytics and long-term field deployments, similar to backend time-series services handling telemetry.
- Implemented data-quality and consistency routines (sanity checks, missing value handling, timestamp alignment) to ensure reliable analytics from long-running deployments.
- Collaborated with domain experts to convert monitoring requirements into data model and logging specifications, mirroring product and requirements discussions for backend services.

Northern Arizona University, Flagstaff, AZ, USA

Research Associate (MRTL Lab) *(August 2024 – Present)*

- Built structured workflows for 200+ precision measurements weekly, including data collection, cleaning, and interpretation for advanced materials research.
- Improved metrology measurement accuracy by 15% through calibration and data-driven error analysis, showcasing rigorous handling of measurement and data-quality issues.
- Designed data interpretation frameworks that translate instrument outputs into standardized datasets supporting validation and reporting across labs.

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ACADEMIC PROJECTS

Intelligent Web Scraping and Automation Pipeline for Job Search Optimization | 2024

- Developed a distributed web scraping framework in Python using Selenium and BeautifulSoup, capable of collecting 50,000+ job postings per day from 20+ job boards and company career pages.
- Implemented a modular pipeline: crawling, parsing, cleaning, structuring, and storing job postings, effectively acting as a backend ingestion service.
- Built an intelligent job matching component comparing 50+ criteria (skills, location, experience, company type) to a profile, achieving ~85% relevance accuracy, emulating a recommendation/ranking backend for applications.

- Added an automated email composition and submission system that integrates with the scraped data and sends personalized outreach to 100+ recruiters and hiring managers weekly, demonstrating ability to connect a data pipeline to an outbound application layer.
- Created a monitoring dashboard tracking applications, response rates, and interview invitations, providing visibility into system performance and user outcomes, similar to admin views or internal dashboards.

Smart Home IoT Control System (Arduino + MATLAB) | 2020

- Implemented a smart home control application where Arduino microcontrollers interfaced with a MATLAB-based graphical UI for real-time device control and monitoring (lights, thermostats, sensors).
- Designed UI logic and communication routines that enabled control of 5+ connected devices with ~50ms average response time, mimicking frontend-backend interactions in a full-stack system (UI ↔ device layer).
- Packaged the MATLAB UI as a standalone application (<5MB footprint) with persistent state management and 99.5% data consistency across restarts, showing experience in shipping a user-facing application tied to underlying logic and state.

Embedded Machine Learning Anomaly Detection Pipeline | 2024

- Built a sensor anomaly detection pipeline using TensorFlow Lite on environmental datasets, processing 500,000+ labeled datapoints and achieving 92% precision and 94% recall on anomalies.
- Designed the feature extraction, model invocation, and output integration steps as a modular component that can plug into a larger telemetry backend or alerting system.
- Reduced false positives by 78% with data-driven threshold tuning, illustrating attention to production behavior and alert noise reduction.

EDUCATION

Northern Arizona University, Flagstaff, AZ, USA — May 2024
Master of Science, Computer Science — GPA: 3.55/4.0

GITAM Deemed to be University, Hyderabad, Telangana, India — June 2021
Bachelor of Technology, Electrical Electronics and Communication Engineering — GPA:8.76/10.0