

# Sanjay Kumar Machanapally

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## OBJECTIVE

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Analytical and detail-oriented AI Data Science professional with hands-on experience in machine learning, natural language processing, and data visualization. Proven ability to derive actionable insights from complex datasets and develop intelligent solutions for real-world problems. Adept in Python, SQL, NLP, Tableau, and cloud-based platforms with a focus on predictive modeling, deep learning, and feature engineering.

## EXPERIENCE

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### Database Architect Intern

February 2025 - May 2025

*Local Grown Salads*

*Denton, Texas, United States*

- Engineered and optimized PostgreSQL databases handling complex, high-volume data for enriched AI-driven querying and retrieval.
- Automated ETL workflows using Python and SQL, accelerating data processing efficiency by 30%, enabling real-time analytics and faster knowledge enrichment.
- Developed performant query procedures boosting report generation speed by 30%, enhancing decision-making with up-to-date semantic data access.
- Partnered with cross-disciplinary Agile teams to deliver intuitive dashboards and reports supporting ontology-based knowledge graph applications.

### Data Scientist

June 2023 - May 2024

*University of North Texas*

*Denton, Texas*

- Built advanced NLP models incorporating sentence-transformers and embeddings to power semantic search, clustering, and sentiment analysis on large datasets.
- Integrated structured data and unstructured text through vector similarity techniques and clustering (K-means), enhancing AI recommendation systems.
- Developed and deployed Flask APIs simulating real-world AI service environments, enabling seamless interaction with ML models via REST interfaces.
- Delivered interactive Tableau and Power BI dashboards visualizing model insights and embedding-driven knowledge representations for stakeholders.
- Applied rigorous model evaluation combining human-in-the-loop qualitative feedback with quantitative metrics to optimize performance and coherence.

### Project Engineer

July 2021 - December 2022

*Wipro Technologies*

*Hyderabad, India*

- Automated over 500 weekly transactions via UiPath RPA workflows, reducing manual handling time by 40%, streamlining data acquisition for AI pipelines.
- Led quality assurance for 100+ enterprise applications, reducing post-deployment defects by 30% through test-driven development and automation scripting (Python).
- Provided analytics on deployment performance and error rates, informing iterative improvements to automation robustness and reliability.

## PROJECTS

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### AI Lung Cancer Detection Chatbot | Python, PyTorch, Streamlit, Transformers

May 2025

- Built a multilingual clinical chatbot integrating advanced image classification (Swin, ViT) and domain-specific NLP (BioBERT) for lung cancer detection.
- Leveraged multimodal embeddings (CLIP) and cross-lingual models (NLLB) to enable accurate, context-aware responses across languages.
- Delivered an interactive Streamlit interface, improving clinical decision support with real-time image analysis and conversational AI.

### Text-Based Question Answering System using SQuAD Dataset | Python, Transformers, PyTorch, Flask

- Developed a QA system fine-tuned on the SQuAD v1.1 dataset using pre-trained BERT models.
- Utilized Hugging Face Transformers for tokenization and model handling; implemented Flask for model interaction.

- Achieved over 85% EM and F1 score on validation set; deployed locally with REST API support.

### Hotel Review Sentiment Analysis & Recommendation Engine | Python, NLP, Clustering, Flask

- Scraped and cleaned 2,000+ TripAdvisor reviews; applied sentence-transformer embeddings and K-means clustering to enable personalized, semantic search-based hotel recommendations.
- Built a user-centric Flask interface delivering tailored suggestions through vector similarity and ontology-like feature groupings.

## COMMUNITY & LEADERSHIP

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### Coordinator

March 2023 – Present

*Swagath – International Student Welcome Community*

*Denton, Texas*

- Organized large-scale events facilitating integration of international students, improving community engagement and support.
- Coordinated logistics and collaborated with university stakeholders to ensure smooth execution of events.

## TECHNICAL SKILLS

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**Languages & Tools:** Python, SQL, R, Bash, Tableau, Power BI, Jupyter.

**Data Science & Analytics:** Data Cleaning, Predictive Modeling, NLP, Statistical Analysis, Sentiment Analysis, Feature Engineering **GenAI NLP::** Hugging Face Transformers, PyTorch, TensorFlow, sentence-transformers, semantic search, embeddings, clustering (K-means)

**Machine Learning Frameworks:** PyTorch, TensorFlow, Scikit-learn, BERT, RNN

**Data Engineering & Storage:** PostgreSQL, BigQuery, GCP

**Data Visualization & BI:** Tableau, Power BI, matplotlib, seaborn

**Other Tools:** UiPath (RPA), ERD Design, Agile, JIRA

**Soft Skills:** Strong analytical thinking, problem solving, effective communication, collaboration & teamwork, attention to detail, adaptability & flexibility, time management, customer obsession, self-motivation & initiative, critical thinking

## CERTIFICATIONS

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**Data Analytics and Visualization Job Simulation | Data Science Job Simulation | SQL and Relational Databases | Data Analysis Using Excel**

## EDUCATION

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### University of North Texas

Denton, Texas, USA

*Master's in Data Science*

*January 2023 – May 2024*

### Jawaharlal Nehru Technological University

Hyderabad, India

*Bachelor's in Electronics and Communication Engineering*

*August 2017 – May 2021*