

# DEVA SAI KUMAR BHEESETTI

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## OBJECTIVE

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Data Scientist with a strong foundation in machine learning, deep learning, and statistical modeling. Experienced in building end-to-end data pipelines, conducting advanced NLP research, and designing predictive analytics workflows. Looking to apply analytical and AI expertise to solve complex business and operational problems, delivering actionable insights and scalable data-driven solutions.

## EDUCATION

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**Master of Science in Computer Science**, University of Massachusetts Lowell Aug 2023 – Aug 2025  
GPA: 3.94 Coursework: Machine Learning, NLP, Computation in Health and Medicine, Human-AI Interaction  
**Bachelor of Technology in Electronics and Communication Engineering**, K L University, India 2016 – 2020  
GPA: 3.52

## TECHNICAL SKILLS

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**Programming Languages:** Python, SQL, R, JavaScript, Bash  
**Machine Learning & Statistical Modeling:** Scikit-learn, PyTorch, TensorFlow, XGBoost, LightGBM, CatBoost  
**Deep Learning & NLP:** Transformers, LongFormer, LLaMA, DeepSeek, Hugging Face, Fine-tuning (LoRA/QLoRA)  
**Data Processing & Analysis:** Pandas, NumPy, Feature Engineering, Statistical Analysis, A/B Testing  
**Data Visualization & BI:** Tableau, Power BI, Matplotlib, Seaborn, Plotly, Excel  
**Databases:** PostgreSQL, MySQL, MongoDB, Oracle SQL, Firebase  
**Cloud & DevOps:** AWS (S3, SageMaker, Lambda), Docker, CI/CD, GitHub Actions  
**Automation & ETL:** Data pipelines, Web scraping (Selenium, BeautifulSoup), Google Apps Script

## EXPERIENCE

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**Data Science Intern** Oct 2025 – Present  
Manning School of Business, University of Massachusetts Lowell, MA

- Collected and analyzed data from LinkedIn profiles, enrollment records, and student engagement datasets to support academic research initiatives.
- Performed statistical analysis and predictive modeling to identify trends in student and alums outcomes.
- Created interactive dashboards and visualizations using Tableau, Power BI, Excel, and Python (pandas, scikit-learn, matplotlib).
- Conducted extensive data cleaning, preprocessing, and exploratory data analysis using Jupyter Notebooks.
- Delivered actionable insights through reports and visual presentations for faculty and administrative stakeholders.

**Graduate Research Assistant, AI & Healthcare** Jan 2024 – Aug 2025  
University of Massachusetts Lowell, MA

- Built end-to-end NLP pipeline analyzing 2,636 clinical notes to predict 15 Social Determinants of Health categories on an ordinal scale (0-3).
- Developed and evaluated multiple modeling approaches: multi-class classification, regression, and ordinal classification using Clinical Longformer, DeepSeek-R1, and LLaMA 3.2.
- Achieved  $92.6\% \pm 1$  accuracy with  $MAE = 0.235$  using CORN ordinal heads and hybrid CEM-ORD + CE loss functions.
- Implemented entropy-based active learning framework, selectively annotating top-100 uncertain samples for rare-class calibration.

- Applied Captum Integrated Gradients and LIME for token-level model explainability and interpretability.
- Generated synthetic data from informative tokens to handle severe class imbalance in healthcare datasets.

### Graduate Assistant, Software Development & Data Automation

May 2024 – Aug 2025

Manning School of Business, University of Massachusetts Lowell, MA

- Fine-tuned BERT-based models for regression tasks in academic research and predictive analytics.
- Built predictive dashboards in Tableau to forecast event attendance using historical data and statistical modeling.
- Developed automated ETL pipelines integrating Google Sheets, LMS data, and event databases using Python and Google Apps Script.
- Led data operations for Manning Industry Days event with 100+ speakers, including data preprocessing (Tableau Prep) and automated reporting.
- Reduced manual workload by 70% through intelligent automation and data-driven workflows.
- Created a GPT-based advising assistant using student academic data for personalized guidance.

### Software Engineer (Pega Developer)

Dec 2020 – Aug 2023

Infosys Ltd. (Client: Verizon), Hyderabad, India

- Designed and implemented reusable REST/SOAP APIs for enterprise database integration with Oracle SQL.
- Automated business processes using declarative rules and job schedulers, improving productivity by 30%.
- Performed data analysis and monitoring using Kibana dashboards to track API performance and system operations.
- Debugged complex data integration issues using SQL, Postman, and analytics tools across development environments.

## SELECTED PROJECTS

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**Multi-Label Ordinal SDoH Prediction (Thesis):** Developed a transformer-based NLP pipeline for healthcare decision support, predicting 15 ordinal categories from 2,636 clinical notes. Implemented advanced techniques, including ordinal classification, active learning, and synthetic data generation. Achieved 92.3% accuracy with inter-annotator agreement  $\kappa \approx 0.72$ .

**VitaScan / AI-Powered Symptom Checker:** Built an AI-driven health assistant using LLMs (OpenAI/Gemini) with Retrieval-Augmented Generation (RAG) via pgvector for medical knowledge retrieval from CDC, WHO, and NHS sources. Implemented vector similarity search for personalized recipe recommendations and context-aware chat with intelligent triage classification.

**Human Activity Recognition System:** Built an ensemble machine learning model using RGB-Pose for real-time activity detection and fall detection. Deployed on Raspberry Pi with AWS SNS integration for automated alerting.

**MURA Classification - Medical Image Analysis:** Developed DenseNet201 and VGG16 models using transfer learning for musculoskeletal abnormality detection from X-ray images. Implemented GradCAM visualization for model interpretability and deployed via Streamlit interface.

**Industry Days Event Analytics Platform:** Built a comprehensive data pipeline and predictive analytics system using Tableau Prep, statistical modeling, and web scraping. Developed forecasting models for attendance prediction and post-event analysis.

## CERTIFICATIONS

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IBM Data Science Professional

Google IT Automation with Python

Applied AI: Building NLP Apps with Hugging Face Transformers

AWS Certified Cloud Practitioner Prep

## LEADERSHIP

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Conducted research independently with light faculty mentorship, defining project objectives and deliverables. Mentored junior team members on data analysis techniques and best practices. Contributed to cross-functional projects involving analytics, automation, and machine learning.