

# Meghana Durga Patnala

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## ABOUT

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Master's student in Data Science with hands-on experience in Python, R, SQL, ML, and data visualization. Skilled in building real-time applications, predictive models, and dashboards to solve practical problems in AI, analytics, and software domains.

## SKILLS

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- **Languages:** Python, R, Java, SQL
- **Data Structures & Algorithms:** Arrays, Linked Lists, Stacks, Queues, Trees, Graphs, Recursion, Sorting, Searching
- **ML/DL:** Regression, Classification, Clustering, CNN, LSTM, Model Evaluation
- **Libraries:** NumPy, Pandas, Matplotlib, Seaborn, Scikit-learn, TensorFlow, OpenCV
- **Visualization:** Power BI, Excel (VLOOKUP, Pivot Tables, Charts)

## EXPERIENCE

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### Computer Science Lecturer , Sri Durga Malleswara Siddhartha Mahila Kalasala (Present)

- Courses taught: Artificial Intelligence, Python Programming, DBMS, Data Analytics
- Student mentoring and academic coordination

### Artificial Intelligence Medical and Engineering Researchers Society, Indian Servers ,Intern Apr 2024 (2 months)

- Developed CNN models for brain tumor detection, YOLO models for object detection in agriculture (including strawberry and weed detection), and NLP models for chatbots and talking robots.
- Achieved 90%+ accuracy in tumor detection, optimized crop management, and created AI-driven interactive systems for real-time communication.
- Contributed to solving the healthcare challenge of early brain tumor detection, enabling more timely and accurate diagnoses, leading to improved patient outcomes.

## PROJECTS

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### AI Subtitle Studio:Real-Time AI Transcription & Multilingual Subtitle Generator For Videos

- Built a real-time AI-based subtitle generator using Faster-Whisper for transcription and GoogleTranslator for multilingual translation, supporting 5+ languages including Telugu, Hindi, and Korean.
- Designed a Flask web application that accepts uploaded MP4 or YouTube videos, extracts audio, generates accurate transcripts, and outputs synchronized subtitles in SRT/WebVTT formats.
- Deployed a responsive interface enabling side-by-side video playback and transcript view, achieving over 95% transcription accuracy across diverse speech patterns and video types.

### Brain Tumor Detection using YOLOv8

- Developed a Brain Tumor Detection system using YOLOv8 trained on over 1,000 MRI images, achieving 90%+ confidence in identifying tumor regions.
- Implemented real-time image inference with OpenCV, drawing bounding boxes and confidence scores when detection exceeds a 0.5 threshold.
- Optimized output visualization by resizing the annotated image to 400x400 pixels, enhancing clarity for medical diagnosis interfaces.

### Visual Question Answering Bot

- Built a Visual Question Answering Bot using ViLT-B32 transformer model trained on 9M+ image-text pairs, enabling multimodal reasoning.

- Enabled real-time user interaction via Tkinter GUI, handling up to 5+ sequential natural language questions per image with contextual responses.
- Processed and displayed high-resolution images up to 1024x1024 pixels, integrating PIL and matplotlib for accurate visual context analysis.

## CERTIFICATIONS

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- **Google Data Analytics Professional Certificate (Coursera)** Courses: Foundations: Data, Everywhere ; Ask Questions to Make Data-Driven Decisions ; Prepare Data for Exploration.
- Introduction to Data Science using Python (Coursera).
- Accenture North America Data Analytics and Visualization Job Simulation(Forge)
- **Tata Data Visualization: Empowering Business with Effective Insights Job Simulation(Forge)**
- JP Morgan Chase & Co. **Excel Skills Job Simulation** (Forge)
- **Python, Pandas, Data Visualization** Certifications (Kaggle)
- **Faculty Development Programme (FDP) – R Programming for Data Analysis** Organized by Siddhartha Mahila Kalasala
- **Faculty Development Programme (FDP) – Microsoft Power BI for Data Analytics** Organized by SRK Institute of Technology
- AIGNITE HACKATHON 2025 (AI,GEN AI)
- National Level One Week STTP on "**Generative AI Tools Across Disciplines : Transforming Research and Innovation**"
- **ITCR Training (KBN College):** Computer Fundamentals, MS Office (Excel, Word, PowerPoint), Internet. (3 months training).

## EDUCATION

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**Parvathaneni Brahmayya Siddhartha College of Arts & Science**, Master of Science in Data Science 2023 – 2025  
• CGPA: 9.09/10.0

**Kakraparti Bhavanarayana College**, Bachelor of Science in Statistics (MSCS) 2019 – 2022  
• CGPA: 9.04 /10.0

## RESEARCH PAPER PUBLICATIONS

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- **Enhancing Fake News Detection through Sentimental Analysis**

Published at the **2nd International Conference on Recent Innovations in Computer Science & Technology (ICRICT 2024)**, Parvathaneni Brahmayya Siddhartha College of Arts & Science (Autonomous), Vijayawada, Andhra Pradesh. ISBN: 978-81-968265-0-5 | **NAAC A+ Accredited (Cycle-III)**

- **Enhancing Attendance Management with CNN-Based Face Recognition**

A Secure and Efficient Approach Published in the International Research Journal on Advanced Engineering and Management (IRJAEM). This paper presents a secure, automated attendance system using Convolutional Neural Networks (CNN) for real-time facial recognition with improved accuracy and efficiency.