

## Akshata Badola

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### Education

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**Deccan Education Society, Pune University**  
*School of Science and Mathematics*  
Master of Computer Applications

**Pune, Maharashtra**  
**Aug. 2025 - May. 2027**  
CGPA: 9.55

**Symbiosis International University**  
*Symbiosis Institute of Computer Studies and Research*  
Bachelors of Computer Applications (Honours in Artificial Intelligence and Machine Learning)

**Pune, Maharashtra**  
**Aug. 2022 - May 2025**  
CGPA: 8.63

### Work Experience

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**Dravita.ai**  
*Backend + Research Intern*

**Pune (Remote)**  
**Jan. 2025- Aug. 2025**

- Built scalable Python data pipelines for processing large structured datasets used in AI-driven nutritional analysis.
- Designed and optimized a PostgreSQL data architecture supporting large-scale dataset management.
- Conducted data analysis and preprocessing for ML-ready datasets, improving data quality and consistency.
- Implemented automated workflows using pandas and Python scripting to streamline dataset generation
- Created system architecture diagrams and documentation to support future AI model integration and research workflows.

**Detoxio.ai**  
*LLM Security Intern*

**Bangalore (Remote)**  
**Oct. 2024 – Dec. 2024**

- Conducted systematic security evaluation of Large Language Models, analyzing failure modes and response vulnerabilities.
- Designed and implemented automated testing frameworks in Python to benchmark LLM behavior across adversarial prompts.
- Built tools to generate and evaluate 1000+ prompt-based test scenarios for large language model robustness analysis.
- Performed experimental analysis of model outputs, identifying patterns in hallucinations, safety bypass, and adversarial prompts.
- Developed wrappers and automation scripts to streamline LLM testing pipelines, reducing evaluation time by 60%

**Defensium Labs**  
*AI Security and Research Intern*

**Jaipur (Remote)**  
**June. 2024 – Oct. 2024**

- Conducted in-depth research on AI vulnerabilities to identify and analyze potential threats.
- Developed a generative AI model with built-in vulnerabilities for testing and educational purposes.
- Implemented AI vulnerabilities within the generative model to enhance understanding of security risks.
- Authored comprehensive blogs and technical content focused on AI security and the intersection of AI and cyber security.

- Collaborated with the graphic design team to create visually appealing website layout, contributing to a 15% increase in student engagement and interaction with online resources.
- Implemented new content management system to streamline article publication process, leading to a 30% increase in available resources for students.
- Technology used: Drupal

## **Publications & Research Work**

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### **Detecting and Classifying Multiple Network Intrusions Using the Real-Time Dataset**

***Supervisor: Dr. Amol Vibhute, Assistant Professor, Symbiosis Institute of Computer Studies and Research***

**Status: Under Review – Scopus Indexed Q2 Journal**

- Conducted research on machine learning approaches for network intrusion detection using the UNSW-NB15 dataset.
- Performed data preprocessing, feature engineering, and dataset balancing for improved model performance.
- Implemented and evaluated Artificial Neural Networks and Random Forest models using multiple evaluation metrics.
- Conducted controlled experiments comparing model performance using accuracy, precision, recall, and ROC analysis.
- Co-authored research manuscript currently under peer review for international publication.

## **Projects**

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### **Multilingual Transformer Fine-Tuning for Low-Resource Translation | [GitHub](#) | On-going**

- Fine-tuned the pretrained \*\*Facebook AI Research mBART multilingual encoder-decoder model on low-resource language datasets to improve translation quality.
- Designed a complete NLP training pipeline including dataset preprocessing, tokenization, batching strategies, and GPU-based model training.
- Conducted controlled experiments comparing baseline pretrained model performance with fine-tuned models across multiple language pairs.
- Implemented efficient training techniques including gradient accumulation and optimized batching to reduce memory usage during transformer training.
- Experimented with different decoding strategies such as beam search and top-k sampling to analyze their impact on translation quality and inference speed.

### **NLP program for mental health diagnosis | [GitHub](#) | Dec' 24- Feb'25**

- Developed an NLP classification system to detect mental health conditions from textual data.
- Implemented preprocessing pipelines using NLTK and spaCy including tokenization, stopword removal, and vectorization
- Trained and evaluated multiple machine learning models including Naive Bayes, Random Forest, and Logistic Regression.
- Conducted comparative experiments across models to evaluate classification performance.
- Visualized results using ROC curves, learning curves, and precision-recall metrics to analyze model behavior

## **Chronicler: Modern Time & Schedule Management System for SICSR | [GitHub](#) | June'24-Aug'24**

- Developed Chronicler to enhance timetable experience for SICSR students using MRBS technology by identifying issues with existing system: clunky interface, cumbersome filtering process.
- Key features include MRBS, web scraper, data caching/validation, web and textual user interfaces, CI/CD, and test coverage.
- Emphasized a core design philosophy with minimalistic, responsive, and performant components.
- Objectives include streamlining timetable access, improving user interfaces for flexibility and intuitiveness, and enhancing user productivity.
- Languages used: Python(Django, Poetry libraries), JavaScript

## **Skills**

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**Languages:** Python, Java, HTML/CSS, JavaScript, C, C++, Bash

**Machine Learning:** PyTorch, TensorFlow, Scikit-learn, Transformers, NLP, Deep Learning, Model Evaluation

**NLP Tools:** NLTK, spaCy, HuggingFace Transformers

**Back End:** AWS, Azure, Google Cloud, MySQL, SQL, Linux

**Tools:** git, VS Code, Eclipse, Weka, Google Colab, PyCharm, Microsoft Office, TensorFlow, Hadoop, Pig, Hive

**Soft Skills:** Problem-Solving, Team Work, Presentation Skills, Leadership skills, Communication, Critical Thinking, Time management.

## **Certifications**

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[Google Data Analytics Professional Certificate](#)

[Google Cybersecurity Professional Certificate](#)

[Google AI Essentials](#)