

# AMINA NAAZ. S



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## SUMMARY

Experienced Data Scientist with 4.5 years in industry and 3 years in research and academia, leading AI/ML projects in NLP, predictive analytics, and automation. Developed AI-driven solutions for competitive pricing, recommendation systems, and customer analytics, boosting efficiency and revenue. Skilled in Python, Machine learning, deep learning, NLP, LLMs, and deploying scalable AI systems.

## EXPERIENCE

### AI-Powered Web Scraping, Competitive Pricing, & CRM Analytics System

*Data Scientist, Akira insights*

- **Led the development of an AI-driven competitive pricing and CRM analytics system**, integrating **web scraping, time-series forecasting, and decision-tree-based benchmarking**, resulting in a **20% revenue increase**.
- **Built a scalable web scraping pipeline using Python (Selenium, BeautifulSoup, Requests)** to extract and analyse competitor pricing data, **reducing processing time from 34 hours to 10 minutes**.
- **Developed an automated benchmarking system using Decision Trees**, optimizing client pricing strategies by analysing competitor price trends and enhancing **dynamic pricing accuracy**.
- Designed a CRM analytics module, **applying VADER sentiment analysis to extract insights from competitor customer feedback**, **improving** targeted marketing and customer engagement.

### Product Recommendation System using NLP & FastAPI

*Data Scientist, Akira insights*

- Developed a product recommendation system leveraging **TF-IDF vectorization and cosine similarity** to suggest similar products based on descriptions.
- Integrated **FastAPI** to expose recommendations via a REST API and built an interactive **Streamlit UI** for users.
- Processed retail dataset **using SQLite, performed text preprocessing, and ensured real-time recommendations with optimized** query handling.
- Improved recommendation accuracy by handling duplicate entries and refining similarity calculations.

### AI-Powered Summarization Using LLMs

*Data Scientist, Akira insights*

- Developed an AI-driven summarization system using **GPT-4, LLaMA 2, and T5**, optimizing accuracy and efficiency for dialogue and document summarization.

- Implemented **LoRA** for efficient fine-tuning, **RLHF** for quality improvement, **prompt engineering**, and **embedding-based retrieval** to enhance summarization quality.
- **ROUGE Score:** Achieved **ROUGE-1: 85%, ROUGE-2: 78%, ROUGE-L: 80%** for summarization accuracy. Reduced inference time by **30%** using LoRA fine-tuning. Lowered computational cost by **40%** through parameter-efficient training techniques.

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### Customer Segmentation Using K-Means on Retail Data

*Data Scientist, Akira insights*

- **Developed a K-Means clustering model** to segment customers based on total spending, purchase frequency, and quantity, optimizing targeted marketing strategies.
- **Built an automated data pipeline** to fetch, process, and store customer segmentation results in an **SQLite database**, reducing manual effort.
- **Applied Elbow Method & Silhouette Score** to determine the optimal number of clusters, enhancing segmentation accuracy and business insights.
- **Developed insights from Cluster 0 segmentation**, helping stakeholders tailor promotions and optimize revenue from premium customer groups.

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### Product Category and Product Weight Prediction

*ML Engineer, Aparimita Tech Innovators*

- Developed **ML and NLP models** for predicting product categories and weights from **200,000+ data points**, enhancing classification accuracy.
- Built and deployed **Flask-based APIs on Heroku** for real-time predictions and seamless integration.

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### Face Recognition Using DWT and Euclidean Distance

*ML Engineer, Saitek Tektronix*

- Implemented a **face recognition system** using **DWT for feature extraction** and **Euclidean distance for similarity measurement**.
- Processed facial images using **Gaussian blur, grayscale conversion, and wavelet decomposition** to extract key facial features.
- Achieved **efficient and accurate face matching** by comparing approximation coefficients using **distance-based classification**.

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## SKILLS

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| <ul style="list-style-type: none"><li>• Python</li><li>• Web scraping</li><li>• Machine Learning</li><li>• Deep learning</li><li>• ANN, CNN</li><li>• SQL</li><li>• Raspberry Pi</li><li>• HTML, CSS</li></ul> | <ul style="list-style-type: none"><li>• NLTK, VADER,</li><li>• LLM, GenAI</li><li>• Git, GitHub</li><li>• Project Management, Collaboration, Stakeholder Management</li><li>• Jupyter, Spyder, VS code, Colab,pycharm</li><li>• VM, Amazon Sage maker</li><li>• OpenCV, computer vision</li><li>• Streamlit, FastAPI</li></ul> |
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## LANGUAGES

English, Malayalam, Tamil, Hindi, Urdu, Kannada and Telugu,

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## EDUCATION

**MTech: Electronics and Communications Engineering**  
**BE: Electronics and Communications Engineering**

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## WORKSHOP AND PUBLICATIONS

- **Amina Naaz. S**, published in **IEEE Digital Explorer** (ICDCS'14, Chennai, 2014). **"FPGA Implementation of High-Speed Vedic Multiplier for DSP Filters"** at **ICCSEM-2013**, Dayananda Sagar College of Engineering, Bangalore.
- Presented **"Effective Implementation of Parallel FIR Architecture Using Vedic Mathematics"** at **e-Blaze'13**, JNN Institute of Technology, Ch securing 2nd prize.
- Presented **"Application of Network Design Methodologies for 4G Technologies"** at **Advaya-09**, Shirdi Sai Engineering College, Bangalore.
- Presented a technical paper on **"Transformers"** at **Islamiah Institute of Technology**, Bangalore.

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## CERTIFICATIONS

- Certification in GENAI using LLM from Course era  
<https://www.coursera.org/account/accomplishments/certificate/B2DB3W32TNLZ>
- Certification in Machine Learning with Python.
- Certification in C and C++.
- Certification in Python by Hacker Rank  
[Link: https://www.hackerrank.com/certificates/05a40e5f56f6](https://www.hackerrank.com/certificates/05a40e5f56f6)
- · Essential Excel by Microsoft.