

AISHWARYA NAIR

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EDUCATION

Masters of Science in Computer Science

Sept 2023 – May 2025 (Expected)

University of Massachusetts Amherst

- **GPA: 3.9**

- Coursework: Reinforcement Learning, Machine Learning, Applied Statistics, Distributed Operating Systems, Quantum Information Systems

SKILLS

Programming: Python, SQL, JavaScript, AJAX, C++, Shell scripting

Machine Learning & AI: LangChain, LlamaIndex, OpenAI Fine-Tuning API, Scikit-learn, ML pipelines, NLP models (BERT, MPNet), RAG frameworks

Frameworks & Libraries: TensorFlow, PyTorch, Keras, JAX, OpenCV, Flask, Django, FastAPI

Cloud & Infrastructure: AWS, Azure, GCP, Kubernetes, Docker, OpenShift

Big Data & Orchestration: Databricks, PySpark, Apache Spark

API Development & Optimization: REST API, Pytest, MagicMock

PROFESSIONAL EXPERIENCE

Data Science Intern and Co-op

May 2024 - January 2025

Boehringer Ingelheim

- Enhanced real-time inference capabilities by optimizing **Spark job** orchestration using **Databricks bundles**, reducing latency by 60 seconds for data stored in **AWS S3**.
- Deployed **retrieval-augmented generation (RAG)** pipelines using **GPT-4, LangChain, and LlamaIndex**, achieving a reduction of 2,000+ annual FTE hours in document review.
- Automated data synchronization between **OpenShift PVC and AWS S3** via **Kubernetes, FastAPI, Boto3** and **Jenkins**, saving 4,000+ annual FTE hours.
- Developed and executed comprehensive API testing strategies with **MagicMock** and **Pytest**, achieving 100% coverage and improved reliability.

Artificial Intelligence Engineer

September 2021 – August 2023

Heystack Inc.

- Spearheaded the development of an NLP algorithm leveraging NLP models like **BERT** and **MPNet** for multi-class text classification across 23 emotion categories, achieving ~70% accuracy
- Improved VF Corp's text classification system by 20% through fine-tuning transformer-based models, extracting actionable insights from unstructured text.
- Built and deployed **RESTful APIs** on AWS EC2 using **Flask, SQL, and JavaScript**, supporting up to 2,000 model queries per request.
- Developed an advanced clause-extraction algorithm utilizing **morphological analysis and dependency trees**, boosting transformer model accuracy by 5%.
- Deployed an API for training and testing **GPT-4 models** on **OpenAI Fine Tuning API**, elevating average model accuracy by 2%.

PERSONAL PROJECTS

Forest fire prediction using LSTM models — Student team leader

January 2020 - May 2021

- Secured a **\$15,000 Microsoft AI for Earth** research grant and presented findings at INCET 2021.
- Designed an **LSTM model** using **TensorFlow** and NASA datasets on **Azure**, achieving an 85% prediction accuracy rate.
- Led a team of 6 in data preprocessing, management, and **Django**-based web app development for real-time prediction visualization.

ASSIST — Team leader

August 2019 - May 2020

- Developed a smart device prototype for visually impaired users, achieving **83% object detection accuracy** using **TensorFlow** and **MobileNet**.
- Guided a team of three in integrating IoT sensors and creating a **HTML Bootstrap and PHP** based interface for navigation assistance.
- Recognized as a **regional finalist** at the eYantra Ideas Competition organized by **IIT Bombay**.

LCP — Team leader

September 2019 - April 2020

- **Super Team awardee of Project Deep Blue** competition organized by Mastek & Majesco.
- Achieved 86% accuracy in predicting the water demand of Mumbai for the year 2030 using data mining and machine learning algorithms using **Python and SciKit Learn**.
- Led a team of 3: 2 people for data collection and processing 1 for web development, testing and documentation