# Aaditey Pillai

aaditey.pillai@duke.edu | [LinkedIn](http://www.linkedin.com/in/aaditey-pillai) | [GitHub](https://github.com/aaditey932) | 224-284-5901

## **Education**

**Master of Engineering in Artificial Intelligence** (GPA: 4.00/4.00) Durham, NC

Duke University August 2024 - May 2026

Relevant Courses: LLMs, Deep Learning Applications, Modeling Process & Algorithms

**Bachelor of Technology in Electronics & Communications Engineering** (GPA: 9.34/10.00) Chennai, India

SRM Institute of Science and Technology June 2019 - May 2023

Relevant Courses: Python, C, C++, Java, Data Structures, Computer Communication Networks

## **Work Experience**

## **Machine Learning Intern** September 2023 - June 2024

## Celusion Technologies Mumbai, India

## Developed ETL processes using Pandas and NumPy to ensure data accuracy and consistency across 100,000+ entries, enhancing system reliability and performance by 30%.

## Collaborated with data scientists to execute feature engineering, including geographic and temporal encoding, achieving a 15% improvement in model prediction accuracy.

## Engineered a scalable AI platform solution using ensemble models, resulting in an AUC of 0.96 through strategic hyperparameter tuning and cross-functional teamwork.

## Designed and maintained an automated ML pipeline for data imputation and transformation, improving data processing efficiency by 25% and ensuring robust integration.

**Cyber Security Intern** January 2023 - July 2023

BSE Technologies Mumbai, India

* Configured and optimized IBM QRadar to maintain 95% system uptime, ensuring continual threat monitoring and data integrity across multiple sources.
* Conducted comprehensive investigations into 50+ security incidents, decreasing resolution time to an average of 4 hours by employing precise problem-solving techniques.
* Partnered with cross-functional teams to integrate IBM QRadar with additional security tech, leading to a 20% increase in threat detection accuracy and improved workflow efficiencies.

**Projects**

**AI-Powered RAG: Nutrition Text Assistant** - [Link](https://github.com/aaditey932/rag-app) February 2025 - March 2025

* Created a cutting-edge RAG application leveraging OpenAI GPT-4, Pinecone, and Streamlit, enabling precise contextual retrieval and generation with a context recall rate of 86.67%.
* Advanced retrieval optimization methodology improved context recall to 86.67% and factual correctness to 67.00%, through implementation of vector databases and automated RAGA evaluations.

[**CoreTransformer**](https://github.com/aaditey932/transformer-from-scratch) - [Link](https://github.com/aaditey932/transformer-from-scratch) February 2025

* Implemented an LLM transformer prototype from scratch using only NumPy, building core components like multi-head self-attention, positional encoding, and feed-forward networks.

[**Retinal Fundus Disorder Detection**](https://github.com/aaditey932/retinal-fundus-disorder-detection) - [Link](https://github.com/aaditey932/retinal-fundus-disorder-detection) January 2025 - February 2025

* Engineered a high-performance deep learning model with MobileNetV3, applying CLAHE preprocessing to effectively classify 11 retinal disorders, thereby improving early diagnosis rates.
* Enhanced model generalization by 20% through the use of PyTorch, Adam optimizer, and extensive data augmentation techniques.
* Trained and deployed the model on Google Cloud TPUs/GPU.

**ReadSmart** November 2024

* Designed and implemented a generative AI web app prototype leveraging natural language processing (NLP) to create personalized reading comprehension passages and follow-up questions for elementary students.
* Utilized OpenAI GPT-4 and langchain to generate real-time text content.

**Weakly Supervised Road Segmentation using Satellite Feed** July 2023 - September 2023

* Implemented a satellite-driven computer vision solution for road segmentation with TensorFlow, achieving a significant increase in segmentation accuracy through weakly supervised learning.