

# AASHREEYA KARMACHARYA

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## Education

### The University of Texas at Arlington

Bachelor of Science in Computer Science

CGPA: 3.95

Current - May 2027

Arlington, Texas

## Involvement and Experience

### JPMorgan Chase & Co. - Software Engineering Simulation

August 2025

*Spring Boot, Kafka, SQL, REST API, Java*

- Contributed to the development of Midas Core, a Java Spring Boot microservice responsible for receiving, validating, recording, and exposing financial transactions through Kafka, SQL databases, and REST APIs.
- Implemented a Kafka listener in Java with Spring Boot to consume and deserialize real-time financial transactions.
- Developed transaction validation and persistence using Java, Spring Data JPA, and H2 Database.
- Connected Midas Core to an external Incentives REST API, applying rewards to recipient balances
- Developed a /balance GET endpoint returning user balances as JSON with error handling

### Wells Fargo - Software Engineering Simulation

July 2025

*Java (OOP, Beans), Spring, RDBMS, ORM*

- Built ERDs and explored object-oriented design in Java and Spring Boot for a financial portfolio management system.
- Developed core entity classes using Java and JPA and applied relevant annotations to establish proper object-relational mapping.

### AI4ALL Fellow - Summer Ignite Program

Summer 2025

*Data Analytics, Data Visualization, Machine Learning, AI*

- Worked in a remote environment to predict future energy usage based on country-specific economic and regional factors using Random Forest and XGBoost Regressor.
- Conducted data cleaning, exploratory analysis, and feature engineering reducing MAE by 7.4%, MSE by 25.5%, and achieving an overall accuracy of 97.6%.
- Deployed the findings in a Streamlit app and containerized it using Docker for consistent deployment across systems.

### Data Science Trainee - TechAxis Pvt. Ltd.

November 2021 - February 2022

*Python, Power BI, Matplotlib, Scikit-learn, Pandas, NumPy, Seaborn, Google Workspace*

- Cleaned, standardized, and validated datasets using Python, ensuring accurate and consistent data flows for analysis and reporting
- Created clear, actionable data reports and visualizations with Matplotlib, Seaborn; supported dashboard development in Power BI.
- Built machine learning models with bias mitigation techniques to improve fairness and accuracy.

## Projects

### GeminEye | Python, Gemini API, OpenCV, pyttsx3, Base64

- Collaborated with a teammate to develop GeminEye, an AI-powered real-time navigation assistant that helps individuals with visual impairment to detect objects and navigate safely using live video analysis and speech interaction.
- Integrated Google Gemini 1.5 Flash API with OpenCV to process live frames, encoded as Base64, to generate real-time environmental descriptions, and provide AI-driven movement guidance.
- Designed a hands-free, bidirectional speech system using speech recognition and pyttsx3.

### Breast Tumor Classification Using ML | Python, Scikit-learn, Pandas, Matplotlib, Seaborn, Streamlit

- Developed a ML model to classify breast tumor for early cancer diagnosis using Random Forest, achieving AUC-ROC score of 0.94.
- Addressed class imbalance by implementing SMOTE and ADASYN oversampling techniques to enhance model performance.
- Performed exploratory data analysis with visualizations, correlation heatmaps, and feature importance analysis to optimize model training.
- Deployed the model as a web application using Streamlit, enabling easy access and predictions for non-technical users.

### Mavs Online Entertainment System (MOES) - Java Media Management Platform | Java

- Developed MOES media management system in Java for UTA student content access, employing a four-sprint process with a menu-driven UI for seamless media interaction, incorporating file I/O for data persistence and automated regression tests for feature validation.
- Applied object-oriented design principles like inheritance and polymorphism to enhance system functionality and maintainability, implementing comprehensive JavaDoc documentation for clear, maintainable code.

### Checkers - Class Project | HTML, CSS, JavaScript, Java

- Applied Iterative approach, working in a team of 3 and collaborating with 11 development teams to build a secure login system.
- Built the login page using HTML, CSS, and JavaScript with client-side form validation and implemented user authentication via Java WebSockets connected to the backend database.
- Gathered requirements, created use case diagrams, state diagrams, and UI mockups to guide development.

## Technical Skills

**Languages:** Python, Java, C, SQL, HTML, CSS, JavaScript

**Frameworks/Libraries:** Spring Boot, JPA, Scikit-learn, OpenCV, Streamlit, pyttsx3

**Tools:** Git, Docker, Power BI, Google Workspace, IntelliJ, VS Code, Linux, Google Colab, Jupyter Notebook, Oracle Virtual Box

## Honors and Awards

### UTA Hack-Day

Spring 2025

*Winner- Best Use of Gemini API*

*University of Texas at Arlington*

- Awarded 'Best Use of Gemini API' for developing GeminEye, an AI-powered assistive navigation system.

### Dean's List

Spring 2025, Fall 2024

*College of Engineering (COE)*

*University of Texas at Arlington*

- Recognized for being one of only 457 students among more than 6,000 students in COE for academic excellence.