

# Usman Benrbia-Harni

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## EDUCATION

**Georgia Institute of Technology, College of Computing**

Atlanta, GA

**Bachelor of Science in Computer Science**

Aug. 2021 – May 2025 (Expected)

- Thread: Info/Internetworks-Intelligence
- G. Wayne Clough Tech Promise Scholarship
- Participated in a 16-week international study program encompassing visits to 15 countries and 28 cities

**Relevant Coursework:** OOP, Data Structures, Design and Analysis of Algorithms, Computer Organization and Programming, Systems and Networks, Intro to AI, Perception and Robotics, Machine Learning, Database Systems

## PROJECTS

**Event Search Directory** | *Firebase, Java, React, Mantine, Git*

- Developed a cross-functional adaptive web application that helps students to find current events on campus using React, Firebase, and Git, overseeing planning, development, and testing through multiple sprints
- Designed and built responsive UI components in React, including login/profile, dashboards, and event screens
- Generated core features such as event creation, RSVP management, and real-time data using Firebase
- Assembled project documentation, including domain models, diagrams, and maintained version control with Git

**Image Recognition** | *NumPy, Python, Scikit-Learn, Scikit-Image, Git*

- Developed a machine learning algorithm using Python, achieving high accuracy in real-time symbol classification from a Cozmo to perform data analysis for various images
- Implemented image preprocessing, feature extraction, and data formatting for precise symbol recognition
- Utilized RANSAC for accurate arena edge line detection in image data in over 100 images
- Achieved 98% accuracy on withheld test data, showcasing strong problem-solving skills

**Precision Rails** | *Python, Git, Pandas*

- Processed a dataset of over 3 million Polish train data points, ensuring accuracy in predicting train delays with an 87% success rate
- Streamlined and optimized over 4 machine learning models, including Decision Trees, Feature Selection (Chi Squared Metric), and PCA
- Managed data cleaning and created diverse data visualization plots and matrices in the context of a sizable dataset

**Simple Airline Management System (SAMS)** | *mySQL, Python, Pandas, Git*

- Engineered a comprehensive data driven flight management system to monitor flights, passengers, airports, and more, ensuring a resilient and seamless database environment
- Developed and executed SQL scripts, enforcing data integrity through the creation of 30+ primary, unique, and foreign key constraints
- Applied normalization techniques and integrated diverse data sources, contributing to a 15% reduction in query response time and enhanced system performance
- Completed the implementation of 13 stored procedures and 6 multi-tabled views

## EXPERIENCE

**Student Researcher** | *Python, PID Arduino*

Jan. 2023 – Present

*Agile Locomotion & Manipulation VIP*

Atlanta, GA

- Demonstrated proficiency in robot multi-body dynamics and control, dynamic simulator usage, and programming in Python/C++
- Contributed to designing and controlling of an autonomous robot, specializing in control, circuit design, Arduino programming, mechatronics, and rapid prototyping
- Collaborated in the LIDAR VIP Team, focusing on planning, control, and decision-making algorithms for dynamic robots

## TECHNICAL SKILLS

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

**Tools:** Git/GitHub, React, Node.js, Firebase, VS Code, Docker, MySQL, LaTeX, Scikit, NumPy, Mantine, MongoDB