

MOHAMMED “YASH” HOSSAIN

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Education

Rutgers University

Newark, New Jersey

B.S. in Computer Science & Economics (Double Major)

Expected May 2028

- **GPA:** 3.75/4.0
- **Relevant Coursework:** Data Structures & Algorithms, Machine Learning, Probability & Statistics

Experience

Diakon Solutions LLC

Egg Harbor, New Jersey

Artificial Intelligence Intern

Jun 2026 – Aug 2026

- Conducting **AI research** and technical analysis for **aerospace and aviation** initiatives in partnership with the **National Aerospace Research and Technology Park**, directly supporting **FAA**-associated research outcomes.
- Building and benchmarking **ML models** on aerospace datasets to power **predictive decision-making** pipelines; visualizing structured data to surface actionable operational insights.
- Evaluating and prototyping **data-driven** approaches for **aviation system optimization** across active aerospace programs.

Launch Circuit Labs – Rutgers University

New Brunswick, New Jersey

Technical Specialist

Sept 2025 – Mar 2026

- Engineered and deployed **full-stack web applications** using **React**, **Node.js**, **REST APIs**, and **SQL** for early-stage startup clients, delivering end-to-end features including auth, data storage, and backend services.
- Selected for **Columbia University’s CS3 Accelerator** out of a competitive applicant pool; project subsequently accepted into the **NEC X startup accelerator program**.
- Architected core backend modules for **AeroBin**, an **AI-driven waste management** platform, integrating **real-time IoT sensor data** with intelligent routing logic to optimize collection operations at scale.

Ideal Institute of Technology – Center of AI & Robotics

Pleasantville, New Jersey

Machine Learning Engineering Intern

Jun 2025 – Aug 2025

- Developed a **computer vision** control pipeline using **PyTorch** for **teleoperated manipulation** of a dual-arm robotic system, enabling real-time object interaction via camera inference.
- Processed and analyzed **100K+ rows** of structured sensor data using **PySpark** and **SQL** to enhance **motion prediction accuracy** across robotic movement tasks.
- Reduced **model inference latency** and task error rate by **~50%** through systematic model tuning, preprocessing pipeline optimization, and data input debugging.
- Integrated **live sensor streams** with control logic to enable **assisted and semi-autonomous robotic movement** on the LeRobot platform.

Projects

AeroBin | *React, Node.js, SQL, IoT, REST APIs*

- **Winner – Columbia University CS3 Accelerator**; accepted into **NEC X startup accelerator program**.
- Designed **backend workflow** to ingest **real-time bin sensor** updates and trigger collection events based on **fill-level thresholds**, reducing unnecessary collection runs.
- Implemented **intelligent routing logic** to prioritize pickup locations dynamically based on sensor data and **operational constraints**.

LeRobot Robotic Arm Teleoperation | *Python, ROS, PyTorch, Computer Vision*

- Developed a **real-time computer vision** inference pipeline using **PyTorch**, processing live camera frames to **predict and assist object manipulation** actions during dual-arm teleoperation.
- Fine-tuned and evaluated **ML models** on recorded manipulation data to improve **action prediction accuracy** and reduce task error rate across robotic movement sequences.
- Integrated sensor streams with a **ROS**-based control architecture, enabling **low-latency** transmission of model outputs to robotic actuators for **semi-autonomous assistance**.

Technical Skills

Languages: Python, Java, TypeScript/JavaScript, SQL

ML / Data: PyTorch, Pandas, NumPy, Matplotlib, PySpark, scikit-learn

Web / Backend: React, Node.js, Next.js, REST APIs, Express.js

Tools / DevOps: Git, Docker, AWS, MySQL, ROS

Concepts: Machine Learning, Computer Vision, Data Structures & Algorithms, Systems Design, Full-Stack Development