

Aryan Raj Dhawan

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Education

University of Rochester

May 2026

BS in Computer Science (AI Concentration), BS in Mathematics, Minor in Statistics, Phi Beta Kappa (PBK)

Rochester, NY

- GPA: 3.99 out of 4.0 (Summa Cum Laude, Highest Distinction)
- Suzanne J. O'Brien Book Award (PBK Honor Society); top 1% of students for academic and co-curricular excellence
- **Selected Coursework:** Data Structures and Algorithms, Machine Learning, End-to-end Deep Learning, Natural Language Processing, Linear Algebra, Bayesian Inference, Linear Models, Data Mining

Experience

Microsoft

May 2025 – Aug 2025

Software Engineer Intern

Seattle, WA

- Engineered camera systems within the *Minecraft* engine in C++, focusing on performance and maintainability of engine-level features.
- Implemented and debugged gameplay features across a large-scale C++ codebase with Visual Studio; tracked work via Azure DevOps and GitHub.

University of Rochester (CS Department)

Aug 2024 – Sep 2025

AI/ML Research Intern

Rochester, NY

- Collaborated with Prof. Cantay Caliskan to analyze relationships between political symbols and electoral outcomes.
- Built a Google Maps API-based data pipeline to collect and geocode 750,000 street-view panoramas from Istanbul.
- Preprocessed and annotated 7,000 images using Roboflow, applying sampling, augmentation, and data cleaning.
- Trained and evaluated YOLOv8 models in Roboflow to detect political and national symbols.

Incedo Inc.

May 2024 – Aug 2024

Digital Engineering Intern

Florham Park, NJ

- Built and managed backend services for *Intellireferee*, implementing a PostgreSQL database and serverless APIs (AWS Lambda, API Gateway) for scalable, low-latency decision support.
- Automated AWS infrastructure deployment with Terraform and CloudFormation as part of CloudXpert platform.

University of Rochester (HCI Lab)

Oct 2022 – Sep 2023

Research Intern

Rochester, NY

- Created and tested an ML hand-recognition model to detect Parkinson's disease using PyTorch and OpenCV.
- Researched SSML tags/API to improve voice functionality for the *SAPIEN* project: AI chatbot for helping doctors.

Anarchy Games

Jun 2023 – Jul 2023

Unreal Engineer

Bangalore, India

- Implemented gameplay mechanics for a third-person battle-royale mobile game in UE5 (C++/Blueprints).
- Built collision, inventory, and movement/animation systems; designed an open world using height maps and procedural generation.

University of Rochester

Aug 2023 – May 2026

Math/CS Teaching Assistant & Tutor

Rochester, NY

- TA for Multidimensional Calculus, Intro to AI, Probability, and Machine Learning; graded exams and led office hours.
- Led 5-7 tutoring sessions per week across math, CS, and physics through UR's Learning Center.

Leadership & Involvement

Computer Science Undergraduate Council (CSUG)

May 2025 – May 2026

President

University of Rochester

- Led council operations: events, website development, managing funding; built bridges between CS undergrads, department, and industry via panels and DandyHacks (annual hackathon).
- Previously served as CSUG Tutoring Chair.

RocLab

May 2025 – May 2026

Backend Development Lead

University of Rochester

- Led backend development for a student-led organization solving campus-wide problems.
- Worked on *Melcourses* (student course planner); supported API integration, database management, web scraping.

Projects

The Dagger of Life | *Unreal Engine 5, C++*

- Developed a third-person fantasy action-adventure game using UE5 and C++.
- Implemented gameplay systems with custom actors/components/cameras; debugged with UE visual tools.
- Applied 3D math (vectors, rotators, quaternions) for collision handling, interpolation, and movement mechanics.
- Designed level flow, UI, and narrative systems to support player progression.

Steam Game Success Prediction | *Python, Scikit-learn, XGBoost, Streamlit*

- Built an end-to-end ML pipeline to predict Steam game commercial success from metadata features including pricing, genre tags, and developer history; top-performing XGBoost classifier achieved 70% accuracy on held-out test data.
- Engineered a Wilson score-based target variable and applied target encoding, feature importance analysis, and threshold tuning to identify key success predictors across thousands of game titles and features.
- Deployed an interactive Streamlit app enabling real-time success probability estimation and per-feature contribution visualization for input game attributes.

Adversarial Transfer Learning Toolkit | *Computer Vision, PyTorch, Streamlit*

- Built a robustness toolkit for computer vision models under black-box, transfer-based adversarial attacks.
- Implemented Sine Attack, cross-domain perturbations; benchmarked on ResNet, MobileNet, and ViT using fooling rate, accuracy drop, and transferability.
- Integrated the pipeline into a Streamlit dashboard enabling ML engineers to upload models and receive automated robustness reports with visual examples.

ClariCare Plus | *Swift/SwiftUI, OpenAI API*

- Built an AI-powered health monitoring platform using Apple HealthKit, SwiftUI, and the OpenAI API.
- Developed a real-time dual-dashboard system with AI-generated patient- and clinician-level summaries, trend visualization, and personalized insights.

Web Development Projects | *HTML/CSS/JS, Node.js, MongoDB*

- Created a web-based *Simon* game using HTML, CSS, and JavaScript.
- Built *Omniscience*: a full-stack, OpenAI-driven web app using Node.js and MongoDB.

Technical Skills

Languages: C++, Python, Java, JavaScript, Swift

AI / ML: PyTorch, PyTorch Lightning, Fabric, Scikit-learn, NumPy, Pandas, Roboflow, Weights & Biases

Game Development: Unreal Engine 5 (C++/Blueprint), gameplay systems, 3D math & physics (quaternions, collisions, interpolation), debugging & profiling

Backend & Data: Node.js, Next.js, PostgreSQL, REST APIs

Cloud: AWS (Lambda, API Gateway, DynamoDB), Terraform, CloudFormation

Tools: Git/GitHub, Azure DevOps, Visual Studio

Achievements & Certifications

- Best Data Visualization, RIT DataFest (2025).
- Supervised Machine Learning & Advanced Learning Algorithms Certificates, DeepLearning.AI (Stanford) (2023).
- C++ and Game Development Certificate, Udemy (2020).
- Online Web Development Bootcamp, Udemy (2023).