

Aryan Raj Dhawan

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Education

University of Rochester <i>BS in Computer Science (AI Concentration), BS in Mathematics, Minor in Statistics</i>	May 2026 Rochester, NY
<ul style="list-style-type: none">GPA: 3.98 out of 4.0 (Dean's List)Suzanne J. O'Brien Book Award (PBK Honor Society); top 1% of students for academic and co-curricular excellenceSelected Coursework: Data Structures and Algorithms, Machine Learning, End-to-end Deep Learning, Natural Language Processing, Linear Algebra, Bayesian Inference, Linear Models	

Experience

Microsoft <i>Software Engineer Intern</i>	May 2025 – Aug 2025 Seattle, WA
<ul style="list-style-type: none">Engineered gameplay systems in Minecraft, focusing on performance and maintainability of engine-level features.Implemented features supporting new gameplay mechanics that integrate cleanly with existing engine components.Debugged large-scale C++ code with Visual Studio; used GitHub for version control, Azure DevOps for tracking.	
University of Rochester (CS Department) <i>AI/ML Research Intern</i>	Aug 2024 – Sep 2025 Rochester, NY
<ul style="list-style-type: none">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. <i>Digital Engineering Intern</i>	May 2024 – Aug 2024 Florham Park, NJ
<ul style="list-style-type: none">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) <i>Research Intern</i>	Oct 2022 – Sep 2023 Rochester, NY
<ul style="list-style-type: none">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.Developed patient avatars and animations leveraging 3D modeling tools including Unreal Engine, Blender, and iClone.	
Anarchy Games <i>Unreal Engineer</i>	Jun 2023 – Jul 2023 Bangalore, India
<ul style="list-style-type: none">Implemented gameplay mechanics for a third-person battle-royale mobile game in UE5 (C++/Blueprints).Experimented with object trajectories & collisions, inventory management, and movement/animation componentsExplored height maps and procedural generation to build an open world; used Git and wrote documentation.	
University of Rochester <i>Math/CS Teaching Assistant & Tutor</i>	Aug 2023 – Present Rochester, NY
<ul style="list-style-type: none">TA for Multidimensional Calculus, Intro to AI, Probability, and Machine Learning; grade exams and lead office hours.Provide 1:1 tutoring (5-7 sessions/week) for math, physics, and CS through UR's TLC	

Leadership & Involvement

Computer Science Undergraduate Council (CSUG) <i>President</i>	Aug 2025 – Present University of Rochester
<ul style="list-style-type: none">Lead council operations: events, website development, managing funding; build bridges between CS undergrads, department, and industry via panels and DandyHacks (annual hackathon).Previously served as CSUG Tutoring Chair.	
RocLab <i>Backend Development Lead</i>	May 2025 – Present University of Rochester
<ul style="list-style-type: none">Lead backend development for a student-led organization solving campus-wide problems.Worked on Melcourses (student course planner); support 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.

Adversarial Transfer Learning Toolkit | Computer Vision, Streamlit, PyTorch

- 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, Express, MongoDB

- Created a web-based *Simon* game using HTML, CSS, and JavaScript.
- Built *Omniscience*: an OpenAI-driven project using Express.js, Node.js, and MongoDB with complete front-end/back-end functionality.

Technical Skills

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

AI / ML: PyTorch, PyTorch Lightning Fabric, NumPy, Pandas, YOLO, Roboflow, Weights & Biases

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

Backend & Data: Node.js, Express.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).