

Ryan Duong

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EDUCATION

Brown University

Providence, RI

Bachelor of Science in Applied Mathematics & Computer Science (4.00 GPA)

Expected May 2028

Selected Coursework: (*Graduate*) Advanced Computer Graphics, Machine Learning, Computer Systems, Computer Vision, Data Structures & Algorithms, Information Theory, Statistical Inference, PDEs, Engineering Design

Activities: Space Engineering (Attitude Control), Quantum Initiative, Model UN

EXPERIENCE

Software Engineer Intern

June 2025 - August 2025

HyAxiom (Doosan Company)

East Hartford, CT

- Developed a full-stack **React Native & Expo** mobile app w/real-time analytics for **1500+ fuel cells**.
- Redesigned cloud pipelines handling **700+** datapoints w/**AWS Lambda & CloudFormation** to reduce overhead.
- Expanded internal APIs for both **MySQL & NoSQL S3** databases, cutting response latency from **300ms to 140ms** w/fetching optimizations and **Redis** caching of previous real-time datapoints.
- Worked in **Agile** sprints, coordinating cross-functionally w/electrical & sales teams to develop high-priority features.

Undergraduate Teaching Assistant

June 2025 - Present

Brown University Department of Computer Science

Providence, RI

- Classes TA'ed:** Accelerated Intro to CS (*CS19*; Fall '25), Computer Architecture (*CS1952Y*; Spring '26)
- Integrating content on computing ethics into 7 projects as CS19's designated "Socially Responsible Computing TA".
- Host weekly office hours, lab sections, & collaborate course staff to reinforce concepts for 75+ students.

Secretary-General

Sept. 2024 - Present

Brown Model United Nations

Providence, RI

- Overseeing logistics, staffing, & outreach efforts for Brown's annual Model UN conference w/**1000+ attendees**.
- Previously served as **Director of Operations, Technology, & Media**, in charge of videography & web development.

Indie Game Developer

July 2017 - Present

Lugical

Remote

- Scaling an indie game studio to **60M+** plays, **2.5K+** concurrent users (CCU), **\$10K+ ARR**, & 5% CTR (click rate)
- Scripting game-logic, user interactions, client-server networking, & rendering optimizations, reducing ping by around 65%
- Engaged w/Roblox product teams to represent developer interests, as **1 of 300** Community Feedback Program members.
- Recipient of the Global Citizenship Award @ Roblox's Inspire 2024 Challenge.**

PROJECTS

3D Scene Reconstructor w/Smart Glasses | *TypeScript, Supabase, Railway, PyTorch*

- Won 2nd Place @ HackMIT 2025 (Mentra Challenge)**
- Co-designed a **3D environmental constructor** for forensic analyses & games using camera capture & neural networks.
- Built a voice-activated app for **smart glasses**, w/pipelines to AI inference by caching 2D image scans into **Supabase**.
- Fine-tuned & adjusted VGGT/Segment Anything models to create scenes from point-clouds w/**semantic segmentation**.

CPU-Based Spectral Rendering | *C++, Makefile, GLM*

- Integrated **volumetric raymarching** into a team-built **spectral pathtracing** pipeline for wavelength-based light.
- Implemented procedural Perlin & Worley noise w/fractal Brownian motion to generate photorealistic clouds, smoke, etc.
- Derived from my **standalone raytracer** w/Phong shading, UV textures, mipmap filters, & **3x** multithreading speedup.

Cross-Platform, Customizable Virtual Camera | *Lua, Rojo*

- Designed real-time raycasting for customizable, smooth, **3D/2D camera motion** not natively supported on Roblox.
- Open-sourced** to the community as a popular camera alternative w/**800+ installs** on GitHub & Roblox Marketplace.

AI-Powered Healthcare Communication Assistant | *Next.js, React, Flask, REST, LaTeX*

- Collaborated on an AI assistant w/**Mistral 3** to format patient concerns into unbiased **LaTeX clinical reports**.
- Structured reports to **mask sources for medical prejudice** including non-native English, informality, tone, etc.

TECHNICAL SKILLS

Languages: C/C++, TypeScript, JavaScript, Python, Lua, SQL

Developer Tools: Git, Docker, Redis, ngrok, Jupyter, AWS, MongoDB, Unity, Unreal Engine

Frameworks: React, React Native, Expo, Flask, Next.js, GraphQL

Libraries: NumPy, PyTorch, Matplotlib, Apollo, OpenMP, GLM, Vulkan