

# Joshua E. Yu

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## EDUCATION

### Georgia Institute of Technology

M.S. Computer Science (expected May 2026)

Aug 2023 – Present

Current GPA: 4.00

- Software Development Process
- Machine Learning
- Data Structures and Algorithms Seminar
- Graduate Intro to Operating Systems
- Artificial Intelligence
- Human-Computer Interaction

### University of California, Los Angeles

B.S. Chemical Engineering

Sep 2015 – Jun 2019

GPA: 3.90 (*summa cum laude*)

- Intro to Computer Science I/II
- Intro to Computer Graphics

## SKILLS

- Computer Graphics:** Real-time deferred rendering and physically based shading with OpenGL in C++ (and GLSL)
- Programming Languages:** C, C++, Java, Python, PowerShell, MATLAB, VBA
- Technologies:** Git, GitHub, Bash, Make, Linux, Docker, Jupyter Notebook, Windows Hyper-V

## PROJECTS

### “Plum” 3D Graphics Engine – C++, OpenGL, GLSL

- Built an interactive 3D graphics engine utilizing deferred rendering and the PBR metallic-roughness workflow
- Plum’s GUI is used to place multiple light sources, 3D models, and colored/textured shapes in the scene
- Features shadow mapping, ambient occlusion, HDR tone mapping, bloom, and fast-approximate antialiasing

### Image Compression via Multivariate Expectation Maximization – Python

- Implemented a multivariate Gaussian mixture model to segment (simplify the color variety of) an input image
- Trained the model using the expectation-maximization algorithm to achieve high compression accuracy

### Multithreaded Getfile Server – C, Linux, Docker

- Implemented a getfile protocol between multithreaded client, proxy, and cache programs where the server fulfills client file requests from its cache or the Internet; made in an Ubuntu Docker container using the C POSIX library

### “Spider-Man” Minigame – JavaScript, WebGL, GLSL

- Collaborated with a team on a game where the player jumps, swings, and climbs obstacles to collect coins
- Developed third-person camera, player movement, and wall-climbing mechanics by manipulating model and view matrices while leveraging teammates’ physics and collision detection implementations

## EXPERIENCE

### Takeda Pharmaceutical Company

Automation Engineer II – Los Angeles, CA

Aug 2021 – Jun 2024

- Served as manufacturing engineer, system administrator of DeltaV control system for plasma purification site
- Segmented and upgraded network infrastructure to improve reliability and uptime of 100+ operator terminals
- Implemented and tested a DeltaV code change to reduce vessel cleaning cycle time by up to several hours
- Wrote and tested a PowerShell script to automatically disable inactive users, reducing administrative workload
- Analyzed and merged Hyper-V virtual hard disks using PowerShell to free up space in a Cluster Shared Volume

Process Engineer (Operations Development Program) – Lexington, MA

Jan 2021 – Aug 2021

- Supported tech transfers, optimization projects, and validation protocols for downstream biologics equipment

Manufacturing Supervisor (Operations Development Program) – Los Angeles, CA

Apr 2020 – Jan 2021

- Supervised and trained 8 manufacturing operators while supporting engineering/science teams to ensure successful production of a public service orphan drug used to treat infant botulism, made just once every 5 years

Laboratory Scientist (Operations Development Program) – Los Angeles, CA

Jul 2019 – Apr 2020

- Developed an Excel VBA application for scientists to build and execute electronic runsheets for lab experiments