Zachary Silliman

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Education

Cornell University, College of Arts and Sciences, Ithaca, NY
Bachelor of Arts, **Computer Science** specialization in **Mathematics**, May 2019
GPA: 3.491

Relevant Courses: Advanced Topics in Computer Game Development; Introduction to Computer Graphics; Artificial Intelligence; Machine Learning; Object-Oriented Programming and Data Structures; Operating Systems

Experience

Framestore, Immersive Developer (April 2021-present)

- I work alongside other artists, developers, and designers to create big-screen, VR, and AR experiences for our clients.
- I design and build tools, frameworks and workflows for artists and other developers.
- I work on a myriad of tasks ranging from backend networking, to shader optimization, to user interaction programming, to continuous integration, to photoshop automation, and much more.

Japan Research Institute – America, Information Security Practitioner (July 2019-April 2021)

- Trained by SANS institute in general security principles, incident response, penetration testing, and network monitoring. Obtained GSEC certification.
- Managed risks, vulnerabilities, identity, access and a variety of enterprise security tools
- Automated processes, managed projects and learned how to operate within a large complex organization.

Android App Developer for Religio (June 2017)

- Developed an app that connects the catholic community through social media.
- Built the user interface and used websockets and third-party networking libraries to connect the UI to the backend.

Projects

Realtime Character Animation Tool for Popular Brand Characters

- Designed and trained a real-time ML model for head animation while speaking using PyTorch and NNE.
- Built Unreal Engine editor tools to create/edit/use custom lip sync assets using Nvidia's Audio2Face.
- Designed and implemented an animation system for character equipment and props.
- Implemented a react web app to animate/interact with a pixel streamed real-time character on a timeline.

Cadillac, Art of You (October 2022: one-time event)

- For Cadillac's Celestiq launch event, my team and I used UE5 to create an interactive Niagara particle effect to be rendered on an 18x18-foot display. Users spoke to an AI that would manipulate the particles into a bespoke car.
- Modded an open source nano vdb plugin to support frame interpolation of baked Houdini 3D fluid simulations.
- Implemented a particle system controller that responds to live user speech-to-text.
- Architected project using a state machine, levels and sublevels, while managing dynamic lighting and post-processing.

One Vanderbilt, Summit Unity (October 2021-present)

- At the 92nd floor of New York City's One Vanderbilt Tower, is a 47.5x12-foot LED wall that renders volumetric clouds with visitors' volumized faces drifting along with them. It was built with UE4 and node.js.
- Rendered across 6 PCs, I managed nDisplay configurations, display and network cables/adapters, modded Unreal's Switchboard tool for automated launch, and used Unreal Insights to address hitches and sync issues.
- Implemented the node.js component. It included a user asset tracking system using MongoDB, a CLI and web UI for managing and debugging the experience (Vue.js), a log rotator, an automated error email system, and more.

Skills and Interests

- Fluent in C/C++, C#, Python, Java, JavaScript, PowerShell, Batch Scripting and OCaml
- Experienced with game development tools/engines such as Unity, Unreal, Perforce, Jenkins, MongoDB, Node.js
- Unreal Skills: Runtime and editor plugin development, custom assets, animation BPs, nDisplay, Niagara
- Developed strong AI/ML development skills using PyTorch, ONNX, Unreal NNE plugin
- Strong 3D math skills including splines, ray intersections, matrix transformations, rasterization, and more
- Debugging tools such as Visual Studio, Unreal Insights, RenderDoc, and IDA/Ghidra for reverse engineering