Dallin B. Clark

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Education

Brigham Young University – College of Physical and Mathematical Sciences Apr 2026
*Bachelor of Science in **Computer Science**, Emphasis in **Animation***
*Double Minor in **Mathematics** and Psychology*

- GPA 3.96
- Completed coursework in Computer Graphics, Advanced Software Construction, Linear Algebra, etc.

Experience

Pipeline TD – BYU Center of Animation January 2025 – Present
Provo, UT

- Developed and upgraded a film-scale, OS-agnostic **USD** pipeline enabling seamless data transfer across the production workflow, used by 40+ artists
- Collaborated with 8 team leads to align pipeline development with production needs and authored documentation
- Developed a **Python USD**-based layout tool enabling artists to create environments in either **Maya** or **Houdini**, that integrate seamlessly into the downstream production pipeline regardless of software
- Upgraded the internal **Flow Production Tracking (ShotGrid) API** to support pushing tasks, versions, assets, etc, enabling shot departments to build publishing tools that send data directly to ShotGrid from their DCCs

Assistant Researcher – Talmage Advanced Graphics Lab August 2024 – Present
Provo, UT

- Worked with a team of 3 to develop control schemes for Virtual Reality characters using **Unreal Engine** and **C++**, used for a user study on the intuitiveness of VR controls
- Designed a VR control schemes user study and secured IRB approval to evaluate control intuitiveness with real users

Lab and Server Systems Administrator – BYU Computer Science Department February - August 2024
Provo, UT

- Collaborated with a team of 5+ to develop an OS-agnostic lab image presented at **SIGGRAPH** 2025, enabling artists to boot **Windows** VMs or native **Linux**. Contributed custom QEMU build for Jack Support, Samba file sharing setup, and VM boot automation.
- Provided technical support for 60+ workstations, ensuring smooth operation for 1500+ students.
- Deployed and maintained license servers, ensuring reliable access and timely updates to software licenses across the animation department

Projects

Real Time Raytracer

- Built a **Vulkan**-based real-time ray tracer in modern **C++20** with modules, achieving 60 FPS rendering of over 250,000 triangles on RTX 4070 Ti hardware.
- Integrated **RTX** shadow rays, Linearly Transformed Cosines (LTC) for physically based **area lighting**, and custom shadow denoising. Automated BLAS/TLAS acceleration structure generation from OBJ models for dynamic scene support.
- Used **NVIDIA Nsight** to identify performance bottlenecks and reduce per-frame GPU time by 23 milliseconds.

Real Time Physics Engine

- Developed a 3D rigid body physics simulation engine in **C++** with **OpenGL**, supporting custom geometry, mass, density, elasticity, and gravity parameters. Implemented collision detection, dynamic response, and real-time rasterization

Skills/Softwares

Programming Languages: C++, C, Python, Java, GLSL
Software: Unreal Engine, Houdini, Maya, Nuke, Substance Painter
Tools & Technologies: Vulkan, USD, ShotGrid API, Qt, SaltStack, DNF, RPM, QEMU, NVIDIA Nsight, Linux, Git, Perforce, CMake, Solaris