Christopher Jacobs

Website: christopher-jacobs.github.io
LinkedIn: linkedin.com/in/christopher-eugene-jacobs
Email: chejac2000@gmail.com
GitHub: github.com/christopher-jacobs

EDUCATION

Clemson University   Charleston, S.C.
Doctorate in Computer Science and Visual Computing   **August 2024 -**

Clemson University   Charleston, S.C.
Master of Science in Digital Production Arts; GPA: 3.95   **August 2022 - May 2024**

Francis Marion University   Florence, S.C.
Bachelor of Science in Computer Science; GPA: 3.96   **August 2018 - May 2022**

SKILLS SUMMARY

- **Languages:** Python, C/C++ Java, SQL
- **Frameworks:** PyTorch, NumPy, OpenCV, Matplotlib, PyQt 5, PySide 6, OpenGL, CUDA,
- **Tools:** Unreal Engine 4/5, Autodesk Maya, Houdini, Nuke, Perforce
- **Research Areas:** Real-time Rendering, Computer Vision, Deep Learning, 3D Gaussian Splats
- **Technical Skills:** Version Control (Git), Linux/Windows, Bash Scripting, Performance Optimization

WORK EXPERIENCE

RESEARCH ASSISTANT | CLEMSON UNIVERSITY   January 2024 - Present

- Developed middleware technology between Project Chrono and Unreal Engine using C++ and Python to simulate high-fidelity physics through a UDP connection.
- Optimized physical simulations of wheeled vehicles by creating a layered hybrid physically-informed neural network (PINN) to reduce computational overhead.

ASSISTANT MANAGER | AMERICAN EAGLE OUTFITTERS   August 2021 - May 2022

- Lead and optimize selling team and merchandising team performance to increase store revenue (+3,583 from 2021 LY) and conversion rates (+2.3% from 2021 LY).
- Train and onboard new associates on company policies, store procedures, and product knowledge while maintaining a welcoming and inclusive environment for both guests and brand ambassadors.

PROJECTS

Three-Dimensional A* Pathfinder Program
Developed a three-dimensional A* pathfinding program with C++ that utilizes real-time OpenGL visualization with sparse voxel octree spatial navigation to create an optimized and interactive graphics tool.

Physically Based Ray Marcher for Visual Effects
Implemented a physically accurate ray marcher using C++ to render implicit volumes and physically based visual effects algorithms used in feature films such as spline wisps, noise clouds, and terrain generators.

Feature Detection with U-Net Architecture
Creating U-Net architecture with ResNet backbone for multi-feature detection on single object for spatial scene analysis. This generates multi-dimensional feature maps that can be utilized for 3D reconstruction pipelines.

Customizable Middleware for Physics Simulations
Designed a modularized middleware architecture using C++ and Python that allows for developers to interchange visualization engines and/or physics engines for optimized testing environments.