

Christopher Jacobs

Email: chejac2000@gmail.com

LinkedIn: linkedin.com/in/christopher-eugene-jacobs

GitHub: github.com/jacobschristopher

EDUCATION

Clemson University

Doctorate in Computer Science and Visual Computing

Charleston, S.C.

August 2024 - May 2028

Clemson University

Master of Science in Digital Production Arts; GPA: 3.95

Charleston, S.C.

August 2022 - May 2024

Francis Marion University

Bachelor of Science in Computer Science; GPA: 3.96

Florence, S.C.

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, Neural Rendering, 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 a U-Net neural network with a ResNet backbone in Python using PyTorch to generate feature vectors for object and facial detection, producing spatial heatmaps.

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.