Jackson Rubiano

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Education

Bucknell University **Expected May 2027**
Bachelor of Science in Computer Science & Engineering
3.72 GPA, 3.91 Engineering GPA, Dean's List
Coursework: Artificial Intelligence, Systems Programming, Algorithm Design, Computer Networks, Software Engineering

Work Experience

KALMUS Color Toolkit | Bucknell University **August 2024 – Present**
Software Developer

– Enhanced and maintained a Python program for film color analysis using NumPy, SciPy, and OpenCV
– Created a SQL database for hosting information provided to a front-end web interface
– Designed a pipeline to reduce manual steps and improve usability for non-technical researchers
– Converted faculty research requirements into usable tools

The Japanese Paper Film Project | Bucknell University **June 2023 – Present**
Software Developer

– Designed a C++ tool using OpenCV and the Blackmagic RAW SDK to extract unique frames from damaged film roll scans, reducing turnaround from 10-15+ hours to 2-4 hours
– Developed a Lua plugin for DaVinci Resolve, allowing film editors to extract frames from selected films
– Created robust filtering systems to account for varying quality, style, and inconsistent recording conditions
– Prototyped and evaluated ViT and ResNet50-based models for frame selection, comparing performance against classical computer-vision filtering
– Presented project at research symposiums and film screenings

Projects and Activities

VR Minecraft | Bucknell University **April 2025 – May 2025**
Developer

– Collaborated in an Agile team to create a Minecraft-like VR game using WebGPU, WebXR, and JavaScript
– Implemented AABB collision detection and resolution and enjoyed optimizing game to achieve real-time interactivity
– Addressed difficulties integrating WebGPU for VR while maintaining near real-time rendering

Deep Learning for ALL Blood Cell Classification | Bucknell University **March 2025 – May 2025**
Developer, Author

– Built a homebrew CNN model and ResNet50 transfer learning model for classifying Acute Lymphoblastic Leukemia (ALL) cell types from peripheral blood smear (PBS) images
– Performed exploratory data analysis on PBS images to identify class imbalances and segmentation artifacts to guide model architecture and preprocessing decisions
– Implemented image segmentation pipeline to isolate relevant image regions before training models
– Interpreted model performance using confusion matrices, class-specific error analysis, and epoch vs. accuracy curves
– Documented findings and experimental methodologies in a research-style report
– Transfer learning model achieved 98% validation accuracy vs. 95% for homegrown CNN

Roguelite Game | Bucknell University **November 2023 – December 2023**
Scrum Master, Developer

– Built a roguelite game in Java using JavaFX with a small team following Agile methodologies
– Designed the entity-component-system architecture and enjoyed writing core system modules
– Wrote unit/integration tests using JUnit to ensure proper functionality
– Organized daily Scrum meetings, worked to resolve obstacles, and maintained team workflow

Technical Skills

Languages C++, Objective C++, C#, Python, Java, JavaScript, WGSL
Technologies ResNet50, ViT, Git, Unity, Godot, ffmpeg, Blackmagic RAW SDK, .NET, SQL
Libraries Tensorflow, PyTorch, Pandas, Seaborn, OpenCV, NumPy, SciPy, Scikit-Learn, Matplotlib, JavaFX
Testing Pytest, JUnit, GDUnit