Riley Peterlinz

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EMPLOYMENT

Berkeley AI Research | *Research Associate* — April 2023 - Present

- Working with Prof. Angjoo Kanazawa and Prof. Alyosha Efros on projects in qualitative 3D
- Working with Prof. Ren Ng on understanding and improving camera color science
- Contributor to nerfstudio project

Berkeley Lab | *Research Engineer* — September 2021 - May 2023

- Quantum Algorithms for High Energy Physics Lab
- Worked closely with physicists to build internal optimization tools for machine-learning based physics deployed across multiple projects

PUBLICATIONS

Evaluating the Perceptual Alignment between Generative Visual Models and Human Observers on 3D Shape Inferences — *CCN 2024*

Tyler Bonnen, **Riley Peterlinz**, Angjoo Kanazawa, Alexei A. Efros

Toon3D: Seeing Cartoons from a New Perspective — *arXiv 2024*

Ethan Weber*, **Riley Peterlinz***, Rohan Mathur, Frederick Warburg, Alexei A. Efros, Angjoo Kanazawa

PROJECTS

3D Fluid Simulation — Computer Graphics

- Implemented FLIP (Fluid in Particle) fluid simulation in python
- Exported particle system to mesh using OpenVDB
- Rendering in Blender's EEVEE rendering engine

Path Tracer — Computer Graphics

- Wrote a path tracer in C++ which rendered images from a 3D scene, implementing bounding volume hierarchies, global illumination, and adaptive sampling
- Extended project to include glossy and refractive BSDF and simulated bokeh

Neural Style Transfer — Computer Vision

- Implemented Neural Style Transfer Paper in Pytorch and compared results with Image Quilting, an older method for texture synthesis
- Python, PyTorch, OpenCV, Google Colab

Parameter Optimization for Variational Quantum Eigensolver — Berkeley Lab

- Built tools to discover the global minima of various quantum cost functions
- Used for research in quantum computing with 10,000+ lines of code
- Python, Qiskit, Numpy, Sympy, PyTorch

EDUCATION

UC Berkeley — May 2023

B.A. Computer Science and Physics

Relevant Coursework: Algorithms, Computer Vision and Computational Photography, Computer Graphics, Machine Learning, Discrete Mathematics and Probability Theory, Multivariable Calculus, Linear Algebra

SKILLS

Languages & Frameworks | Python, Java, C++, Git

Tools | LaTeX, Processing, Numpy, OpenCV, PyTorch, Plotly, Matplotlib, Pandas, Qiskit