Clark Peng

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Education

University of California, Los Angeles — Los Angeles, CA
Bachelor of Science in Computer Science — *Aug. 2024 – June 2028*

Experience

Student Researcher — June 2023 – May 2024
University of Reno, Nevada — *Reno, NV*

- Augmented fire/smoke detection pipeline using cutting edge object detection tools to support weakly supervised inputs
- Built an automated pipeline in python to facilitate fast data labeling and transformation between formats, expanded existing dataset by 25%
- Experimented with hyper-parameter tuning to enhance DETR object detection performance

Teaching Assistant — May 2024 – August 2024
MIT — *Cambridge, MA*

- Streamlined machine interface and integrated reinforcement learning (RL) algorithms into existing codebase
- Accelerated and improved synthetic image generation quality and variance
- Taught 30+ aspiring students the fundamental concepts of Deep Learning using PyTorch, using computer vision (CV) and RL.
- Lectured about how to train physics-based agents with RL via Unity

Undergraduate Researcher — October 2024 – Present
UCLA NLP Group — *Los Angeles, CA*

- Deployed and fine-tuned LLMs for video-language understanding tasks
- Currently working on improving video-language generation evaluation methods with synthetic data

Papers

1. Peng u. Dinçer 2024 Peng, Clark ; Dinçer, Tolga: *Event Detection via Probability Density Function Regression*. https://arxiv.org/abs/2408.12792. Version: 2024

Projects

Kaggle Competitor | *Python, Pandas, NumPy, Pytorch, Tensorflow, Matplotlib* — January 2022 – Present

- Collaborated with professional ML engineers and student teammates to build full end-to-end ML pipelines for complex tasks
- Published numerous high-scoring codebases in various ML competitions
- Top 0.5% in competitions, top 1% in notebooks, 5 gold medal-earning scripts

RL Hand & Target project | *Unity, C#* — April 2024 – August 2024

- Developed a physics environment for a AI agent to manipulate objects using a simulated arm with finger joints
- Crafted a RL Unity-script interface to reward the agent for doing certain actions
- Successfully made the agent reliably throw a ball at a given target
- Published physics and AI codebase online

CPU Raytracer | *C, C++* — April 2022 – August 2022

- Coded a CPU raytracer from scratch using C++
- Implemented third-party object model loading and multiprocessing to accelerate image generation
- Optimized ray-face intersection using BVHs to accelerate high-dimensional object rendering by more than 1000%
- Published codebase online

Technical Skills

Languages: Java, Python, C/C++, C#, SQL
Engines: Unity
Developer Tools: Git, Docker, VS Code, Visual Studio, Eclipse
Libraries: Pandas, NumPy, Pytorch, Tensorflow, Matplotlib, Regex, Polars, Transformers