Junkeun Yi

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Education

University of California, Berkeley

Electrical Engineering and Computer Science, M.S. **Expected May 2024**

- Advisor: Professor Trevor Darrell
- Computer Vision research with focus on vision transformer models and video prediction.

*Computer Science, B.A. (*GPA: 3.73) **December 2022**

- Coursework: Algorithms, Database Systems, Operating Systems, Machine Learning, Natural Language Processing, Reinforcement Learning, Computer Vision, Optimization

Skills

Languages - Python, Java, C, Go, Bash, SQL | **Frameworks and Utilities -** Git, Bash, Conda, Linux, PyTorch

Experience

Berkeley AI Research Lab (BAIR) - *Undergraduate / Masters Researcher* **September 2021 - Present**

- Working on CVPR publication for a video prediction transformer model.
- Implemented SAVi for PyTorch, an unsupervised video object understanding model. Original model by Google written in Jax, score-matched reimplementation in PyTorch.

Pivotal Software *(Acquired by VMWare)* **- *Software Engineer Intern*** **May 2019 - August 2019**

- Open-Source contribution to the Greenplum Database (Postgres-based SQL database), adding backup utility and command-line interface features and fixing bugs.
- Wrote pipeline for incremental changes between a database and its remote backup using Write-Ahead Log streaming, incorporating Kafka as a streaming medium and programmed consistency points for source-to-backup consistency. (slides: link)

Networked Systems Lab (Netsys) - *Undergraduate Researcher* **April 2018 - May 2019**

- Contributed in writing AWS Kubernetes elastic cluster controller using the Kubernetes Go-client, Metrics-Server client, and the Prometheus API for resource management.

Republic of Korea Armed Forces - Enlisted Soldier **November 2019 - June 2021**

- Worked as an enlisted soldier in the combined US 2nd Infantry Division / Korean Army forces.
- Performed english-korean translation/interpretation between officers and manned computing devices.

Projects

SAVi-pytorch *(PyTorch):* github.com/junkeun-yi/SAVi-pytorch

- Implemented Machine Learning model from "Conditional Object-Centric Learning from Video".
- Matches the evaluation scores of the original Jax version of the model.

Uncertainty-Weighted Distillation *(PyTorch):* github.com/junkeun-yi/Uncertainty-Weighted-Distillation

- Implemented Policy Distillation with auxiliary Random Network Distillation for OpenAI Gym Atari.
- Match policy performance between distilled policy with exploration and teacher policy.

Custom Relational Database (Java, class project): With recovery, concurrency and indexing capabilities.

Custom Operating System (C, class project): With concurrency, scheduling, VM, File System capabilities.

Computational Photography Algorithms (Python, class project): Implement multiple computational photography algorithms including neural style transfer, panorama, an homogenous coordinate transforms.