(JOHN) WOOYOUNG CHUNG

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SKILLS

Programming Languages: Python, C++, Julia
Libraries/Frameworks: PyTorch, TensorFlow, OpenAI Gym, NumPy, Pandas
Tools/Platforms: MySQL, VSCode, GitHub, High-Performance Computing (HPC)

EDUCATION

San Jose State University   **San Jose, CA**
M.S. Artificial Intelligence   GPA: 3.84   *January 2022 – December 2023*
- **Relevant Courses:** Deep Learning, Machine Learning, Data Mining, Big Data Analysis, Reinforcement Learning

University of California, Davis   **Davis, CA**
B.S. Computer Science   GPA: 3.62   *August 2019 – July 2021*
- **Relevant Courses:** Algorithm and Design, Operating Systems, Web Programming, Programming Languages

PROFESSIONAL EXPERIENCE

Graduate Research Assistant - *San Jose State University Research Foundation, San Jose, CA* **December 2022 – Present**
- Worked under Dr. Stas publishing research papers with a focus of deep learning and reinforcement learning
- Extended current Canonical Correlational Analysis in a non-linear system derived from data
- Developed new algorithms (ICCA) that utilized non-linearity of the systems and manifold structure of the configuration/phase space
- 23.08% improvement from standard CCA for robotic settings

Teachers Assistant - *San Jose State University, San Jose, CA*   *February 2023 – July 2023*
- Assisted Dr. Stas's graduate reinforcement learning course (CMPE 260) in grading assignments, organizing course materials, and spending office hours with students resulting in an improved pass rate by 15%

Undergraduate Research Assistant   **Davis, CA**
UC Davis   *June 2021 – March 2022*
- Worked under Dr. Rafatirad to create a deep learning framework for equity in academia
- Led a team of four undergraduate students to create an article analysis framework to analyze gender and racial equity in university publications
- Created facial classification models for racial and gender classification

PROJECTS

Generative Movement Learning   -
Current Research Paper   *October 2023 – Present*
- Created a deep neural network to extract base movements (such as translation) from images
- Designed and implemented a solution to extract base movements in images using deep learning and manifold theory
- Extracted the movements without explicit labeling
- Constructed all possible movements of the image using the extracted base movements
- Learn structure of data intrinsically
- Plan to publish in NeurIPS 2024
- Applications: Increasing Video Frame-rate, Model Learning
- https://github.com/JWK7/GeneratorRL

Proximal Policy Optimization on Swinging Pendulum   -
Solo Project   *November 2022 – December 2022*
- Implemented PPO algorithm for the swinging pendulum task
- Tried various types of neural networks and variations of the task: Standard neural network, Recurrent neural network, convolutional neural network
- https://github.com/JWK7/PPOonPendulum

Publications

[1] W. Chung, D. Polani, and S. Tiomkin, "Dimensionality reduction of dynamics on lie groups via structure-aware canonical correlation analysis," in American Control Conference 2024, April 2024. Access: https://doi.org/10.48550/arXiv.2311.10327

[2] W. Chung, X. Zhang, Z. Ahmad, H. Sayadi, S. Rafatirad, "Machine Learning to the Rescue: ML-Assisted Framework for Equity-Driven Education," in IEEE Global Engineering Education Conference 2022, March 2022. Access: https://ieeexplore.ieee.org/document/9766530