Kyle Hatch

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EDUCATION

Stanford University   **Stanford, CA**
M.S. in Computer Science   *Graduated: June 2023*
Artificial Intelligence Track   *GPA: 4.05*
Coterminal Master's Program

Stanford University   **Stanford, CA**
B.S. with honors in Computer Science   *Graduated: June 2022*
Artificial Intelligence Track   *GPA: 3.78*

Honors/Awards
Completed undergraduate CS Honors thesis.

RESEARCH EXPERIENCE

Research Focuses: Robot Learning, Reinforcement Learning, Generative Models

Toyota Research Institute (TRI)
AI Resident in the Large Behavior Models (LBM) Division   *July 2023 – Present*

Research focuses on leveraging diffusion models and vision-language-action models (VLAs) for robotic manipulation. Led a project on using image and video diffusion models to generate subgoals for robotic manipulation tasks. First-author publication under review at the IEEE International Conference on Robotics and Automation (ICRA) 2025. Current research involves co-training VLAs with action prediction and video prediction objectives to transfer knowledge from Internet video data to robot agents. Developed key skills including working with large-scale diffusion and transformer-based models, and structuring data loaders and models for multi-node, distributed training.

Stanford IRIS Lab – Prof. Chelsea Finn
Undergraduate/Master's student   *October 2020 — June 2023*

Research focused on robot-oriented offline reinforcement learning. Three first/co-first-author publications:

- D5RL: a benchmark to evaluate offline RL and offline-to-online fine-tuning methods on visually diverse, realistic, simulated robotics tasks. Co-first-author publication at the Reinforcement Learning Conference (RLC) 2024.
- MOTO: a model-based reinforcement learning method designed for efficient offline-to-online fine-tuning for vision-based manipulation tasks. Co-first-author publication in the Conference on Robot Learning (CoRL) 2023.
- LAEO: an offline reinforcement learning method using contrastive learning for data without reward labels. First-author publication in the Learning for Dynamics & Control Conference (L4DC) 2023.

Stanford Intelligent Systems Laboratory (SISL) – Prof. Mykel Kochenderfer
Undergraduate student   *June 2019 — March 2021*

Research focused on using machine learning and reinforcement learning techniques to improve collision avoidance in autonomous vehicles and unmanned aerial vehicles UAVs. Two first/co-first-author publications:

- A method to learn 3D velocity maps from radar data for autonomous vehicles. Co-first-author

publication in the IEEE International Conference on Intelligent Robots and Systems (IROS) 2021.

○ A collision avoidance system for autonomous drones using monocular vision and deep reinforcement learning. First-author publication in the American Institute of Aeronautics and Astronautics (AIAA) SciTech Forum 2021.

Johns Hopkins University Applied Physics Laboratory (APL)

Research Intern   *June 2020 — May 2021*

Developed a reinforcement learning-based method to autonomously respond to cybersecurity threats on industrial control systems. Second author publication in the International Conference on Dependable Systems and Networks (DSN'22), 2022.

Stanford Network Analysis Project (SNAP) – Prof. Jure Leskovec

Undergraduate student   *September 2019 — June 2020*

Conducted research on using graph convolutional networks to predict interactions between microbes in the human gastrointestinal tract.

PUBLICATIONS

Please see my Google Scholar profile for a complete list of publications.

Published/Accepted

Kolev, V.*, Rafailov, R.*, **Hatch, K. B.,** Wu, J., and Finn, C., "Efficient Imitation Learning with Conservative World Models," *Learning for Dynamics & Control Conference (L4DC)*, 2024. PDF

Rafailov, R.*, **Hatch, K. B.*,** Singh, A., Smith, L., Kumar, A., Kostrikov, I., Hansen-Estruch, P., Kolev, V., Ball, P., Wu, J., Finn, C., and Levine, S., "D5RL: Diverse Datasets for Data-Driven Deep Reinforcement Learning," *Reinforcement Learning Conference (RLC)*, 2024. PDF

Rafailov, R.*, **Hatch, K. B.*,** Kolev, V., Martin, J., Phielipp, M., and Finn, C., "MOTO: Offline to Online Fine-tuning for Model-Based Reinforcement Learning," *Conference on Robot Learning (CoRL)*, 2023. PDF   Website

Hatch, K. B., Eysenbach, B., Yu, T., Rafailov, R., Salakhutdinov, R., Levine, S., and Finn, C., "Contrastive Example-Based Control," *Learning for Dynamics & Control Conference (L4DC)*, 2023. PDF   Website

Zhou, G., Dean, V., Srirama, M. K., Rajeswaran, A., Pari, J., **Hatch, K. B.,** Jain, A., Yu, T., Abbeel, P., Pinto, L., Finn, C., and Gupta, A., "Train Offline, Test Online: A Real Robot Learning Benchmark," *2023 IEEE International Conference on Robotics and Automation (ICRA)*, 2023. PDF   Website

Mern, J., **Hatch, K.,** Silva, R., Hickert, C., Sookoor, T., and Kochenderfer, M. J., "Autonomous Attack Mitigation for Industrial Control Systems," *International Conference on Dependable Systems and Networks (DSN'22)*, 2022. PDF

Senanayake, R.*, **Hatch, K.*,** Zheng, J., and Kochenderfer, M. J., "3D Radar Velocity Maps for Uncertain Dynamic Environments," *IEEE International Conference on Intelligent Robots and Systems (IROS)*, 2021. PDF   Presentation

Hatch, K., Mern, J., and Kochenderfer, M. J., "Obstacle Avoidance Using a Monocular Camera," *American Institute of Aeronautics and Astronautics (AIAA) SciTech Forum*, 2021. PDF   Presentation

Under Review

Hatch, K., Balakrishna, A., Mees, O., Nair, S., Wulfe, B., Itkina, M., Eysenbach, B., Levine, S., Kollar,

T., and Burchfiel, B., "GHIL-Glue: Hierarchical Control with Filtered Subgoal Images," *2025 IEEE International Conference on Robotics and Automation (ICRA)*, 2025. PDF   Website

*denotes equal contribution

OUTREACH

Breakthrough Silicon Valley (BTSV)   **San Jose, CA**
Volunteer tutor   *November 2023 – April 2024*
Provide homework support to high school students who are on track to becoming first-generation college students. Primarily assist with mathematics.

East Palo Alto Stanford Academy (EPASA)   **Stanford, CA**
Volunteer tutor   *October 2018 – March 2020*
Provided homework support to seventh and eighth grade students from low-income backgrounds in mathematics and English, and helped students to develop effective study skills.

Stanford 1st Ward Volunteer Tutoring Program   **Stanford, CA**
Volunteer tutor   *September 2017 – June 2019*
Provided homework support to K-12 students in mathematics, reading, and English.

SKILLS

Machine Learning Frameworks	JAX, PyTorch, Tensorflow 2.0
Cloud Computing	Amazon SageMaker
Reinforcement Learning Tools	deepmind-acme, TF-Agents, RLkit, JAXRL
Simulation Tools	MuJoCo, Microsoft AirSim
Programming Languages	Python, C++