# 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 robotics-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 IEEE/IFIP International Conference on Dependable Systems and Networks Workshops (DSN-W), 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," *IEEE/IFIP International Conference on Dependable Systems and Networks Workshops (DSN-W)*, 2022, pp. 28–36. 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," *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*

Provided homework support to high school students who are on track to becoming first-generation college students. Primarily assisted 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

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|---|---|
| **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++ |