**Joshua Levine**

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**Education**

**University of Illinois Urbana-Champaign (UIUC)** *May 2024*

*Master of Science in Computer Science,* ***GPA****: 3.84/4.00*

* **Coursework:** Autonomous Vehicles; Efficiency in Natural Language Processing (NLP); Deep Learning; Deep Learning for Computer Vision; Embodied NLP; Data Mining

**University of California, Berkeley** *Aug 2019-May 2022*

*Bachelor of Arts in Computer Science,* ***GPA****: 4.00/4.00*

* **Honors:** Highest Distinction; Dean's List; Kraft Award
* **Activities:** Phi Beta Kappa; TAMID Group (Global Director of Technical Consulting); Upsilon Pi Epsilon
* **Coursework:** Artificial Intelligence; Machine Learning; Probability and Random Processes; Computer Vision and Computational Photography; Data Science

**Work Experience & Projects**

**Northrop Grumman Advanced Autonomy Team** *El Segundo, CA*

*Software Engineer Intern May 2021-Aug 2022*

* Produced an image segmentation algorithm for large-scale IR images using DINO and TokenCut
* Enhanced UI to show projections of aerial images onto a map to improve interpretability
* Developed a scalable and modifiable training environment for reinforcement learning aircraft controllers
* Wrote modeling scripts to simulate realistic aircraft and other entities in the training environment
* Utilized SAC, FACMAC, and MADDPG algorithms to train single-agent and multi-agent reinforcement learning controllers for unmanned aircraft, resulting in over 85% mission success rate
* Integrated the controller into an environment that enables model execution and performance analysis
* Presented the team's work to a company-wide audience at the annual Explore Aerospace event

**UIUC Computer Vision Group** *Champaign, IL*

*Graduate Student Researcher Feb 2023-Present*

* Build and test pipelines for visual question answering leveraging language, large language, or vison-language models to output code that composes vision models to maximize efficiency and accuracy
* Collaborated with a small team to devise a method that includes previous outputs as examples in the LLM’s prompts to achieve the 3rd best image score on the Winoground dataset
* Fine-tune language models using reinforcement learning to answer questions

**Autonomous Vehicle Navigation: Pedestrian Tracking** *Champaign, IL*

*Project (*[*video demo*](https://youtu.be/Cp3YNAeap5s)*) Aug 2022-Dec 2022*

* Applied pedestrian detection to allow an autonomous vehicle to follow a pedestrian in a parking lot
* Controlled the vehicle’s movements and sensors using ROS and PACMOD

**University of Illinois Urbana-Champaign** *Champaign, IL*

*Teaching Assistant: Artificial Intelligence & Applied Machine Learning Aug 2022-Present*

* Design coding projects that teach unsupervised learning, deep learning, and reinforcement learning
* Maintain code from existing projects to ensure that the solution code and autograder work correctly
* Host weekly office hours to discuss course material with students and debug code
* Created and presented a lecture that taught deep reinforcement learning

**Iluria Health** *Berkeley, CA*

*Software Engineer Intern May 2020-Aug 2020*

* Built Android and Fitbit apps to evaluate ADHD treatments using sensor-based attention measurement
* Advised the company’s CEO regarding high-level design decisions, helping Iluria gain three investors
* Integrated a machine learning model that analyzed sensor data so Iluria could begin testing

**Technical Skills**

* **Languages:** Python, C++, C, SQL, Swift, Kotlin, Scheme, Go
* **Skills:** PyTorch, NumPy, Git, CUDA, TensorFlow, OpenCV, Ubuntu, ROS, prompt-engineering, data structures, algorithms, Unix environments, Pandas, iOS, Generative Adversarial Networks (GANs)