Damiano Marsili

PhD student in Computing and Mathematical Sciences, Caltech, Pasadena, USA
Email, Personal Website

EDUCATION

California Institute of Technology, Pasadena, USA — Sep 2023 — May 2028
PhD student in Computing and Mathematical Sciences

Johns Hopkins University, Baltimore, USA — Aug 2020 — May 2023
BS Computer Science
BA Mathematics

PUBLICATIONS

Recognize Any Object (PDF) — (in preparation) Nov. 2024
***Damiano Marsili**, Pietro Perona, Georgia Gkioxari*

- Proposed Single Instance Recognition, a novel visual perception task aimed at identifying object instances (e.g. *Bob's keys* vs. *Alice's keys*) from few samples, along with an accompanying benchmark.
- Demonstrated our method surpasses vision foundation models and state-of-the-art methods in personalized recognition.

Visual Agentic AI for Spatial Reasoning with a Dynamic API (PDF) — (in preparation) Nov. 2024
Damiano Marsili, Rohun Agrawal*, Yisong Yue, Georgia Gkioxari*

- Designed a training-free agentic visual programming approach, VADAR, that dynamically generates new skills in Python and significantly outperforms previous visual programming methods on spatial reasoning in 3D.
- Introduced Omni3D-Bench, a benchmark for 3D understanding with complex queries involving multiple reasoning steps.

WORK EXPERIENCE

Amazon Robotics — Arlington, USA
Applied Science Intern — May 2023 — Sep 2023

- Trained an object-centric Vision Language Model (VLM) to resolve spatial relationships for the task of targeted grasping.
- Engineered a large Multi-Modal Spatial Relationship (MMSR) dataset composed of over 300,000 grasp samples.

Applied Physics Laboratory — Baltimore, USA
Research Assistant — Aug 2022 — May 2023

- Worked on self-supervised training methods to train robots for gesture recognition using both synthetic and real data. Project funded by Army Research Labs (ARL).
- Leveraged novel techniques in transfer learning to mitigate the synthetic-to-real gap for gesture recognition.

Malone Center for Engineering in Healthcare, Johns Hopkins University — Baltimore, USA
Research Intern — Feb 2022 — May 2022

- Developed simulation environments used to train reinforcement learning agents for autonomous ventilators.
- Explored the impact of various medical insults on pulmonary compliance in the simulation environment.

TEACHING EXPERIENCE

Object Oriented Software Engineering — Johns Hopkins University
Teaching Assistant — Jan 2022 — May 2022

- Mentored a group of 7 students partaking in a semester-long software project.
- Arranged mock presentation sessions to provide feedback ahead of their final.

Learning Den — Johns Hopkins University
Mathematics & Computer Science Tutor — Sep 2021 — Jan 2022

- Helped two students improve from a B- to an A-/A in Calculus II and Calculus III respectively.
- Constructed a tailored curriculum of practice sets to reinforce concepts the students found challenging.