Kevin Black

kevin3.black@gmail.com
(512) 785-1853

kevinblack.dev
github.com/kvablack

Education

University of Texas at Austin — Austin, TX
Pursuing B. S. in Computer Science and Mathematics — 2018 – 2022

- Turing Scholars, Dean's Scholars honors programs
- Turing Scholars honors thesis in progress, advised by Scott Niekum
- Cumulative GPA: 4.0

Research Experience

Personal Autonomous Robotics Lab (PeARL) — University of Texas at Austin
Undergraduate Research Assistant — February 2021 – Present

- Currently working with a PhD student on a hierarchical reinforcement learning algorithm for robotic manipulation based on object controllability
- Implemented multiple MuJoCo-simulated robot manipulation environments using robosuite
- Ongoing honors thesis project relating to state representation learning based on contingency awareness and a generalization of bisimulation metrics

Texas Spacecraft Laboratory – Seeker Team — University of Texas at Austin
Undergraduate Research Assistant; Team Lead — January 2019 – February 2021

- Worked on a machine learning-based visual navigation algorithm which was chosen by NASA over competing solutions and flew on an orbital research mission September 2019
- Created a Python library (Starfish) for generating synthetic training data using Blender
- Helped develop a complex machine learning pipeline for training and evaluating deep computer vision models
- Developed a model that achieved accurate real-time full pose estimation on a low-power, flight-like embedded system
- Served as team lead from August 2019 – February 2021, during which two conference publications were produced

Publications

K. Black, S. Shankar, D. Fonseka, J. Deutsch, A. Dhir, and M. R. Akella, "Real-Time, Flight-Ready, Non-Cooperative Spacecraft Pose Estimation Using Monocular Imagery," *31st AAS/AIAA Space Flight Mechanics Meeting*, 2021.

C. Schubert, **K. Black**, D. Fonseka, A. Dhir, J. Deutsch, N. Dhamani, G. Martin, and M. R. Akella, "A Pipeline for Vision-Based On-Orbit Proximity Operations Using Deep Learning and Synthetic Imagery," *2021 IEEE Aerospace Conference*, 2021.

Professional Experience

NASA Jet Propulsion Laboratory — Pasadena, CA
Planning and Execution Systems Intern — Summer 2021

- Worked on an activity simulation framework and an AI-based activity scheduler prototype with applications to the Europa Clipper mission

Asana San Francisco, CA
Product Engineering Intern Summer 2020

Bloomberg New York, NY
Data Science Platform Intern Summer 2019

- Added distributed training capabilities via Tensorflow to an internal data science platform
- Benchmarked distributed training throughput for large models (ResNet-50, BERT)
- Gave a talk at the 2019 Kubeflow summit in Sunnyvale, CA on my work and results

Silicon Labs Austin, TX
Software Engineering Intern Summers 2018, 2017, 2016

Volunteer Work

HackTX 2020 – 2021
Mentor Austin, TX

- Assisted undergraduate hackathon teams with their projects during HackTX 2020 and 2021
- Paired directly with one team for 12 weeks during SummerHacks 2020

ATX Science Olympiad 2018 – 2019
Event Proctor Austin, TX

- Proctored Science Olympiad events for middle and high school students at various UT-hosted tournaments