

Marcus Dominguez-Kuhne

Applying for Full Time Roles: Machine Learning Engineer · Software Engineer · Data Scientist

Education

California Institute of Technology – BS in Computer Science (ML Focus)
Graduated 2021 GPA 3.8

Courses: Machine Learning, Computer Vision, Markov Chains, Reinforcement Learning, Probability, Linear Algebra, Advanced Topics in Machine Learning

Teaching Assistant: Machine Learning & Data Mining (2x), Learning Systems

University of Southern California - PhD in Machine Learning & Robotics
Started 2021 Advisor: Gaurav Sukhatme

Work Experience

Caltech CAST Lab, Machine Learning Researcher June - November 2020
Advisor: Professor Yisong Yue

- Imitation Learning for distance & steer functions for multi-robot planning using Rapidly-exploring Random Tree for Double & Single Integrator Models

UC Berkeley AUTOLab, AI Researcher June – November 2020
Advisor: Professor Ken Goldberg

- Trained geometric reasoning network for target occupancy distribution in shelf
- Developed two new algorithms for hidden object search, achieving 89% success
- First author of published IROS 2021 paper (below)

Stanford Vision and Learning Lab, AI Researcher April – October 2019
Advisor: Professor Silvio Savarese

- Successfully performed intelligent retrieval of covered object in a physical bin with reinforcement learning & computer vision
- Led development of machine learning computer vision algorithm training
- Developed multi-stage pipeline architecture, published IROS 2020 (below)

Caltech Vision Lab, Machine Learning Researcher September 2018 – April 2019
Advisor: Professor Pietro Perona

- Detected dementia using convolutional neural networks on small datasets

Northrop Grumman, AI Intern June – September 2018

- Deep Q Learning and Evolutionary algorithms for autonomous drone training
- Successfully increased deep learning pipeline & training speed by 200%

Northrop Grumman, Software Intern June – September 2017

- Programmed Atmel microcontroller for backup intra-satellite communication

Sandia National Laboratories, Software Intern June 2015 – August 2016

- Wrote Android app using GPS turning off WiFi & Bluetooth in target areas

Publications

*equal contribution

Learning Deformable Manipulation from Expert Demonstrations

In Submission IROS 2022

Gautam Salhotra*, I-Chun Arthur Liu*, **Marcus Dominguez-Kuhne**, Gaurav Sukhatme

Mechanical Search on Shelves using Lateral Access X-RAY

IROS 2021

Marcus Dominguez-Kuhne*, Huang Huang*, Jeffrey Ichnowski, Vishal Satish, Michael Danielczuk, Kate Sanders, Andrew Lee, Anelia Angelova, Vincent Vanhoucke, Ken Goldberg

Visuomotor Mechanical Search: Learning to Retrieve Target Objects in Clutter

IROS 2020

Andrey Kurenkov*, Joseph Taglic*, Rohun Kulkarni, **Marcus Dominguez-Kuhne**, Animesh Garg, Roberto Martin-Martin, Silvio Savarese

Contact

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Technical Skills

Languages: Python, Java, C, C++, HTML

Data Science/ML: PyTorch, RLLib, OpenAIBaselines, Keras, Scikit-Learn, Jupyter, SQL

Robotics: PyBullet, ROS

Scripting: Linux Shell, Bash, Slurm

Toolchains: Git, Docker, AWS, cProfiler, Make

Awards

USC 4-Year Fellowship (2021-2025)
Fellowship for 4 years of PhD study

SURF Fellowship (2019 & 2020)
Caltech fellowship funding for summer machine learning research

Perpall SURF Speaking Competition Semi-Finalist (2019)
Research presentation on research conducted at Stanford

Lockheed Martin Merit Scholarship (2016 – 2021)
National Merit Scholarship Corporation scholarship sponsored by Lockheed for undergraduate study

MIT Summer Scholar (2016)
Selected for MIT high school summer program as a high achieving student

National Hispanic Scholar (2016)