

FRANCISCO (CISCO) ZABALA

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EXPERIENCE

Data Scientist, Remote Sensing & Computer Vision

Jul 2022 – Present

Amazon Web Services (AWS)

Remote, CA

- Architecting machine learning solutions to process geospatial data for AWS Worldwide Public Sector customers
- Leading R&D efforts in self-supervised learning for object detection in geospatial applications

Senior Data Scientist, Computer Vision

Feb 2022 – Mar 2022

Walmart Global Tech

Remote, CA

- Architected end-to-end object tracking solutions spanning three product verticals

Research Scientist

Aug 2021 – Feb 2022

Walmart Store No. 8

Remote, CA

- Developed heuristic and deep learning algorithms for shelf availability and planogram compliance of products

Founder

Jun 2013 – Jul 2021

ACROBOTIC

Pasadena, CA

- Led a team of engineers to develop and deliver custom IoT products to a broad customer base
- Supported customer adoption of IoT products ranging from DIYers to National Lab engineers

Machine Learning Engineer

May 2012 – May 2013

IO Rodeo

Pasadena, CA

- Implemented ML models for characterizing courtship and feeding behavioral assays
- Developed control and human-machine interfaces for Neurobiology lab instruments

EDUCATION

California Institute of Technology

Pasadena, CA

PhD Candidate (all but dissertation)

May 2011 – May 2013

Master of Engineering

Aug 2009 – May 2011

California State University, Fullerton

Fullerton, CA

Bachelor of Science in Electrical and Computer Engineering

Aug 2003 – May 2007

SELECTED PROJECTS

Object Detection in Satellite Imagery | Python, Amazon SageMaker, PyTorch, AWS

- Developed custom algorithms for experimenting with pre-training strategies for object detection

Perpetual Inventory | Python, Android, PyTorch, TensorFlow, GCP

- Combined heuristics and convolutional nets on edge devices to detect retail products in real-time

Robot-Fly Interactions | Python, ROS, Arduino (C++)

- Developed a vision-based, real-time apparatus for quantifying interactions between real and robotic flies
- Publication: <https://pubmed.ncbi.nlm.nih.gov/22727703/>

Insect Flight Kinematics | Python, MATLAB

- Built a high-speed, high-throughput videography apparatus for imaging wing and body motion of insects
- Applied unsupervised learning algorithms to quantify insect flight kinematics
- Publication: <https://pubmed.ncbi.nlm.nih.gov/19376952/>

DARPA Urban Challenge | C++, Electromechanical Hardware

- Implemented vision-based algorithms for vehicle navigation in urban environments
- Contributed to electromechanical retrofitting of our team vehicle's hardware for driverless operation

TECHNICAL SKILLS

Languages: Java, Python, C/C++, JavaScript, HTML/CSS, MATLAB

Developer Tools: Git, Docker, Kubernetes, GCP, AWS, VS Code, PyCharm, Edge computing, IoT devices

Libraries: Pandas, NumPy, Matplotlib, Keras, TensorFlow, PyTorch