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
- Drove 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