Francisco (Cisco) Zabala

zabala@caltech.edu | github.com/datasith | linkedin.com/in/datasith | U.S. Citizen | (626) 486-6895

Education

California Institute of Technology — Pasadena, CA
PhD Candidate — *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*

Experience

Senior Data Scientist — Feb 2022 – Mar 2022
Walmart Global Tech — *Remote, CA*
- Combined Neural Nets for Object Tracking with SLAM methods to build a store's *planogram*
- Architected End-to-End Machine Learning solutions spanning three product verticals
- Devised scaling strategies for deploying a CV-based Inventory Tracking System across 4700+ stores

Deep Learning Researcher — Aug 2021 – Feb 2022
Walmart Store No. 8 (Incubator) — *Remote, CA*
- Contributed to the fastest project to graduate into **Walmart Global Tech**
- Implemented heuristic algorithms for determining On-Shelf Availability of retail products
- Trained Neural Net ensembles for Object Detection and Object Tracking in densely packed images

Founder — Jun 2013 – Jul 2021
ACROBOTIC — *Pasadena, CA*
- Managed a technical apprenticeship program in partnership with two local community colleges
- Launched and successfully delivered 3 hardware products on Kickstarter
- Created tutorials and demos on YouTube growing an audience of 30k+ subscribers

Machine Learning Engineer — May 2012 – May 2013
IO Rodeo — *Pasadena, CA*
- Manufactured custom lab instrumentation for behavioral studies of fruit flies
- Developed Control and Human-Machine interfaces for interactive lab instruments
- Designed custom PCBs and mechanical assemblies using ECAD/CAD software

Projects

Perpetual Inventory | *Python, Android, PyTorch, TensorFlow, GCP*
- Combined heuristic algorithms and Convolutional Nets to detect and classify retail product images 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*
- Developed a high-speed videography apparatus for imaging wing and body motion of insects
- Implemented Unsupervised Learning methods (k-means clustering) for quantifying insect flight kinematics
- Publication: https://pubmed.ncbi.nlm.nih.gov/19376952/

DARPA Urban Challenge | *C++, Electromechanical Hardware*
- Implemented a vision-based algorithm for our team vehicle to perform k-turns
- Assisted in 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, Google Cloud Platform, VS Code, Visual Studio, PyCharm

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