Francisco (Cisco) Zabala

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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

Lead Data Scientist — Jan 2022 – Present
Walmart Global Tech — *Sierra Madre, CA (Remote)*
- Training Neural Nets for Object Recognition and Tracking applications
- Architecting End-to-End Machine Learning solutions spanning three product initiatives
- Devising scaling strategies for deploying a CV-based Inventory Tracking System across 4700+ stores

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

Chief Project Engineer — Jun 2013 – Jul 2021
ACROBOTIC Industries — *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