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GitHub
LinkedIn
Projects Blog

Fernando D. Espinosa Iñiguez

Technical Skills

Programming Languages: Python, Go, Java, C, R, MATLAB, SQL, Prolog, HTML, CSS, PHP
Frameworks/Libraries: Pandas, TensorFlow, Keras, PyTorch, Numpy, Matplotlib, OpenCV, SKLearn, SciPy, Networkx
Materials: Woodworking, Soldering, Circuits, Arduino, Raspberry Pi, Robotics, 3D Printing
Software: Git, Office, SOLIDWORKS, ArcGIS, WAMP, MySQL, MongoDB, Spark, Tableau, Jupyter
Theory: Data Structures & Algorithms, Signal Processing, Neural Networks (FFNN/RNN/CNN), Machine Learning, Reinforcement Learning, Computer Vision, Calculus, Linear Algebra, Differential Equations, Topology, Mechanics
Spoken Languages: Spanish (native, fluent), English (native, fluent), French (intermediate)

Project Experience (top 6 of >30)

SB Hacks 2017 (UCSB) - Modelrithm - github.com/ferdavid1/Modelrithm/ - Open-source Python library for finding the best Machine Learning algorithm for your data. Winner: Lockheed-Martin Aerospace Prize.

*UChicago Midwest Trading Competition (*team of 4*)* - Represented UC Davis and won Case 1 of the prestigious algorithmic trading competition, for making $2 Million in simulated trading.

NASA Space Apps 2017 - Sensei (team of 2) – github.com/ferdavid1/Sensei – Raspberry Pi-powered sensory (audio and blinking light) visualization of global population density data.

DubHacks 2017 (University of Washington) - LinkOCR- github.com/ferdavid1/LinkOCR/ - Recognizing URLs from images and returning site data. Convolutional Recurrent Neural Net in PyTorch.

QuantumBlackBox - github.com/ferdavid1/QuantumBlackBox – Graphical simulation of recording of quantum spin by probability, using an Arduino-based gyroscope and Python via serial connection.

ArduPi-ECG - github.com/ferdavid1/ArduPi-ECG – Predictive Analysis (Chaotic, Regression, Wavelet, Fourier, Neural Net) of Arduino sensor heart rate signal. Includes real-time graphical display of pulse rate.

Work Experience

UC Davis Medical School, Department of Pharmacology   January 2017 – Present
Key research areas within the Department include cardiovascular and neural physiology/pharmacology.
Sato Theoretical Cardiology Lab – Robotics & Computer Modeling Intern
C++, Python models of nonlinear cardiac dynamics, run on Raspberry Pi-based circuits.
Computer Vision for calcium spark detection from myocyte images (Tensorflow).

UC Davis Center for Mind and Brain   December 2015 - Present
The CMB is a UC Davis research lab focused on various neuroscience fields and psychology.
Miller Auditory Neuroscience Lab – Software Engineering & Data Science Intern (Current)
Machine Learning for EEG & Speech Recognition (Tensorflow); Android Dev. in C, Java; Audio Analysis in Python.
Guyer Human Development Lab - Data Science Intern & Research Assistant (Alumnus)
R, Python scripting for analysis of ECG, fMRI data; Machine Learning for Speech Recognition (Google Cloud S.R.).
Janata Music and Memories Lab - Research Assistant (Alumnus)
Excel Data Analysis, Audio Engineer for studio; Recorded a singer for study tracks, mixed and mastered audio.

Education

University of California, Davis   2014-2018
Cognitive Science (Neuroscience Emphasis) - B.S.
Relevant Courses: Statistics, Neuroscience, A.I., Biology, Physics, Linear Algebra, Calculus, Diff. Equations.
Graduate-level courses: Physics (Econophysics), Deep Learning for Neuroscience with Tensorflow, Comparative Literature

Leadership and Published Papers

Programming Lead: Davis Robotics Team - Autonomous Drone, 3D Printer, MicroMouse project leads   2015 – Present
Founding Officer (Technical Director): UC Davis Data Science Association   January 2017 - Present
--*Espinosa Iñiguez, F., Ko, Y. C., Bers, M. D., Sato, D.,* (2018, April). Machine Learning-based Detection and Analysis of Calcium Sparks. UC Davis Undergraduate Research Conference Poster. Full manuscript for journals in development.
--*Anderson, M., Yazel, B., Stickle, M., Espinosa Iñiguez, F., Gutierrez, N.S., Slaney, M., Joshi, S., Miller, L.* (2018, July). Towards mobile gaze-directed beamforming: a novel neuro-technology for hearing loss. 40th IEEE Engineering in Medicine and Biology Society.
--*Miller, L., Kessler, A., Yazel, B., Backer, K., Anderson, M., Espinosa Iñiguez, F., Joshi, S., Corina, D.* (2018, February). Rapid, Simultaneous EEG Assay of the Speech Processing Hierarchy, from Brainstem to Cognition: New Approaches to Improve Real-World Comprehension. ARO 41st Midwinter Meeting.