Victor Calderon

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http://vcalderon.me

Technical Skills

- **Programming** : Python (pandas, sklearn, scraping, visualization), C, Cython, Bash, SQL, `git`
- **Deep Learning** : PyTorch, TensorFlow, Keras, Computer Vision for 2D and 3D data (classification, segmetation, object detection and identification), Neural Networks (CNNs, Point Clouds and meshes.)
- **Machine Learning** : Regressions, Decision Trees, Random Forests, Clustering, Hypothesis testing, model deployment strategies, data visualization
- **Technologies** : Amazon Web Services (AWS), AWS SageMaker, Docker, Kubernetes, `serverless`, Flask, FastAPI, Kafka, CICD (Gitlab CICD, TravisCI), MLFLow, Airflow, `Terraform`
- **Technical Writing** : HTML/CSS, Markdown, reStructuredText, LaTeX

Work Experience

- **5x5 Technologies, Inc.** - ***Senior Machine Learning Engineer*** **Jan 2021 - Present**
  - Developed and maintained a suite of automatic equipment identification models using supervised deep learning and 6D point clouds and meshes of towers and mounted equipment. Reduced the processing time by 20% over manual processing when identifying mounted equipment on the digital version of towers.
  - Trained, validated, and deployed image segmentation deep learning models for automatic detection of enclosures and occupied spaces for areas around towers with 90% accuracy and a 50% time savings over manual identification.
  - Implemented MLOps pipelines for various models, including automatic model training, validation, versioning, API access, and CICD deployment.
  - Architected and implemented ETL pipelines for data generation and ingestion used by ML projects.
  - Managed and mentored 3 intern students.
- **HCA Healthcare** - ***Data Scientist*** **Sep 2019 - Jan 2021**
  - Developed internal tooling and packages to streamline various projects within the Data Science team.
  - Trained and validated various tree-based models to predict the hourly- and daily ER census at any given time and at any of the 200 hospitals in the HCA hospital network. Also responsible for the training, validation, deployment, and monitoring of the models.
  - Led the initial planning and development of an early detection algorithm of Sepsis and organ failure using time-dependent features of the patients.
- **Vanderbilt University** - ***Research Scientist*** **Jun 2013 - Aug 2019**
  - Trained tree-based models on large synthetic galaxy catalogues to infer masses of galaxy systems.
  - Improved current mass estimates of galaxy systems by up to factors of 10x improvement over traditional methods by applying machine learning techniques to the analysis of galaxy systems.
  - Developed tools and community packages for analyzing various types of galaxy datasets.
  - Ran N-body simulations of the Universe to study the formation and clustering of galaxies, and made statistical inferences about how galaxies form and evolve over time in simulations.

Education

- **Vanderbilt University** Nashville, TN (USA)
  Ph.D. in Physics with focus in Computational Astrophysics; Adviser: Andreas Berlind *Aug 2019*
- **Florida Institute of Technology** Melbourne, FL (USA)
  B.Sc. degrees in Astrophysics, Physics and Mathematics; Magna Cum Laude *May 2013*