Julian Collado

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EXPERTISE
Data Science, Machine Learning, Deep Learning, Adversarial Samples

EDUCATION
Ph.D., Computer Science, University of California Irvine   June 2020 (Expected)

B.Sc. Physics, University of Costa Rica   February 2013

SKILLS
Proficient: **Python, Neural Networks**
Past experience: **Java, SQL, R, Linux.**

EXPERIENCE
Electronic Arts *Data Scientist (Intern)*   (Python, Snowflake, SQL) Summer 2019
- Designed and implemented custom algorithms for a recommendation system for in-game items based on player preferences using implicit and explicit data. Improved top 5 precision by 450%. Presented results directly to CMO
- Models used include collaborative filtering, matrix factorization methods and custom methods.

Blizzard Entertainment *Data Analyst (Intern)*   (Python, SQL) Summer 2018
- Designed, coded and documented a model to predict high impact, emergent issues ahead of time.
- Demonstrated performance improving accuracy from 60% to 90% during a game launch
- Worked in a global team of data analysts and engineers collaborating with cross departmental teams
- In person and virtual presentations to global vice-president and senior leadership

Cylance *Data Scientist (Intern)*   (Python) Summer 2017
- Developed and implemented state of the art models for malware detection. NDA agreement.

Canon Information and Imaging Solutions *Software Engineer (Intern)*   (Python) Summer 2016
- Designed, created and implemented an image classification system using state-of-the-art techniques and a web application to interact with it.
- Submitted 8 invention disclosures for patent filing consideration. NDA agreement.

Teaching Assistant (Linear Algebra/Writing/Machine Learning) UC Irvine   Jan 2015 - Jun 2016, Sep - Dec 2019

PUBLISHED RESEARCH
I apply and develop machine learning methods to solve problems in science. Specifically deep learning in high energy physics.

Sparse Image Generation with Decoupled Generative Models:
Designed a generative model for very sparse images like the ones found in particle physics by decoupling the sparsity level and the non-zero distribution of each pixel while fitting both of them simultaneously by minimizing the model's entropy.
NeurIPS 2019 Workshop ML4PS   (Python, Pytorch) December 2019

Sherpa: Hyperparameter Optimization for Machine Learning Models:
Free open-source hyperparameter optimization library for machine learning models. 6000+ downloads.
NIPS 2018 Workshop MLOSS   (Python, Keras) December 2018

***Deep Learning**, Dark Knowledge and Dark Matter*:
Deep neural networks were trained in problems involving Higgs Bosons, supersymmetric particles and Higgs decay modes. Improved state of art by 50%, 2% and 11% respectively.
JMLR: Workshop and Conference Proceedings 42:81-97, 2015 (Published)   (Python, Theano, Pylearn2) April 2015

*Jet Flavor Classification in High-Energy Physics with **Deep Neural Networks***:
Trained DNN and LSTM. Improved state of art ROC AUC from 0.92 to 0.94. 10 million samples, variable input size.
Phys. Rev. D 94, 112002 (Published)   (Python, Theano, Keras) June 2016

PROJECTS
How's the weather?: Trained an ensemble of models to predict amount of rainfall at a location from satellite and numerical weather modeling data for Kaggle in-class competition. Best of 49 graduate student teams   (Matlab) March 2015

LANGUAGES
Spanish (Fluent), French (Basic)