Adolfo **Villalobos**

Data Scientist · Mathematical Engineer

Santiago, Chile

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"Meaningful Work. Meaningful Relationships."

Education

Pontificia Universidad Católica de Chile (PUC)

Santiago, Chile

Master in Engineering Sciences, Department of Industrial Engineering

Aug. 2018 - Oct. 2020

- Worked with industry partner in IoT project for machine-learning-based, decision support systems.
- Coursework on advanced machine learning topics: Deep Learning, Bayesian Inference, PAC Learning and Online Learning.

Pontificia Universidad Católica de Chile (PUC)

Santiago, Chile

B.S. in Mathematical Engineering

Mar. 2013 - Aug. 2018

- Teaching assistant for undergraduate and graduate courses at the Mathematical Engineering program.
- Research assistant for professors from the Mathematics, Physics and Engineering schools. I used OpenMP and MPI frameworks for high performance computing problems in medicine, and studied stability guaranties in stochastic optimization problems using first order methods.

Skills

DevOps	AWS, Docker, Kubernetes, Rancher, Vagrant, Packer, Terraform, Jenkins, CircleCI
Back-end	Koa, Express, Django, REST API
Front-end	Hugo, Redux, React, HTML5, LESS, SASS
Programming	Node.js, Python, JAVA, OCaml, LaTeX
Languages	Korean, English, Japanese

Work Experience

DICTUC UC.

Santiago, Chile

Data Scientist at joint venture with Agroupser S.A. Innovation Group

March. 2019 - June 2020

- Developed with full ownership an innovative, data-driven prototype to detect musculoskeletal disorders among slaughterhouse workers.
- Designed and implemented an ETL pipeline to habilitate incoming sensor data (via Bluetooth 2.0/4.0) for data analysis.
- Used expert ergonomic insight to manufacture rich features about the presence of risk factors.
- Successfully implemented an ML pipeline to predict the presence of risk factors, managing technical and business trade-offs.
- Demonstrated the potential of the technology to be used as a decision making tool for human screening, and quantified economic benefit.

Institute for Mathematical and Computational Engineering UC.

Santiago, Chile

Project Engineer & Research

March. 2018 - June 2019

- Contributed to data science projects with industry partners by improving current accuracy in the prediction of operational variables. Achieved under 5% MAPE using Time Series forecasting techniques in Python.

Clase Ejecutiva UC

Santiago, Chile

Chief Teaching Assistant in Big Data for Decision Making Diploma

March. 2018 - Sept. 2020

- Responsible for translating complex mathematical concepts into useful insights for non-technical, business-oriented students from junior to senior roles in Latin American companies.

Central Bank of Chile

Santiago, Chile

Data Analyst Internship, Financial Research Group

Dec. 2017 - March. 2018

- Expected to quickly gain expertise in state-of-the-art research on statistical modeling of household finance, and communicate results effectively to senior economists, prioritizing consequences to monetary policy.
- Implemented regression models in R and STATA to associate debt under-reporting by chilean households with debt-type and demographic information.
- Implemented the Gale-Shapley algorithm in R to match official debt records (government data) with the self reported debt records (survey data).

Personal Projects

Programming & Data Science

Deep Learning Experiments *2019-2020*

- Worked on several DL projects, from image recognition to NLP tasks (text summarization and text translation), using Keras, Pytorch and Tensorflow. The code is available in my GitHub: `https://github.com/AdolfoVillalobos/deep-learning-projects`.

Falla UC *2019-Present*

- A web based predictive maintenance dashboard, using AWS Lambda, AWS RDS and AWS Gateway technologies for the registering and processing of real time temperature sensor data of machines. Experimented with time series modeling (ARMA, ARIMA, etc.) and AutoEncoders to detect anomalies. Still on development.

DebtControl Bots *2019-Present*

- A software project focused on the automatization of certain human activities related with payment notification. The project was developed for DebtControl, a chilean company dedicated to loan servicing. We used Python web-scrapping tools, and a raspberry-pi to execute the code.

Extracurricular activites

Mathematical Academy, Leonardo Murialdo School *2013-2015*

- Founder and first teacher of an academy for the training of high school students, to compete in mathematical olympiads.

President, SIAM-PUC Student Chapter *Core-Member & President (2016)*

- Reformed the chapter by engaging students to participate in activities focused on understanding the links between pure mathematics and machine learning, and encouraged networking between students and professors.
- Co-organized the National Encounter for Mathematical Engineering 2015, a congress for undergraduate students interested in applied mathematics.

Presentation

II International Conference on Big Data and Decision Support Systems in Agriculture (BigDss Agro 2020) *Lleida, Spain*

Presenter *Oct. 2020*

- Presented a research paper proposing the use of ML models to detect risk factors in slaughter houses by monitoring sensor data obtained from devices in the workers wrists. Received ”Best Paper” award.