Adolfo **Villalobos**

DATA SCIENTIST · MATHEMATICAL ENGINEER

Santiago, Chile

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"Be the change that you want to see in the world."

Summary

Data Scientist with strong background in applied mathematics, statistics and computer science. Possesing 3+ years of experience using predictive modeling, data processing, and data mining algorithms to solve challenging research and business problems. I am highly motivated about learning the latest data science and machine learning frameworks, and state-of-the-art modeling techniques.

Work Experience

Agrosuper S.A. *Santiago, Chile*

DATA SCIENTIST AT JOINT VENTURE WITH 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 precense of risk factors.
- 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*

- Helped in data science projects with industry parters with the objective of improving current accuracy in the prediction of operational variables. Achieved under 5% MAPE, lower than human error.

Clase Ejecutiva UC *Santiago, Chile*

CHIEF TEACHING ASSISTANT *March. 2018 - Sept. 2020*

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

Central Bank of Chile *Santiago, Chile*

DATA ANALYST INTERNSHIP, FINANCIAL RESEARCH GROUP *Dec. 2017 - March. 2018*

- Worked on data science projects related to the Household Financial Survey (EFH), focusing on household debt modeling. I was expected to quickly get acquainted with state-of-the-art research on household finance, and communicate my results effectively to senior economists, prioritizing their consequences to monetary policy.
- Implemented the Gale-Shapley algorithm in R to match official debt records (from the SBIF) with the self reported debt records (from the EFH).
- Implemented regression models in R and STATA to associate debt under-reporting by chilean households with debt-type and demographical information.

Presentation

II International Conference on Big Data and Decision Suport 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.

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, focusing on data science and decision making from sensor data.
- Courework 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.

Personal Projects

Programming & Data Science

Deep Learning Experiments

I worked on several DL projects: from image recognition, architechture understanding (CNN, RNN and GANS) to NLP tasks (text summarization and text translation). The code is available in my GitHub:

`https://github.com/AdolfoVillalobos/Courses_PUC/tree/main/PUC_deep_learning.` I used Keras and Pytorch.

DebtControl Bots

A software project focused on the automatization of certain human activites 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 raspbery-pi to exectute the code.

Extracurricular activites

Mathematical Academy, Leonardo Murialdo School *Founder & Professor*

- 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 activies 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.