Alejandro **Catalina**

Data Scientist · Researcher

Espoo, Finland

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Summary

Enthusiast and accomplished Data Scientist (researcher) with a passion for delivering deep and valuable insights through Bayesian methods. Committed to helping companies advance by developing strategic plans based on principled statistical models. Bringing forth a proven track record of research and data analysis from different perspectives.

Experience

Aalto University

Espoo, Finland

Graduate Researcher

March 2019 -

- I have been a major contributor to one paper that has been accepted for publication at NeurIPS 2020 (see below in publications)
- I have submitted other papers to other top tier conferences in the field that are still under review.
- I am part of several projects simultaneously on different subareas like Bayesian variable and structure selection and Variational Inference.
- My work is now part of very popular open source projects such as **projpred**, on which I am the maintainer and main contributor.
- Teaching Assistant for Bayesian Data Analysis masters course (∼400 students) for 2 years.
- Advising multiple students on their BSc thesis on Bayesian methods.

Universidad Autónoma de Madrid

Madrid, Spain

Graduate Researcher

July 2015 - March 2019

- First author in many articles including 2 journal publications and 6 conferences
- Our work was split on two main lines: real world applications on energy forecasting problems and developing convex optimization methods for sparse and structured learning.
- Successfully processed terabytes of data and robustly deployed competitive models.
- I was the leading architect in building a data pipeline that is currently in use for the processing of meteorological data and model's predictions.

University of Cambridge

Cambridge, UK

Visiting Researcher

May 2017 - August 2017

- Variational inference, Bayesian neural networks, literature review.

Aselcis SL

Madrid, Spain

Software Developer, Intern

May 2015 - July 2015

- Developed client–specific modules for the ERP Odoo.

Education

Aalto University

Espoo, Finland

PhD in Computer Science

March 2019 - Expected 2022

Universidad Autónoma de Madrid

Madrid, Spain

PhD in Computer Science

Sept. 2017 - March 2019

- Transferred out to Aalto University.

Universidad Autónoma de Madrid

Madrid, Spain

M.Sc. in Computer Science

Sept. 2016 - July 2017

- Grade 9.26 / 10, finished with honours.
- MSc. Thesis *Nesterov Acceleration Techniques for Group Lasso*

Universidad Autónoma de Madrid

Madrid, Spain

B.Sc. in Computer Science and Engineering

Sept. 2012 - July 2016

- Grade 8.51 / 10

Skills

Expert, Data Analysis an Munging
Expert, Bayesian Predictive Modelling
Expert, Communication Skills
Expert, Analytical Skills
Expert, Organization Skills
Expert, Initiative and Proactivity
Expert, R, Python, Tensorflow, Pytorch, Stan, Emacs, Vim

Publications

Preprints

Projection Predictive Inference for Generalized Linear and Additive Multilevel Models
Arxiv
Catalina A., Bürkner P.C., Vehtari A. 2020
`https://arxiv.org/abs/2010.06994`

Group Heterogeneity Assessment for Multilevel Models
Arxiv
Paananen T., **Catalina A.**, Bürkner P.C., Vehtari A. 2020
`https://arxiv.org/abs/2005.02773v1`

Journals

Combining Numerical Weather Predictions and Satellite Data for PV Energy Nowcasting
IEEE Transactions on Sustainable Energy
Catalina A., Alaíz C.M., Dorronsoro J.R. 2019
DOI: 10.1109/TSTE.2019.2946621

Machine Learning Nowcasting of PV Energyusing Satellite Data
Neural Processing Letters
Catalina A., Torres-Barrán A., Alaíz C.M., Dorronsoro J.R. 2019
DOI: 10.1007/s11063-018-09969-1

Conferences (last 2 years)

Robust, Accurate Stochastic Optimization for Variational Inference
Neural Information Processing Systems
Dhaka A.K., **Catalina A.**, Andersen, M.R., Magnusson, M., Huggings, J., Vehtari, A. 2020

Flexible Kernel Selection in Multitask Support Vector Regression
International Joint Conference on Neural Networks
Ruiz C., **Catalina A.**, Alaíz C.M., Dorronsoro J.R. 2019

Gaussian Process Kernels for Support Vector Regression in Wind Energy Prediction
Intelligent Data Engineering and Automated Learning
de la Pompa V., **Catalina A.**, Dorronsoro J.R. 2018

Fused Lasso Dimensionality Reduction of Highly Correlated NWP Features
Data Analytics for Renewable Energy Integration
Catalina A., Alaíz C.M., Dorronsoro J.R. 2018

Accelerated Block Coordinate Descent for Sparse Group Lasso
International Joint Conference on Neural Networks
Catalina A., Alaíz C.M., Dorronsoro J.R. 2018

Revisiting FISTA for Lasso: Acceleration Strategies Over the Regularization Path
European Symposium on Artificial Neural Networks
Catalina A., Alaíz C.M., Dorronsoro J.R. 2018