

## Felipe A. Marin Perucci, Ph.D.

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### Summary of Experience

#### *Analyst, Banking & Wealth, Quantum Group, Melbourne (May 2018 – present)*

- Modelling and reporting on customer acquisition and attrition for a diverse retail products.
- Big data exploration and wrangling using Spark, machine learning models in distributed computing using h2o and R.
- Use of advanced machine learning models to help improving lender compliance.

#### *Consultant, The Simulation Group, Melbourne (May 2016 – April 2018)*

- Data analysis, modelling, experimentation and reporting of expansion options for large Australian and international mining projects
- Data forensics and modelling in a range of industries including healthcare and transportation to uncover process inefficiencies/bottlenecks and forecast future performance.
- Extensive use of R analysis and reporting tools. AnyLogic/Java for simulation modelling, as well as Python, SQL, QGIS and Tableau.
- Marketing work for proposals in simulation of water processing, freight route analysis and wine making.

#### *S2DS fellow (internship), Adzuna.com, UK (October-November 2015)*

- Part of the S2DS Virtual Program, working remotely to develop a prototype model to link job titles and skills for Adzuna, a job search engine.
- Used Text Analytics, Semantic Analysis and Machine Learning methods to cluster and categorize 100k job ads into profiled titles and skills.
- Developed a model to recommend jobs to seekers based on their skills, using a Naïve Bayes approach.

#### *Postdoctoral Researcher, Swinburne University (2010 – 2015)*

- Led the most advanced test to date of models of cosmic flows in galaxy surveys, improving model confidence by 15%, using Monte Carlo methods in Matlab to constraint multi-parameter models.
- Pioneered use of novel spatial statistical tools on \$85M SDSS and \$4M WiggleZ galaxy surveys, obtaining improved and independent constraints on cosmological growth using C & Python scientific libraries.
- Developed 3000+ simulated galaxy maps in supercomputing facilities to support modelling & forecasts.

#### *Research Assistant, University of Chicago (2004-2010)*

- Developed methods to use advanced spatial statistics in large-scale simulations to enhance models of galaxy formation and evolution.
- Extended analysis on cosmological formation models to prepare forecasts for specialised astronomical surveys.

## Education

*Ph.D. in Astronomy & Astrophysics*, University of Chicago, Chicago, USA (2003-2010).

- Recipient of a prestigious and highly competitive Fulbright scholarship (USA Department of State) and a CONICYT (Chilean Research Council) PhD Fellowship (2003-2007).

*B.Sc. (Licenciatura) in Astronomy*, Universidad de Chile, Santiago, Chile (1998-2002).

- Scholarship from Universidad de Chile & Moisés Mellado (1998-2001): Full tuition and stipend based on academic merit.

## Summary of Skills

### *Data Analysis:*

- Statistical analysis of structured and unstructured data.
- Big data analysis using Spark/scala, h2o.ai in R.
- Text Mining & Analytics: Natural Language Processing, Latent Semantic Analysis.

### *Modelling:*

- Hypothesis testing, Statistical inference, experimental design.
- Linear and tree-based predictive models
- Unsupervised learning: Clustering, principal component analysis.
- Applied Bayesian Statistics, Multidimensional Monte Carlo Markov Chain.
- Simulation Modelling: Discrete- and agent- based models

### *Computing:*

- Experience in R for data forensics, analysis (tidyverse), predictive analytics & machine learning, reporting (RMarkdown) and dashboards (Shiny).
- Scientific computing in Matlab & Python (Numpy, SciPy)
- Linux scripting, distributed systems. Expertise in MS Word, Excel, Powerpoint. Version Control (git).
- Intermediate experience in JavaScript, C, SQL, QGIS and Tableau.

## Miscellaneous

- *Languages*: Fluent in English, Spanish (Native). Conversational fluency in Portuguese.
- *Citizenship*: Australian and Chilean.
- *Communication*: Author of 12 publications in peer-reviewed astronomy journals and 20+ oral presentations in 8 countries.
- *Interests*: Travel, Music, Literature, Science Outreach, Public Policies, Latin American social issues.