# Diego M. Arribas

## Experience

### Industry

Dec2021– **Data Scientist**, *Nubank*, Remote.

- Developing machine learning models to predict the risk of personal loans customers.
- Developing data processing (ETL) pipelines in Scala Spark.

### Research

2016–2021 **PhD in Computational Neuroscience**, *Biomedicine Research Institute of Buenos Aires - Partner Institute of the Max Planck Society*, Argentina.

- Used Bayesian probabilistic models to study neural coding in the mouse hippocampus.
- Developed a Python library to fit the models and perform Bayesian stimuli decoding.
- Recorded the data by performing electrophysiology experiments.

2020 **Visiting Scholar**, Stony Brook University, NY, USA.

- Developed a kernel-based alternative metric and a PyTorch library to improve samples generated by autoregressive models.
- Developed a Bayesian method to extract underlying time scales of neural data.

## Education

2016–2021 **PhD in Computational Neuroscience**, *University of Buenos Aires*, Argentina.
Thesis: Encoding and decoding stimuli with mature and immature neurons of the dentate gyrus of the hippocampus.

2009–2016 **MSc in Physics**, *University of Buenos Aires*, Argentina, *GPA – 9.62/10*.
Thesis: Interaction dynamics between synaptic excitatory and inhibitory currents in neurons from the hippocampal dentate gyrus, *Grade – 10/10*

## Schools and courses

Aug2021 Oxford Machine Learning Summer School. Online.

Nov2019 Khipu. Latin American Meeting In Artificial Intelligence. Montevideo, Uruguay

Aug2017 CAJAL Course in Computational Neuroscience. Champalimaud Centre for the Unknown, Lisbon, Portugal

Jun/Jul2017 Neural Systems & Behavior. Marine Biological Laboratories, Woods Hole, USA

## Publications

2022 D Neophytou*, **D M Arribas***, R Levy, I M Park and H V Oviedo. Differences in temporal processing speeds between the right and left auditory cortex reflect the strength of recurrent synaptic connectivity. PLOS biology.

2022 **D M Arribas**, A Marin-Burgin and L G Morelli. Adult-born granule cells improve stimulus encoding and discrimination in the dentate gyrus. Preprint bioRxiv.

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*Diego M. Arribas*

2020 **D M Arribas**, Y Zhao and I M Park. Rescuing neural spike train models from bad MLE. Advances in Neural Information Processing Systems 33 (NeurIPS 2020).

## Skills

Programming: Python | Scala | Matlab | Git

Data Science: PyTorch | Keras | Scikit-learn | Spark | LightGBM | XGBoost | SHAP | fklearn | Pandas | NumPy

Mathematical modeling: Autoregressive Processes | Bayesian Modeling | Causal Inference | Computational Neuroscience | Deep Learning | Dynamical Systems | Machine Learning | Natural Language Processing | Probabilistic Modeling | Scientific Writing | Statistics | Time Series Modeling

## Teaching experience

Jul2021 **Teaching Assistant**, *Neuromatch Academy*, Remote.
Taught an introductory course in Computational Neuroscience for international students.

2018–2020 **Data Science Mentor**, *Acámica*, Buenos Aires.
Taught an introductory course in Data Science and Machine Learning for professionals using Python, Pandas, scikit-learn, NumPy and Keras.

2013–2018 **Physics and math Teaching Assistant**, *University of Buenos Aires, Instituto Tecnológico de Buenos Aires*, Buenos Aires, Argentina.
Taught many different introductory and advanced physics courses and introductory math courses.

## Selected conference presentations

Feb2021 **D M Arribas**, Y Zhao and I M Park. Framework to generate more realistic GLM spike trains. Cosyne 2021. Online.

Feb2021 D Neophytou, **D M Arribas**, H Oviedo and I M Park. Quasi-Bayesian estimation of time constants supports lateralized auditory computation. Cosyne 2021. Online.

Dec2020 **D M Arribas**, Y Zhao and I M Park. Rescuing neural spike train models from bad MLE. Advances in Neural Information Processing Systems 33 (NeurIPS 2020). Online.

Oct2018 **D M Arribas**, M B Ogando, A Marin-Burgin, L G Morelli, A Marin-Burgin and L G Morelli. Age dependent responses to noisy current injections in the dentate gyrus of the hippocampus. Champalimaud Research Symposium 2018. Lisbon, Portugal.

## Languages

English **Proficient**

German **Basic**

Portuguese **Basic**

Spanish **Native**