

David Munoz Tord



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EXPERIENCE

FREELANCER | DATA SCIENTIST

Part-time: October 2022 – Present | Geneva, Switzerland

- Led the development and launch of a scientific project in collaboration with EPFL, transitioning initial scripts into a comprehensive Software as a Service (SaaS) solution accessible to clients via Elastic Kubernetes Service (EKS) on AWS.
- Offered technical consulting services to a startup specializing in cognitive and educational technologies, translating academic research in cognitive neuroscience and developmental psychology into actionable solutions, while also advising on machine learning implementations.
- Collaborated closely with analysts across departments to design, build, and deploy various initiatives within the data platform, including the development, deployment, and maintenance of data services using R and PostgreSQL. Additionally, implemented best practices for continuous process automation, resulting in significant time savings for month-end processing.

FLOWBANK | FULL STACK DATA SCIENTIST

Part-time: January 2023 – January 2024 | Geneva, Switzerland

- Conducted in-depth data analysis to classify customers using Bayesian inference, revealing distinct segments and patterns for data-driven decision-making and targeted strategies.
- Designed and implemented Apache NiFi ETL for efficient data processing and orchestration, contributing to streamlined data engineering workflows.
- Developed new internal tools for data analysts.

FLOWBANK | R DEVELOPER/ DATA ENGINEER

April 2022 – January 2023 | Geneva, Switzerland

- Developed and implemented complex statistical models in R to detect fraudulent transactions.
- Designed and maintained a data visualization dashboard in R Shiny, which allowed for easy monitoring of key performance indicators.
- Led the development of a comprehensive data science infrastructure, including Docker environments for Julia, R, and Python, and leveraging AWS SageMaker for seamless deployment and scalability.

UNIVERSITY OF GENEVA | LECTURER IN STATISTICS

Part-time: September 2020 – January 2023 | Geneva, Switzerland

- Conducted lectures on statistics for the Master of Neurosciences program, ensuring a comprehensive understanding among students.
- Developed and delivered tailor-made course materials, catering to the specific needs and challenges of neurosciences students.
- Mentored and supervised graduate students in their statistical research projects, nurturing their analytical skills and research capabilities.
- Created and shared freely available data workshops in R and Python.

SKILLS

PROGRAMMING

Proficient:

R • Python • BASH • SQL • NIFI

Experienced:

MATLAB • STAN • Julia • JavaScript

LIBRARIES/Frameworks

TensorFlow • Scikit-Learn • Spark
MLib • Torch • Shiny • BRMS • Rstan
• Caret • Glmnet • d3.js

TOOLS/Paradigms

Git • AWS: S3, Sagemaker, Glue •
MIOps • Azure DevOps • ETL

EDUCATION

MASTER OF NEUROSCIENCES |

GENEVA NEUROCENTER

Sept 2018 - March 2020 | Switzerland

Coursework in Reinforcement learning, AI, Data science and Neuroimaging. GPA: 3.85

COMPLEMENTARY STUDIES IN DATA

SCIENCE | SMITH COLLEGE

Sept 2017 - June 2018 | MA, USA

Capstone project: Leveraged SQL and R to create a comprehensive analysis of the entertainment industry's network using the IMDb database.

BACHELOR OF PSYCHOLOGY |

UNIVERSITY OF GENEVA

Sept 2014 - June 2017 | Switzerland

Relevant coursework completed in statistics and scientific programming.

COURSEWORK

Algorithms • Data Mining • Machine Learning • Artificial Intelligence • Linux System Administration • Visualization For Scientific Data • Database Management Systems • Object Oriented Programming • Spatial Analysis

CAMPUS BIOTECH | PHD CANDIDATE IN NEUROSCIENCES

August 2019 – November 2021 | Geneva, Switzerland

- Processed terabytes of data for a large scale of longitudinal clinical trials (EEG/fMRI signal and blood samples).
- Used various statistical methods to analyze large scale dataset: Hierarchical Bayesian modeling, Multivariate pattern analysis, and model-free reinforcement learning.
- Managed neuromedical data according to the Swissmedic regulatory compliance specifications.
- Collaborated with Caltech data engineers to implement [tICA](#) for better identification of activation and artifact components in fMRI.
- Developed and implemented computational models to study neural system mechanisms and dynamics.

GENEVA UNIVERSITY NEUROCENTER | INTERNSHIP IN COMPUTATIONAL NEUROSCIENCES

August July 2019 – December 2019 | Geneva, Switzerland

- Integrated reinforcement learning techniques with computational psychiatry, employing model falsification and parameter recovery in a theory-driven approach to [computational modeling](#).
- Collaborated on the Hierarchical Bayesian modeling of Decision-Making tasks library [[hBayesDM](#)]. Built the Q-learning algorithm for probabilistic selection task.

OPEN-SOURCE CONTRIBUTIONS

echarts4r | R, JAVASCRIPT - 2023 - PRESENT

- Collaborated on the development of [echarts4r](#), a R package that expands the capabilities of R-based interactive visualizations with a powerful rendering engine, while enhancing flexibility and ease of use.

FiRebase | R, JAVASCRIPT - 2023 - PRESENT

- Contributed to the [firebase](#) integration package for R, empowering the Shiny user community by enabling user authentication and secure file storage through Firebase Storage.

DbViewerR | R, JAVASCRIPT AND SQL - 2022 - PRESENT

- Created shiny app that simulates a database management system featuring functions like login authentication, save/create/delete tables, add/rename columns, using either a PostgreSQL or SQLite back-end [[DbViewerR](#)].

reptree | R - 2022

- Integrated the caret ensemble for [reptree](#) (implementation of representative trees from ensembles of tree-based machines).

hBayesDM | STAN, R AND PYTHON - 2021

- Collaborated on the Hierarchical Bayesian modeling of Decision-Making tasks library [[hBayesDM](#)]. Built Q-learning algorithm for probabilistic selection task.

3dLMER | BASH AND R - 2020

- Collaborated on the AFNI's functions for 3Dimensional Linear Mixed-Effects Regression [[3dLMER](#)]. Fixed residuals output image by adding bottom tolerance.

LANGUAGES

Fluent

ENGLISH | FRENCH | SPANISH

RECOGNITIONS

2024 = Top 2% on [Stack Overflow](#)

2023 - Top 25% on [GitHub](#).

2017 - textitGlobal Fellow scholarship.

EXTRACURRICULAR

- Contributing to [We Data's](#) mission by facilitating workshops, providing statistics tutorials, and participating in coding demonstrations.
- Organizing [R-Lunches](#) at UniGe.
- Co-founder of [Go-Fast](#), a socially responsible Bike Messenger cooperative in Geneva.
- Co-president of [La Rustine](#), a non-profit organization promoting non-motorized mobility and self-sustainability in Switzerland.

PUBLICATIONS

Investigating the effect of liraglutide on self-reported liking and neural responses to food stimuli. [Paper](#)

Coppin, G., Munoz Tord, D., Pool, Cereghetti, D., Golay, A., Sander, D., & Pataky, Z. Europe PMC (2022)

Differential contributions of ventral striatum subregions to the motivational and hedonic components of the affective processing of reward. [Paper](#)

Pool, E. R., Munoz Tord, D., Delplanque, S., Stussi, Y., Cereghetti, D., Vuilleumier, P., & Sander, D. Journal of Neuroscience (2022)

3D-printed pacifier-shaped mouthpiece for fMRI-compatible gustometers. [Paper](#)

Munoz Tord, D., Coppin, G., Pool, E. R., Mermoud, C., Pataky, Z., Sander, D., & Delplanque, S. Eneuro (2021)

Early spatial attention deployment towards aggressive voices. [Paper](#)

Burra, N., Kerzel, D., Munoz Tord, D., Grandjean, D., & Ceravolo, L. Social Cognitive and Affective Neuroscience (2019)