Matías Alloatti

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Young and passionate neuroscientist wading into data science to experience new challenging environments, exploit my creativity and help developing new technologies, products and services.

DATA SCIENCE SKILLS:

- **Python and Matlab/Octave**: My main languages for data exploration, visualization, statistics, hypothesis formulation and machine learning prototyping.
- **Data Science frameworks**: numpy, scipy, pandas, matplotlib, PyTorch, fastai, scikit learn. I have some experience using R for a few specific applications.
- **Reporting**: matplotlib, Matlab, markdown, LaTeX, GraphPad prism, Calc/Excel, GIMP/Adobe photoshop, jupyter notebooks, Google Colab.
- **Cloud computing**: Paperspace Gradient.
- **Databases**: SQL language. SQLite and MySQL systems.
- **Version control and project management**: Git, Github, and Trello.
- **Operative Systems**: linux, windows.
- **Computer Vision**: classification and image segmentation using ImageJ, Matlab and fastai (using CNNs and transfer learning).
- **Experience in**: NLP using RNNs (with PyTorch), Anomaly detection using Gaussian Mixture Models, Clustering with K-means, Recommender systems using collaborative filtering, dimensionality reduction and other applications using PCA, ICA and SVD, SVM and for classification. Backpropagation, batch, mini-batch and stochastic GD.
- **Other Skills**: I've vast experience working in multidisciplinary environments. I'm a strong autodidact and self-directed scientist, with effective communication. I'm empathic and social with active listening and persuasive speaking skills, I'm a very good problem solver and analytical thinker. I also thrive in a team environment contributing with my expertise and following leadership.

WORK EXPERIENCE:

2014–present **PhD Thesis**, *Cell Biology and Neuroscience Institute. Prof. Eduardo De Robertis*, School of Medicine - UBA, Buenos Aires, Argentina.

In my PhD I implemented complex algorithms to model protein behaviour in cells and to analyze microscopy images. I acquired experience in python and fully exploited my Matlab skills obtaining two first-author publications and many more as co-author. During this time I worked really hard not only to develop new technologies and publications but also to quickly obtain a plethora of knowledge, to learn to communicate lab's results to anyone, to adapt to extremely diverse and challenging environments, and also to train new lab members.

2015–2016 **Laboratory Internship at I'Dor Institute**, *Rio de Janeiro*, Brazil.

Here, I managed to make my projects grow in a challenging environment, I learned new technologies by myself, managed people and reported results in a new foreign language (portuguese). I also learned how to culture human brain tissue using pluripotent Stem Cells.

2012–2014 **BS Thesis**, *Cell Biology and Neuroscience Institute. Prof. Eduardo De Robertis*, School of Medicine - UBA, Buenos Aires, Argentina.

During my BS Thesis I gained a lot of experience working with people from across all areas, I learned how to use Matlab, reporting results and writing publications, and fundamentally I learned the comitment that a large project demands. My BS thesis results were fundamental to publish my first paper as co-author.

MAIN ACHIEVEMENTS IN ACADEMIA:

- Development of an **algorithm for single-particle tracking** for axonal transport images with Matlab.
- Characterization of the **proteasome complex movement** in axons of mammal neurons.
- Obtaining the **first human cerebral organoids in Argentina**, a cutting edge model.
- Development of a **human three-dimensional model of Alzheimer's Disease pathology** with cultured brain tissue, global pioneer biological model.
- Characterization of the **effects of changes in alternative splicing of Tau protein** in axonal transport of amyloid precursor protein (both key proteins in Alzheimer's Disease).

EDUCATION:

2014 – 2020 **PhD in Neuroscience**, *University of Buenos Aires (UBA), Argentina*, thesis defense will be on April.

2007 – 2014 **Bachelor of Science in Genetics**, *National University of Misiones (UNaM), Argentina.*

LANGUAGES:

Spanish	Native	*Mother Tongue*
English	Excellent skills	*B2 / FCE - Cambridge English*
Portuguese	Intermediate	*Learned during lab internship in Brazil*
Italian	Basic skills	*1st level on Italian language and culture - COELI*

SELECTED PUBLICATIONS AND WORKING PROJECTS:

- Methods for Quantitative Analysis of Axonal Cargo Transport. M Alloatti, et al. Methods in Molecular Biology, 2018. – 1st author –
- Tau Isoforms Imbalance Impairs the Axonal Transport of the Amyloid Precursor Protein in Human Neurons. V Lacovich*, SL Espindola*, M Alloatti*, et al. Journal of Neuroscience, 2017. – shared 1st author –
- Fast axonal transport of the proteasome complex depends on membrane interaction and molecular motor function. MG Otero, M Alloatti, et al. Journal of Cell Science, 2014. – 2nd author –

Complete list of publications at indexed journals here:
https://www.ncbi.nlm.nih.gov/pubmed/?term=alloatti+Mat%C3%ADas

Working Projects:

- Human cerebral organoids model Swedish Variant of Alzheimer's Disease. M Holubiec*, M Alloatti*, et al. – shared 1st author –
- Kinesin-1-mediated axonal transport of CB1 receptors is required for cannabinoid-dependent axonal growth and guidance. TM Saez, I Fernández, S Rodrígez, M Alloatti et al. – 4th author – (Under Revision)

AWARDS:

2019 **FENS SfN School Estipend**, *FENS / SfN*, Training topic: Brain-Machine Interfases *Bertinoro - Italy.*

2014 - 2019 **PhD Fellowship**, *CONICET*, *Buenos Aires - Argentina.*

2015 **LARC Short Stay Application Decision**, *IBRO*, Research topic: Human Cerebral Organoids *Rio de Janeiro - Brazil.*

SELECTED FURTHER EDUCATION:

2019 **Machine Learning**, *Andrew Ng, PhD*, *Stanford Online - Coursera.*

2019 **Brain Reading and Writing: new perspectives of neurotechnology**, *P Roelfsema, PhD & A Schwartz, PhD*, *SfN / FENS. Bertinoro, Italy.*

2019 **Natural Language Processing with Neural Networks**, *G Kruszewski, PhD, Facebook Ai*, *Schools of Informatic Sciences, UBA. Buenos Aires, Argentina.*

2018 **Neural Networks**, *E Segura, PhD*, *School of Exact Sciences, UBA. Buenos Aires, Argentina.*

2018 **Past, Present and Beyond Synaptic Transmission**, *O Uchitel, PhD*, *INIMEC / UNC. Córdoba, Argentina.*

2018 **Integrated Neurobiology of Central Nervous System**, *AJ Ramos, PhD*, *School of Biochemistry and Farmacy, UBA. Buenos Aires, Argentina.*

2017 **Classification of cerebral states using functional neuroimages**, *E Tagliazucchi, PhD*, *Schools of Informatic Sciences, UBA. Buenos Aires, Argentina.*

2017 **Machine Learning for analyzing neuroimaging data from natural stimulus experiments**, *A Huth, PhD*, *Schools of Informatic Sciences, UBA. Buenos Aires, Argentina.*

TEACHING EXPERIENCE:

2015, 2016 & 2018 **Teacher and organizer of undergraduate university course: "Cell Biology Techniques"**, UNaM, *Argentina.*

2008-2009 **Assistant Teacher of Organic Chemistry**, UNaM, *Argentina.*

2019 **High School Teacher of Chemistry and Biology**, Instituto Susini, Buenos Aires, *Argentina.*

CONTACTS FOR REFERENCES:

Tomás Falzone, PhD He is the head of the Axonal Transport lab at the Cell Biology and Neuroscience Institute (School of Medicine - UBA) and he was my PhD thesis director. I am currently collaborating with Tomás' Lab to publish further papers.
Email: tfalzone@fmed.uba.ar
More information about Tomás' work can be found at:
$http://www.ibcn.fmed.uba.ar/200_grupos-lab-transp-axo-enfe-falzone.html$

Luciana Bruno, PhD Luciana is a researcher at the Calculus Institute (School of Exact Sciences - UBA) and she was my co-director during my BS thesis. The nice interaction between us continued and allowed us to publish many interesting papers.
Email: lbruno@df.uba.ar
More information about Luciana's work can be found at:
$https://www.df.uba.ar/es/component/researchers/miembro/57-Luciana_Bruno$