MIGUEL FERNANDES, PHD

SCIENTIST WITH THE GOAL TO EMPOWER PEOPLE THROUGH KNOWLEDGE

António Miguel Fernandes
Born in 1985 in Porto, Portugal

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SKILLS

Machine learning

Genetics

Neuroscience

COMPETENCIES

Communication

Analytical thinking

Problem solving

PROGRAMMING

Python (>5 years)

OpenCV

Bash

SQL

I am an experienced scientist fascinated by the analysis of data using ***machine learning*** *methods* to extract ***valuable insights*** and ***create knowledge***.

PROFESSIONAL EXPERIENCE

RESEARCH SCIENTIST   2013-PRESENT

Max Planck of Neurobiology, Martinsried, Germany

•Employing diverse **Machine Learning algorithms** to unstructured data. Python: Pandas, Scikit-learn, Numpy, Seaborn, Matplotlib, Scikit-image.

•**Modeling and analysis** of behavioral and imaging data (time-series analysis) using supervised and unsupervised learning algorithms (e.g. linear regression, K-means, and hierarchical clustering).

•Performing high-resolution behavioral tracking. Video recording and object tracking using **Computer Vision** (OpenCV).

•Analysis of 3D biological data. Max Planck **high-performance computing** facility (Linux clusters). Bash, CMTK, ANTs, and Image J Macro scripts.

•Imaging of neuronal activity combined with Holographic optogenetic stimulation (2P Microscopy).

PHD IN NEUROSCIENCE   2009-2013

•Performed Confocal imaging of *in vivo* and *in vitro* brain samples.

•Developed **molecular and genetic tools** for neural circuit dissection: **pharmacogenetic** ablation of cells, large genomic and RNA data analysis, DNA/RNA handling, PCR, and molecular cloning.

•Constructed behavioral setups and analyzed **time-series data.**

•Performed Immunohistochemistry and Fluorescent *in situ* Hybridization techniques.

Hans-Grisebach Award: Outstanding PhD dissertation in the field of biochemistry and molecular biology.

LANGUAGES

English and German (fluent)

Portuguese (native)

French (basic)

ACADEMIC EDUCATION

PHD IN NEUROSCIENCE   2009-2013

University of Freiburg, Germany

LICENTIATE IN BIOLOGY (EQUIVALENT TO MASTER'S DEGREE)   2003-2009

University of Porto, Portugal

SELECTED COURSES

Machine Learning with Python - Coursera

Databases and SQL for Data Science - Coursera

KEY PUBLICATIONS

Mearns et al. Current Biology, 2020 (Co-author) / Fernandes et al. bioRxiv, 2019 (Lead author) / Kunst et al. Neuron, 2019 (Co-author) / Förster et al. Scientific Reports, 2017 (Co-author) / Fernandes et al. PLoS ONE, 2013 (Lead author) / Fernandes et al. Current Biology, 2012 (Lead author)

PRESENTATIONS

Talks

Champalimaud Research Symposium (Lisbon, Portugal), FENS Satellite Symposium (Berlin, Germany), SPP1926 Annual Meeting (Naurod, Germany) and DFG-Forschergruppe 1279 Meeting (Chorin, Germany).

Conferences (with poster presentation)

SFB 870 Retreat (Munich, Germany), 11th FENS Meeting, Berlin, Germany, MAPS Conference (Strasbourg , France), 10th International Conference on Zebra sh (Bethesda, USA) and 1st Champalimaud Neuroscience Symposium (Lisbon, Portugal)

TEACHING

Zebrafish course, TUM PhD program 'Life Science and Technology' (2019), Molecular Neurobiology course (GSN-LMU University, 2017 and 2018) and Workshop Instructor (TUM University, 2015).

POSTDOC ASSOCIATION   2014 – PRESENT

Representative

The postdoctoral association represents all postdoctoral fellows of the Max Planck of Neurobiology. Organized scientific and social events.

INTERNATIONAL EXPERIENCE

Visiting researcher: National Institute of Genetics, Japan, May 2014. NIG Collaboration Grant-NIG-JOINT (2014-A).

Visiting Researcher: Unit on Behavioral Neurogenetics, NICHD, USA, Jan 2011 – Feb 201

HOBBIES AND VOLUNTEER EXPERIENCE

Football, martial arts, biking, cooking and reading.

Collaborator: Open Neuroscience. Network promoting open source tools for Neuroscience (www.open-neuroscience.com)