Luigi Petrucco

postodoc @ Iurilli lab

Center for Neuroscience and Cognitive Systems
Istituto Italiano di Tecnologia (Rovereto, Italy)

DETAILS

birth 22/11/1992, Italy
email luigi.petrucco@iit.it
github github.com/vigji
website vigji.github.io

EXPERIENCE

May 2022 – present
Postdoc at **Italian Institute of Technology** (Rovereto, Italy)
Supervisor: Dr. Giuliano Iurilli
Topics: high-density *in vivo* electrophysiology, rodents, hunting, neural decoding

Sept 2017 – Apr 2022
Ph.D. at **Max Planck Institute of Neurobiology** (München, Germany)
Supervisor: Dr. Ruben Portugues
Topics: lightsheet and electron microscopy, zebrafish, navigation, hindbrain

Oct 2014 – Sept 2016
Thesis at **Scuola Normale Superiore** (Pisa, Italy)
Supervisor: Prof. Gian M. Ratto
Topics: *in vivo* two-photon imaging/electrophysiology, rodents, epilepsy

Summer 2015
Internship at **Harvard University** (Cambridge, Massachusetts)
Supervisor: Dr. Takao K. Hensch
Topics: two-photon imaging, voltage imaging, rodents, cortex

Summer 2013
Internship at **Max Planck Institute for Chemical Ecology** (Jena, Germany)
Supervisor: Dr. Ewald Grosse-Wilde
Topics: FISH, confocal microscopy, insects, olfaction

EDUCATION

2016 – 2022
Ph.D. in Systemic Neuroscience at **Max Planck Institute of Neurobiology/LMU** (München, Germany)

2014 – 2016
M.S. in Neurobiology at **University of Pisa/Scuola Normale Superiore** (Pisa, Italy) - 110/110 *cum laude*

2011 – 2014
B.S. in Biology at **University of Pisa/Scuola Normale Superiore** (Pisa, Italy) - 110/110 *cum laude*

SOFTWARE

Stytra: a Python package for closed-loop behavioral experiments. (github.com/portugueslab/stytra)

BrainGlobe: a Python ecosystem for neuroanatomical data analysis. (brainglobe.info)

Online Python applications and data analysis: github.com/portugueslab/arrayqueues; github.com/portugueslab/lightparam; github.com/portugueslab/sashimi

TEACHING

Apr-Jun 2023
Lecturer for course: **Python for Neuroscience** (Graduate School in Neuroscience, University of Trento; github.com/vigji/python-cimec)

Mar-Jul 2021
Teaching Assistant at course **Large Scale Modelling and Large-Scale Data Analysis** (Prof. Ruben Portugues, TUM)

AWARDS & FUNDING

Dec 2022 **Postdoc Fellowship** (*European Molecular Biology Organization – EMBO; ~134.000 $*)

Sept 2021 **Kavli Seed Grant** for Stytra to NWB data conversion (*Kavli Foundation; 10.000 $*)

Jul 2015 **Armenise-Harvard Fellowship** (*Armenise-Harvard Foundation; 2000 $*)

Jun 2013 **RISE Scholarship** (*German Academic Exchange Service – DAAD; 2000 $*)

2011-2016 **Full Tuitions Scholarship** (*Scuola Normale Superiore; ~200.000 $*)

ADVANCED TRAINING

Jul 2017	Cajal Course - **Interacting with Neural Circuits** (Lisbon, Portugal)
Aug 2016	Cajal Course - **Computational Neuroscience** (Lisbon, Portugal)

EXPERTISE AND SKILLS

Neuroscience	*In vivo* physiology: high density Neuropixel recordings, two-photon/lightsheet imaging and optogenetic activation; experience with patterned light optogenetics
Software/ Programming Languages	**Python** (proficiency) **MATLAB** (repented)**;** fundamentals of **R** and **Julia**; Arduino applications with C; **LabView**. VCS/CI with **GitHub**/Travis/GitHub Actions. Bash scripting. LaTeX, Photoshop, Gimp, Illustrator, InDesign, Inkscape, Blender
Neural data	Large scale electrophysiology/optophysiology/behavioral data processing pipelines: spike detection and sorting, deconvolution, image registration and segmentation. Neural decoding algorithms, manifold discovery, spike rate models.
Hardware	Equipment for neural data acquisition and behavioral monitoring; Arduino RaspberryPi, soldering, simple circuits design, asynchronous data acquisition control; laser cutting, 3D printing.
Languages	Italian (native); English (proficient; C1-2); German (beginner; A2)

PUBLICATIONS

2023

AA Dehaqani, F Michelon, **L Petrucco**, P Patella, E Piasini, G Iurilli (2023) A mixed mechano-olfactory code for sniff-invariant odor representations.
bioRXiv 2023.04.04.535405; doi.org/10.1101/2023.04.04.535405

L Petrucco*, H Lavian*, YK Wu, F Svara, V Štih, R Portugues (2023) Neural dynamics and architecture of the heading direction circuit in a vertebrate brain. Nature Neuroscience 26, 765-773, doi.org/10.1038/s41593-023-01308-5

2022

O Prat*, **L Petrucco***, V Štih, R Portugues (2022) Comparing the representation of a simple visual stimulus across the cerebellar network.
bioRxiv 2022.09.12.507660; doi.org/10.1101/2022.09.12.507660

Y Xiao, **L Petrucco,** LJ Hoodless, R Portugues, T Czopka (2022) Oligodendrocyte Precursor Cells Sculpt the Visual System by Regulating Axonal Remodeling,
Nature Neuroscience 25, pages 280–284, doi.org/10.1038/s41593-022-01023-7

2021

F Claudi, AL Tyson, **L Petrucco**, TW Margrie, R Portugues, T Branco (2021) Visualizing anatomically registered data with brainrender.
eLife, 10, e65751: doi.org/10.7554/eLife.65751

DA Markov, **L Petrucco**, AM Kist, & R Portugues (2020) The cerebellum recalibrates a feedback controller involved in motor control.
Nature Communications 12 (6694) doi.org/10.1038/s41467-021-26988-0

2020

F Claudi*, **L Petrucco***, AL Tyson*, T Branco, TW Margrie, R Portugues (2020) BrainGlobe Atlas API: a common interface for neuroanatomical atlases.
Journal of Open Source Software 5 (54), 2668 doi.org/10.21105/joss.02668

2019

V Štih*, **L Petrucco***, AM Kist, & R Portugues (2019). Stytra: an open-source, integrated system for stimulation, tracking and closed-loop behavioral experiments.
PLoS computational biology, 15(4), e1006699. doi.org/10.1371/journal.pcbi.1006699

2018

S Landi, **L Petrucco**, F Sicca, & GM Ratto (2019). Transient cognitive impairment in epilepsy.
Frontiers in molecular neuroscience, 11, 458. doi.org/10.3389/fnmol.2018.00458

2017

L Petrucco*, E Pracucci*, M Brondi, GM Ratto, & S Landi (2017) Epileptiform activity in the mouse visual cortex interferes with cortical processing in connected areas.
Scientific reports, 7(1), 1-12. doi.org/10.1038/srep40054

*authors contributed equally