Felipe **Cybis Pereira**

BSc in Brazil - MSc in France - PhD candidate

(+33) 6 02 17 62 62 felipe.cybispereira@gmail.com felipecybis.github.io

Research Experience

Physics for Medicine Paris, Inserm, ESPCI Paris, PSL, CNRS — Paris, France

PhD candidate — September 2021- Present

Research Intern — February 2021- July 2021

- Adviser: Sophie Pezet, PI, and Mickaël Tanter, PI.
- Focus: Spatial navigation in rats using functional ultrasound imaging.
- Techniques: **Functional Ultrasound imaging - Spatial navigation - Rodent's brain imaging - Animal behavior and cognition - Python - 3D design conception (CAD) - Ultrafast Ultrasound**

Harvard University, Rogulja Lab at Harvard Medical School — Boston, USA

Research Intern — May 2019- August 2019

- Adviser: Alexandra Vaccaro, PhD, and Dragana Rogulja, PI.
- Focus: Insights in sleep deprivation in *Drosophila melanogaster*.
- Techniques: ***Drosophila melanogaster* rearing - Immunostaining - Confocal microscopy - Ethological analysis - Survival and Dietary assays - Drosophila Activity Monitoring (DAM) system**

ICONEUS, Real-time portable functional ultrasound small animal neuroimaging — Paris, France

R&D Intern — July 2018- December 2018

- Adviser: Bruno Osmanski, PhD, and Mickaël Tanter, PI.
- Focus: : Code optimization for transcranial multiplane wave ultrasound imaging.
- Techniques: **Plane wave and Multiplane wave ultrasound imaging - Power Doppler imaging - Brain connectivity - MATLAB - Small animal brain imaging**

Teaching experience

ESPCI Paris - PSL University — Paris, France

Teacher assistant in the Physiology practical work for the 2nd year students — 2022-2023 and 2023-2024

Professor: Thierry Gallopin, PhD.

- Neuroscience-focused practical work: **(1) human EEG (2) pose-estimation and animal tracking (3) human sleep**.

NeuroPSI - Paris-Saclay Institute of Neuroscience — Saclay, France

Teacher assistant in the Masters 2 for Computational Neurosciences and Neuroengineering — 2023 and 2024

Couse unit: Methods for measuring and actuating neuronal activity.

Professor: Isabelle Ferezou, PhD.

- Principles on Ultrafast Ultrasound, functional Ultrasound imaging and Ultrasound Localization Microscopy.

Education background

BioMedical Engineering Master — Paris, France

Master's Degree in Bioengineering and Neurosciences — September 2020- August 2021

- Scholarship student for the PSL Graduate Program in Life Sciences.

ESPCI Paris - PSL University — Paris, France

Master's Degree in Engineering focused in Biotechnology — September 2016- August 2019

- *Michelin Excellency* scholarship student in a double degree program with UFSC University in Brazil.

Universidade Federal de Santa Catarina (UFSC) — Florianópolis, Brazil

Bachelor's Degree in Chemical Engineering — March 2014- March 2020

Skills

Programming

- **Scientific Python**: Neuroimaging (Nipy suite, BrainGlobe), Machine learning (scikit-learn), Visualization (VTK, PyVista).
- **General Python Packaging**: Documentation and examples, unit testing, linting and formatting, pre-commit hooks.
- **Version control**: Intermediate to advanced usage of **Git**, **GitHub** and **GitHub Actions**.
- **Prototyping**: Intermediate knowledge in **Arduino** and **Raspberry Pi**.
- Intermediate knowledge on **Rust (and Rust bindings for Python)**, **Lua**, **core-utils** and **shell-scripting**, **JavaScript**.
- Intermediate knowledge on text editing softwares such as LaTeX and **Typst**.

Spoken languages: **English** (fluent), **French** (fluent), **Portuguese** (native), Spanish (beginner)

Hobbies

I like playing **Tennis** (I played a lot while kid/teen), programming and tweaking my own dotfiles.

Publications

- Nicolas Zucker, Samuel Le Meur-Diebolt, **Felipe Cybis Pereira**, Jerome Baranger, Isabella Hurvitz, Charlie Demené, Bruno Osmanski, Nathalie Ialy-Radio, Valérie Biran, Olivier Baud, Sophie Pezet, Thomas Deffieux, Mickaël Tanter. "PhysiofUS: A Tissue-Motion Based Method for Heart and Breathing Rate Assessment in Neurofunctional Ultrasound Imaging," September 24, 2024. https://doi.org/10.1101/2024.09.22.614324.

Posters in International Conferences

- **Felipe Cybis Pereira**, Nathalie Ialy-Radio, Soumee Bhattacharya, Bruno-Félix Osmanski, Sophie Pezet, Mickael Tanter. "Chronic functional ultrasound imaging on rats during free exploration show robust link between cerebral blood volume changes and animal speed in the hippocampal formation" at Society for Neuroscience (SfN) 2024.
- Jian HUANG, Flora Maguelone, Gisella Vetere, Sophie Pezet, Youenn Travert-Jouanneau, **Felipe Cybis Pereira**, Stéphane Mélik Parsadaniantz, Lisa Amar, Laurence Bourgeais-Rambur, Annabelle Reaux-le Goazigo. "Deciphering the precise c-Fos connectome of ocular pain in mice". Invest. Ophthalmol. Vis. Sci. 2024;65(7):2637. ARVO Annual Meeting 2024.
- **Felipe Cybis Pereira**, Nathalie Ialy-Radio, Soumee Bhattacharya, Bruno-Félix Osmanski, Sophie Pezet, Mickael Tanter. "Functional ultrasound tools for automatic atlas registration and chronic neuroimaging on naturally behaving and sleeping rats" Sleep Medicine, vol. 115, p. S409, Feb. 2024, https://doi.org/10.1016/j.sleep.2023.11.1098. 17th World Sleep Congress 2023.
- Laurence Bourgeais Rambur, Youenn Travert, **Felipe Cybis Pereira**, Jian Huang, Christophe Baudouin, Stéphane Mélik Parsadaniantz, Thomas Deffieux, Sophie Pezet, Annabelle Reaux Le Goazigo. "Ultrafast ultrasound imaging of the trigeminal ganglion and brain in mice". Invest. Ophthalmol. Vis. Sci. 2023;64(8):3361. ARVO Annual Meeting 2023.
- **Felipe Cybis Pereira**, Nathalie Ialy-Radio, Soumee Bhattacharya, Bruno-Félix Osmanski, Sophie Pezet, Mickael Tanter. "Chronic functional ultrasound imaging combined with behaviour tracking on freely moving rats" at Society for Neuroscience (SfN) 2022.
- **Felipe Cybis Pereira**, Nathalie Ialy-Radio, Soumee Bhattacharya, Bruno-Félix Osmanski, Sophie Pezet, Mickael Tanter. "Chronic functional ultrasound imaging combined with behaviour tracking on freely moving rats" at FENS Forum 2022.
- **Felipe Cybis Pereira**, Nathalie Ialy-Radio, Soumee Bhattacharya, Bruno-Félix Osmanski, Sophie Pezet, Mickael Tanter. "Chronic functional ultrasound imaging combined with behaviour tracking on freely moving rats" at fUSbrain 2022.