

## Education

- Oct. 2022 - **PhD at ENS-PSL**, *Learning dynamics in biologically plausible neural networks: theory and data-driven modeling. Under the supervision of Alex Cayco Gajic and Jonathan Kadmon. Recipient of a selective scholarship (CDSN).*  
Now
- 2021-2022 **M2 MVA (Mathematics, Vision and Learning)**, *Université Paris-Saclay.*
- 2020-2021 **M2 ICFP : Theoretical physics track and École normale supérieure de Paris diploma (DENS).**
- 2018-2019 **M1 ICFP and DENS**, *École normale supérieure de Paris.*
- 2017-2018 **Bachelor in physics and DENS**, *École normale supérieure de Paris*, admitted through competitive examination (rank 25/1137).
- 2014 - 2017 **Preparatory classes for the Grandes Ecoles, Physics and chemistry track**, *Lycée Aux Lazaristes, Lyon.*

## Research experience

- May - Sept. 2022 **Hebrew University of Jerusalem**, *Analyzing neural dynamics in the cortico-cerebellar pathway of non-human primate brain during learning. Supervision by Jonathan Kadmon and Yifat Prut.*
  - Data analysis on electrophysiological neural recordings.
  - implementation of dimensionality reduction techniques (Targeted dimensionality reduction) for analysis of neural trajectories through adaptation in the motor cortex.
- April 2021 - **ENS-PSL**, *Inference of learning rules in biologically plausible recurrent neural networks.*  
July 2021 *Supervised by Rémi Monasson.*
  - Data analysis on calcic recordings of zebra fish brain activity.
  - Modeling this brain activity and its learning process based on a RNN model.
- Dec. 2019 - **LaDHyX, École Polytechnique - Capital Fund Management**, *Studying and modeling emergence phenomena in price heterogeneities. Supervised by Michael Benzaquen and Alan Kirman.*  
May 2020
  - Data extraction and analysis
  - Comparison between usual statistical physics model to fit the data and conception of an agent based model having phases associated to the different behaviours observed.
- Aug. - Nov. 2019 **Canada France Hawaii Telescope**, *Development of a convolutional neural network for detecting parasite sources in the data harvested by the SITELLE spectrometer. Supervision by Simon Prunet and Laurie Rousseau-Nepton.*
  - Making of a training set through defect generation on clean images.
  - Conception and training of a deep neural network able to detect and label the different types of defects.
- Febr.-July 2019 **University of California San Diego**, *Synthesis of self-propelled swimmers and studying of emergence phenomena in their collective behaviour. Supervision by Jérémie Palacci.*
  - Participation in developing an experimental setup together with exploring unknown phenomena.
  - Developement of a synthesis protocol for self-propelled diffusio-phoretic swimmers able to resist high constraints.
- 2018-2019 **Lycée Michelet and Lycée Saint-Louis**, *Oral examiner (prépa PCSI and MP\*).*
- June 2018 **Institut Lumière Matière**, *Electro-cinetic flows in wetting films. Supervision by Anne-Laure Biance.*
  - Making of an experimental setup enabling the measure of electro-cinetic flows in a wetting film.

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## Publications

- March 2025 **Cerebellar output shapes cortical preparatory activity during motor adaptation**, Sharon Israely\*, Hugo Ninou\*, Ori Rajchert, Lee Elmaleh, Ran Harel, Firas Mawase, Jonathan Kadmon, Yifat Prut, \*These authors contributed equally, **Nature Communications**.

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## Conferences and presentations

- Jan. 2025 **Najafi Lab SYBECO journal club, Georgia Tech**, *Invited speaker on 'Cerebellar output shapes cortical preparatory activity during motor adaptation'*.
- March 2024 **COSYNE 2024**, *Poster 'Cerebellar output shapes cortical preparatory activity during motor adaptation'*.

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## Other

- Feb. 2025 **Artificial Intelligence Action Summit, Paris**, *Took part in the PSL student assembly as a participant.*