Leonardo Agueci

5 Allãle Allain Leprest
94200, Ivry-Sur-Seine France
☏ (+39) 327 9522976
✉ leoagueci@gmail.com; lagueci@ens.fr
⌂ https://www.linkedin.com/in/leonardo-agueci-939953ba

Education

Sep 2021 - Now **PhD student in Computational Neuroscience**, *GNT-DEC, ENS Paris, France*, *Supervisor: Prof. Alex Cayco Gajic.*
Probing cerebello-cortical motor learning via recurrent neural networks

(2017)2018 – 2019 **International Master Course in Physics of Complex Systems**, *MSc, Double degree, Graduation grade: 106/110*
Politecnico di Torino (Italy) and UPMC (Sorbonne Université), Paris.
The aim of this Master track is to train young physicists in the world of complex systems, from physical and biological systems to computer science, molecular dynamics, and networks. This purpose was accomplished through the use of information theory, statistical mechanics and applied mathematics knowledge. During the courses, introduction to different applicative subjects were also provided. The track is composed by three semesters in, respectively, Trieste, Turin and Paris, followed by a fourth semester for the thesis work.
(*Course website*)

2014–2018 **Physical Engineering**,
BSc, Graduation grade: 104/110
Politecnico di Torino, Italy.
This course provide a good level physical and mathematics knowledge, although giving space to different applications in engineering.

Experiences

Jan 2021 - Aug 2021 **High school/University private Tutoring**,
YouKnow education, Mazara del Vallo, ITALY.

Jan 2020 - Jan 2021 **Research Assistant Fellowship**,
Computer Science Department (DAUIN), Politecnico di Torino, Turin, ITALY,
Supervisor: *Prof. Andrea Calimera*.
I worked on Deep Learning Optimization on different Neural Network models, with emphasis on the definition of pruning algorithms for model optimal compression and Predictive Maintenance applications.

Mar – June 2019 **Internship**, *LPT-ENS Paris, FRANCE*.
Master thesis on Machine Learning applied on Neuroscience. (See this section)

Feb – March 2019	**Spring College on the Physics of Complex Systems**, *ICTP, Trieste, ITALY*. During the 4 weeks intensive courses I had the opportunity to attend courses in interdisciplinary and international framework. In particular, lessons concerned Econophysics, Self Organized Criticalities, Electrostatics of soft matter, Randomness in Biology and Statistical Mechanics of 2D critical Curves. See this page for more details.
Sept 2018 – Febr 2019	**Erasmus+**, *Paris, France*.
Sept 2017 – Febr 2018	**ICTP and SISSA, Trieste, ITALY**, *Visiting student*. The first semester of the MSc was run by professors from both the istitutions.
March 2017 – July 2017	**INRIM, Turin, ITALY**, *Internship*. I studied the Physics behind the Superconducting Quantum Interface Single Electron Transistor (SQuISET) and applied it in order to Simulate the behavior of the device. I had the chance to see the realization of this device and the experimental apparatus, managed by our research team. In particular, my work focused on the realization of a reliable model describing the device and its dynamics through numerical estimation of the related Master equation solutions on *Mathematica* environment.

Master Thesis

Title	**Study of experience-related effective plasticity**
Supervisors	*Rémi Monasson, Alessandro Pelizzola*
Description	We tried to understand how experience-related memory is stored in the medial Prefrontal Cortex of rats during sleep, through the use of Restricted Boltzmann Machine (RBM) network, able to infer and reproduce probability distribution of experimental data. This Machine learning approach can allows scientists to simplify the study of cerebral activity, through the analysis of connection weights among the trained RBM units.
Place	**LPT - Ecole Normale Supérieure de Paris, Paris, FRANCE**
Period	March – July 2019

Skills & Abilities

Programming Languages	Python, C, C++, Bash, Fortran, VHDL, GNUPLOT ,LaTeX
Software	Mathematica, MATLAB, Git
Certificates	**Deep Learning Specialization** (Coursera, held by Prof. Andrew Ng, Stanford Univ., US), ECDL

Languages

Italian	**Native Speaker**
English	-**IELTS 5.5 (20/05/2017)**
	-2 years MSc completely taught in english
	-International experiences (2017-2019)

Interests

Computational Neuroscience, Learning and Memory, Networks, Statistical Physics, Biophysics, Machine Learning, Complex and Social systems.