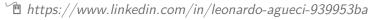
Leonardo Agueci

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Education

Sep 2021 - PhD student in Computational Neuroscience, GNT-DEC, ENS Paris, France,

Now Supervisor: Prof. Alex Cayco Gajic.

Probing cerebello-cortical motor learning via recurrent neural networks

(2017)2018 - International Master Course in Physics of Complex Systems,

2019 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 - High school/University private Tutoring,

Aug 2021 YouKnow education, Mazara del Vallo, ITALY.

Jan 2020 - Research Assistant Fellowship,

Jan 2021 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 Internship, LPT-ENS Paris, FRANCE.

2019 Master thesis on Machine Learning applied on Neuroscience. (See this section)

Feb – March Spring College on the Physics of Complex Systems, ICTP, Trieste, ITALY.

2019 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 - **Erasmus+**, *Paris, France*.

Febr 2019

Sept 2017 – ICTP and SISSA, Trieste, ITALY, Visiting student.

Febr 2018 The first semester of the MSc was run by professors from both the istitutions.

March 2017 - INRIM, Turin, ITALY, Internship.

July 2017 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 PYTHON, C, C++, BASH, FORTRAN, VHDL, GNUPLOT, LATEX Languages

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.