Alessandro Pasqui

Curriculum Vitae

17, Avenue Stephen Pichon
75013 Paris - France
✆ *+33 (0)629644877*
✉ *alessandro.pasqui@college-de-france.fr*

Personal information

First name	**Alessandro**
Last name	**Pasqui**
Date of birth	**29 November 1995**
Place of birth	**Rome (Italy)**
Nationality	**Italian**

Education

Sep 2021 – present — **MSCA PhD Candidate at PSL Université Paris**.
Collège de France (CIRB)
Subject: Artificial Intelligence for the Sciences (AI4theSciences) - (Bio)Physics
Thesis title: 3DMorphEmbryo - AI-assisted reconstruction of 3D human embryo morphology from 2D medical images to improve the prediction of its development potential
Supervisors: Dr. Hervé Turlier and Dr. Bogdan Stanciulescu
Abstract: The project will leverage deep (convolutional) neural networks to achieve three main aims: to develop an algorithm in order to reconstruct the 3D morphology of human embryo from 2D confocal images of bright/dark-field and modulation contrast type and to evaluate the potential of quantitative phase imaging techniques to improve such reconstruction; to design computational methods to fully automatize from time-lapse videos the detection and quantitative characterization of relevant morphokinetic events in human embryo development; to improve the medical assessment of embryo implantation potential by combining the statistical analysis of morphokinetic features with clinical pregnancy outcome, but also patient health and embryo incubation data.

Sep 2018 – Mar 2021 — **Master's Degree at Sapienza University of Rome**.
Department of Physics and
Center For Life Nano Science at Italian Institute of Technology (CLNS-IIT)
Subject: Theoretical Physics (Statistical Mechanics and Computational Physics)
Thesis title: High performance matching algorithm based on orthogonal polynomials
Supervisors: Prof. Giancarlo Ruocco and Ph.D. Giorgio Gosti
Abstract: The aim was to develop a computational algorithm able to detect portions of objects with complementary shapes: this algorithm may be used to match the pieces of a puzzle and to combine them to rebuild the puzzle. In order to do that I used local shape descriptors. This thesis was my contribution to a larger project developed at the CLNS-IIT to study the interactions between spike proteins and the corresponding receptors involved in the viruses infection mechanisms (Milanetti et al. 2020).
Date: 24 Mar 2021
Grade: 110/110 (with honors)

Sep 2014 – Jan 2018 — **Bachelor's Degree at Sapienza University of Rome**.
Department of Physics
Subject: Physics
Thesis title: Percolation in models with long-range interactions
Supervisor: Prof. Federico Ricci-Tersenghi
Abstract: The aim was to study with theory and numerical simulations the critical point and some critical exponents for particular models of percolation with long-range interactions.
Date: 10 Jan 2018

Programming skills

Python	excellent
C	excellent
C++	excellent
Shell Scripting	excellent
LaTex	excellent

Languages

Italian	mother tongue
English	fluent
French	advanced
Spanish	advanced

Research experiences

Apr 2021 – Aug 2021 **Research Engineer at Collège de France (CIRB)**.
Supervisors: Dr. Hervé Turlier and Dr. Bogdan Stanciulescu
3DMorphEmbryo: AI-assisted reconstruction of 3D human embryo morphology from 2D medical images to improve the prediction of its development potential.

Jun 2020 – Mar 2021 **Center for Life Nano Science at Italian Institute of Technology and Sapienza University of Rome**.
Supervisors: Prof. Giancarlo Ruocco and Ph.D. Giorgio Gosti
High performance matching algorithm based on orthogonal polynomials.

Mar 2019 – Jul 2019 **Center for Life Nano Science at Italian Institute of Technology and Sapienza University of Rome**.
Supervisors: Prof. Giancarlo Ruocco and Ph.D. Giorgio Gosti
Pairwise correlation function for neural cells during neural rosettes development through automatic segmentation algorithms based on deep learning using a convolutional neural network.

Sep 2017 – Jan 2018 **Sapienza University of Rome**.
Supervisor: Prof. Federico Ricci-Tersenghi
Percolation in models with long-range interactions.

Honors and Awards

Aug 2021 **Marie Skłodowska-Curie Actions (MSCA) - COFUND AI4theSciences Doctoral Program 2021 at PSL Université Paris**.
Paris (France)
I have been shortlisted for the interviews. I have passed all the steps of the selection process and I have been selected for the Cofund program.

Courses and other experiences

Jan 2022 **AI4Health Winter School**.
Paris
The conference comprised 3 days of plenary lectures and 2 days of hands-on practical sessions on the latest advances in the field of data science applied to health.

Nov 2021	**SMI2021 Shape Modeling International Conference**. **Paris** The conference comprised 3 days of lectures on new mathematical theories and computational techniques for modeling, simulating and processing digital representations of shapes and their properties.
Nov 2021	**Multiscale Integration in Biological Systems Course at Institut Curie**. **Paris** The course comprised 1 week of lectures on modern physical tools that have been developed to address the issue of scale integration and on how these tools can be applied to specific biological systems.
Jul 2021	**INRIA/PRAIRIE/MIAI Artificial Intelligence Summer School**. **Paris** The summer school comprised 17 hours of lectures conducted by renowned experts in different areas of artificial intelligence including computer vision, natural language processing, health-care, machine learning and environment.
Apr 2021	**LabEx PRIMES Deep Learning for Medical Imaging Spring School**. **Paris** The spring school comprised 1 week of lectures on the fundamental principles of machine learning, the most advanced deep architectures and the most challenging subareas of this domain, with a special emphasis on the specificities of deep medical image analysis.
Jan 2016 – Dec 2016	**Librarian at Department of Physics of Sapienza University of Rome**. **Rome** I was selected for a merit-based student internship for activity support at the Library of the Department of Physics. The main duties were to assist library patrons in furnishing information, check books in and out of the library, classify and catalog books, publications and other library materials based on standard library classification systems.
Sep 2013 – Apr 2021	**High School Private Tutor**. **Monterotondo (Rome)** I have tutored many high school students in maths and physics. I also have experiences with students with learning disabilities.
Sep 2009 – Apr 2021	**1st Trombone at Associazione Musicale Eretina**. **Monterotondo (Rome)** I was the principal trombone in the orchestra of the school.

Other skills

S.I.F. Member.
I am a member of the Italian Physical Society.

Driving Licence.
I have a B driving lincence.

Paris, 24 June 2022