Martino Andrea SCARPOLINI

PERSONAL DATA

PLACE AND DATE OF BIRTH:	Roma | 18 May 1997
ADDRESS:	Massa, Italia
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EDUCATION

CURRENT
Early Stage Researcher/Industrial PhD Position in biomechanics: Clinical image processing and Big Data analysis, within the framework of the project MeDiTATe (The **medical digital twin** for aneurysm prevention and treatment) funded by the European Union's Horizon 2020.
Institutions: Università degli Studi di Roma "Tor Vergata", BioCardioLab Fondazione Toscana Gabriele Monasterio and TechneValue GmbH.
Major: **development of Deep Learning tools** that health care providers can use to gain more insight from their clinical data. Image processing, Mechanical/CFD based Reduced Order Models and Shape Analysis.
Supervisors:
Mauro Odino from Technevalue GmbH,
Simona Celi, PhD from BioCardioLab, Fondazione Toscana G. Monasterio.

SEPTEMBER 2020
Master's Degree in Theoretical Physics, Statistical Mechanics. 110/110, with honors.
Institution: Università degli Studi di Roma "Tor Vergata", Roma
Major: Computational Physics, Statistical Mechanics and Fluid Dynamics.
Thesis: **"Deep Learning and Generative Adversarial Network application on Lagrangian properties of Turbulence"**.
Advisors: Prof. Luca Biferale, Dr. Michele Buzzicotti. | Detailed List of Exams

OCTOBER 2018
Bachelor's Degree in Physics, 110/110, with honors.

Instituion: Università degli Studi di Roma "Tor Vergata", Roma
Thesis: "Particles Dispersion in Rotating Turbolent Fluid" (see after).
Advisor: Prof. Luca Biferale.

JULY 2015
Liceo Scientifico "Leonardo Murialdo", Albano Laziale.
Final Grade: 98/100.

Scholarships and Certificates

June 2021	**PRACE training course "High-performance computing with Python"** held as an online event (four days) at Jülich Supercomputing Centre (JSC) at Forschungszentrum Jülich.
April 2021	Course on "**Programming paradigm for GPU devices** held by CINECA (three days).
March 2021	Course on "Introduction to **Parallel Computing with MPI and OpenMP**" held by CINECA (three days).
March 2020	**Stage** with Prof. Luca Biferale and Dr. Michele Buzzicotti focused on "**Development of Deep Neural Networks (DNN) for Lorenz Dynamical system Parameters Recognition**". *Major*: Development of a DNN able to recognize parameters of a dynamical system from a single solution.
September 2019	Course on "Introduction to **Scientific and Technical Computing in C**", at CINECA offices, Roma.
February 2019	Course on "Introduction to **Machine Learning**", at Università degli Studi di Roma "Tor Vergata", Roma. *Major*: Clustering and Neural Networks. *Languages*: Python and R.
August 2018	**Bachelor's Thesis Work** at Tor Vergata Physics Department, Roma (three months). *Advisor*: Prof. Luca Biferale. *Major*: **Big data analysis from High Performance Direct Numerical Simulation of Navier-Stokes equations for geophysical application to turbulent flows under rotation**. Languages used : Python (analysis) and C (simulations).
March 2015	11th International Masterclasses hands on Particle Physics at INFN - Laboratori Nazionali di Frascati.

Languages

English: Intermediate level in general, Advanced level in technical issues
Italian: Mothertongue

Computer Skills

Intermediate Knowledge: **TensorFlow**, Linux systems, **C**, **bash**, zsh, openMP
Advanced Knowledge: **Python**, **Fortran**, **Pytorch**, Paraview

Interests and Activities

Generic: Numerical simulations, Data Analysis, Machine Learning, Deep Learning, Programming, Physics, Computational Geometry, Technology, Climbing.
AI: Deep Learning, Reinforcment Learning, Generative Adversarial Networks, graph deep learning.
Physics: Fluid Dynamics, Turbulence, CFD, Statistical Mechanics, Molecular Dynamics, Chaos Theory...

Master's Degree in Physics

Exam	Mark
Mathematical Methods for Physics II	26
Statistical Mechanics II	30 with Honors
Computational Physics	30 with Honors
Complex Systems and Neural Networks	30
Stage focused on "Deep Learning application on dynamical Systems" with advisor Prof. Luca Biferale	30 with Honors
Dynamic System Physics	30 with Honors
Multi-body Systems Theory	30 with Honors
Physics of Complex and Turbolent Fluids	27
Quantum Mechanics II	28
Theoretical Physics	30
Condensed Matter II	28
Physics of the Liquid and of the Disorderly Systems	30
English Language (advanced course)	PASS