Michele Guerreri, PhD

PERSONAL INFORMATION

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PROFILE

Originally trained as a physicist, during my PhD, and more recently with my experience at UCL, I focused my attention on medical imaging. In my work I lever mathematical and computational models as a tool to investigate new biomedical imaging techniques mainly for the brain. Thanks to my recent appointment with AINOSTICS I started exploring the potential of artificial intelligence for medical imaging. I have a strong mathematical background, analytical reasoning, and good programming skills.

PROFESSIONAL EXPERIENCE

Imaging & AI Scientist (AUGUST 2021 – PRESENT)

- **Where:** AINOSTICS (https://www.ainostics.com), Manchester, UK.
- **About:** My successful application for UK Innovation Scholar secondments scheme (https://www.ainostics.com/post/ainostics-welcomes-dr-michele-guerreri) for biomedical sciences, is giving me the opportunity to experience the commercial sector for the first time. AINOSTICS is an award-winning imaging artificial intelligence (AI) start-up which specialises in combining cutting-edge MRI and other biomarker data with state-of-the-art AI to detect early changes in AD and other neurodegenerative diseases. This experience is allowing me to learn the translation process from a research idea into a commercial product.

Research fellow (JANUARY 2019 – PRESENT)

- **Where:** Centre for Medical Image Computing (CMIC),University College London (UCL), London, UK.
- **Principal Investigator:** Professor Gary Hui Zhang.
- **About:** My current key achievements are the development of revised-NODDI, which advances a popular MRI technique in the neuroimaging field, developed at CMIC, called NODDI, and the development of a robust pipeline for the longitudinal analysis of MRI images. Longitudinal analysis is an evaluation of sequential observations of each study participant acquired over time, which underpins the assessment of therapeutic effects. My implementation is optimised specifically for the advanced MRI technique used for NODDI.

Medical imaging scientist (JUNE 2022 – DECEMBER 2022)

- **Where**: GSTeP, Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Rome, Italy.
- **About**: the goal was of supporting medical decision making by developing predictive and prognostic models from medical imaging in the field of oncology.

EDUCATION AND TRAINING

PhD in biophysics with focus on Magnetic Resonance Imaging (NOVEMBER 2015 - FEBRUARY 2019)

- **Where:** "Sapienza, university of Rome", SAIMLAL Department, Rome, Italy.
- **Supervisor:** Dr. Silvia Capuani.

- **About:** The PhD thesis title was: "*Diffusion MRI of complex tissue structures to investigate changes due to development and aging*". In my project I exploited innovative MRI techniques to characterize the microscopic arrangement of human tissues *in vivo*. The thesis focused on the evolution of two organs: the aging of the brain which was investigated in a collaboration with "Fondazione Santa Lucia"; the normal development and pathogenesis of human placenta in collaboration with the hospital structure "Policlinico Umberto I" of Rome.
- **Marks:** Summa cum laude.

Internship at Centre for Medical Image Computing (CMIC) (MARCH 2017 - OCTOBER 2017)

- **Where:** University College of London (UCL), London, UK.
- **Co-supervisor**: Professor Hui Zhang

Master's degree in physics (NOVEMBER2012 – MAY 2015)

- **Where:** "Sapienza, university of Rome", Physics Department, Rome, Italy.
- **About:** Specialized in the biophysics field.
- **Title of the thesis:** "*Investigation of microstructural changes in brain related to normal aging by using new anomalous diffusion NMR methods*". It focused on new diffusion MRI contrast techniques applied on human brains.
- **Marks:** 110/110.

Erasmus program (JANUARY 2013 – SEPTEMBER 2013)

- **Where:** "Université Paris Diderot - Paris VII", Paris, France.
- **About:** Three exams were taken, plus a s two-month internship, using confocal microscopy techniques, with Professor Sylvie Hénon at *Laboratoire des Matière et Systèmes Complexes*.

Bachelor's degree in physics (OCTOBER 2009 – NOVEMBER 2012)

- **Where:** Università degli Studi di Roma "La Sapienza", Rome, Italy.
- **About:** The mathematical basis and reasoning methods necessary to solve problems in the different fields of physics were acquired.
- **Marks:** 106/110

High school graduation (OCTOBER 2003 – NOVEMBER 2008)

- **Where:** Liceo Scientifico Statale "Augusto Righi", Rome, Italy.
- **Marks:** 80/100.

LANGUAGES

Mother tongue: Italian.

Other languages: Fluent in English (written and spoken).
Can speak French.

PROGRAMMING SKILLS

Languages: use Matlab, BASH, Python and Git on a daily base. Basics of R and C.

AI-related libraries: worked with Python's TensorFlow and Matlab Deep Learning Toolbox.

Imaging & neuro-imaging software: ImageJ, FSL, NODDI-toolbox, DTI-TK, md-dmri, MRtrix3, FreeSurfer, lifeX, 3D-slicer.

LIST OF SCIENTIFIC PUBLICATIONS / COMMUNICATIONS

Google scholar page.