

Marta Gherardini

Pisa (Pi), Italy

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About me: postgraduate student, currently PhD student in Biorobotics working on the control of Artificial Hands, with good skills in interpersonal communications and team work, highly motivated in pursuing a research career in the biomedical field.

Education

PhD in Biorobotics, AHA (Artificial Hands Area) **Pontedera (Pi), Italy**
The Biorobotics Institute, Sant'Anna School of Advanced Studies *Oct 2018 - Now*

M. Sc. in Bionics Engineering **Final Score: 110/110 cum laude**
University of Pisa and Sant'Anna School of Advanced Studies *Oct 2015 - June 2018*

Master Thesis Project **London, UK**
University College of London, Surgical Robot Vision group *Nov 2017 - May 2016*

Bachelor in Biomedical Engineering **Final Score: 110/110 cum laude**
University of Pisa *Sept 2012 - Oct 2015*

Scientific High School, double foreign language curriculum **Final Score: 98/100**
Il Pontormo, Empoli (Fi) *Sept 2006 - June 2012*

Research Experience and Publications

University College of London **London, UK**
Master Student *Apr 2018*

- Project: training and use of a C-arm robot to acquire X-Ray images on a long aortic phantom during catheter insertion.
- Supervisors: Prof. Arianna Menciassi, Prof. Danail Stoyanov.
- Topics: medical robots, X-Ray imaging, image acquisition.

University College of London **London, UK**
Master Student *Nov 2017 – May 2018*

- Master Thesis Project: enhancing catheter segmentation in 2D X-Ray fluoroscopy using CNNs trained on synthetic data by Deep Learning Technique.
- Supervisors: Prof. Arianna Menciassi, Prof. Danail Stoyanov.
- Topics: Python programming language, Keras and Tensorflow libraries, Computer Vision, medical image processing, Convolutional Neural Network, Transfer Learning, semantic image segmentation.

The Biorobotics Institute, Sant'Anna School of Advanced Studies **Pontedera (Pi), Italy**
Master Student *July 2017*

- Project: three state amplitude control (current) of one DoF hand.
- Supervisor: Prof. Christian Cipriani.
- Topics: hand prostheses control, C programming language, PIC microcontroller, MPLAB X IDE, EMG sensor.

The Biorobotics Institute, Sant'Anna School of Advanced Studies**Pontedera (Pi), Italy***Master Student**Feb 2017*

- Project: development and implementation of a vestibulo-ocular-reflex (VOR) model based on spiking neural networks using NEST interface, applied to iCub robot simulator.
- Supervisor: Prof. Cecilia Laschi.
- Topics: neurorobotics, Python programming language, NEST interface, neural networks, iCub robot simulator.

The Biorobotics Institute, Sant'Anna School of Advanced Studies**Pontedera (Pi), Italy***Master Student**Feb - May 2017*

- Lab Training Project: development of a fat tissue mimicking phantom for lesion assessment in USgHIFU.
- Supervisor: Prof. Arianna Menciassi.
- Topics: LabView Interface, material acoustic characterization, Computer Assisted Robotic Platform for HIFU surgery (i.e., the FUTURA platform, www.futuraproject.eu), material selection and phantom realization.
- **International Conferences**
the abstract of the work was accepted by:
 - EUFUS Symposium in Leipzig, Germany, October 26-27, 2017 (abstract presentation and poster session);
 - SMIT Conference in Turin, Italy, November 9-10, 2017 (unable to attend).

The Biorobotics Institute, Sant'Anna School of Advanced Studies**Pontedera (Pi), Italy***Master Student**Jan 2016*

- Project: acquisition of audio signals with LabVIEW interface and conversion in neuromorphic spike trains.
- Supervisors: Prof. Calogero Maria Oddo.
- Topics: LabVIEW interface for data acquisition, data conversion in spike trains, Izhikevich neuron model, neuromorphic data.

Courses and Conferences Attended

Summer School on Control of Surgical Robots (COSUR)*July 2018*

- Topics: Control and Sensing in robotic surgery, Teleoperation and Haptics, Image-guided robotic surgery and interventions, Human-Robot Interaction and Cooperation, Partially autonomous tasks in robotic surgery.
- Location: University of Verona, Italy.

European Focused Ultrasound Charitable Society-EUFUS*Oct 2017*

- Topics: focused ultrasound for treatment.
- Location: Leipzig, Germany.

Which technology for which rehabilitation*Dec 2016*

- Topics: rehabilitation technology.
- Location: pediatric hospital "Bambin Gesù", Rome, Italy.

Biomedical technologies in rehabilitation*Dec 2016*

- Topics: robotics for neuro-rehabilitation, neuro-cognitive imaging, tele-monitoring and tele-rehabilitation systems.
- Location: rehabilitation center "Auxilium Vitae", Volterra (Pi), Italy.

XXIII Congress of the Italian psychophysiology society*Nov 2015*

- Organized by: Prof Emiliano Ricciardi.
- Topics: cognitive neuroscience.
- Location: Lucca, Italy.

“Pink Cloud Project”

May 2015

- Organized by: Microsoft.
- Enrollment: students selection based on exams grades.
- Topics: the value of technical and scientific training and the opportunities offered by the digital world in three days of courses, seminars, workshops, events, networking moments and meetings with companies.
- Location: Università Commerciale Luigi Bocconi, Università degli Studi di Milano, Università degli Studi Milano-Bicocca and the Politecnico di Milano.

Computer and Programming Skills

- Windows OS.
- Linux OS.
- Microsoft Office.
- c/c++ programming language.
- Matlab.
- LabVIEW, LabVIEW Real Time, LabVIEW FPGA.
- Python programming language.
- Anaconda environment.
- Keras and Tensorflow libraries for Deep Learning.
- Visual Studio and OpenCV.
- Weka.
- COMSOL Multiphysics Modeling Software.
- Ansys.
- IAR.
- MPLAB X.
- PicoScope.
- GraphPad.

Languages

- Italian: Native language;
- English: Fluent (speaking, listening, writing, reading);
- French: Intermediate (speaking, reading, writing, listening).
- Latin: Basic (reading).

Certificates and Summer Schools.....

First Certificate in English (FCE, Cambridge English)

May 2012

- Level B2.
- Passed with Grade B.

Diplôme D'Études En Langue Française (DELF)

May 2011

- Level B1.
- Passed with score 91/100.

Certificate of Attendance, English Language Studies

July 2006

- Description: two weeks of English Language Summer School.
- Dublin, Ireland.
- Level: Upper Intermediate.

Certificate of Attendance, English Language Studies

July 2005

- Description: two weeks of English Language Summer School.
- Goldsmith College, University of London.
- Level: Upper Intermediate.

Volunteering Activities

Oct 2015

First aid course and volunteer service Italian Red Cross.

Interests

- Bioengineering and Biorobotics.
- Artificial Hands.
- Biomedical signal analysis.
- Sensing.
- Medical Imaging and Image Processing.
- Neural Engineering and Human Machine Interfaces.
- Neuroscience and Artificial Intelligence.
- Machine Learning and Deep Learning.
- Computer Vision.
- Surgical Robotics.