



Laura Toni

WORK EXPERIENCE

01/10/2023 – CURRENT Milano, Italy

PH.D. STUDENT IN BIOROBOTICS SCUOLA SUPERIORE SANT'ANNA AND UNIVERSITÀ VITA-SALUTE SAN RAFFAELE

- Modular Implantable Neuroprostheses (MINE) Lab, Scuola Superiore Sant'Anna and Università Vita-Salute San Raffaele.
- Advance electrical stimulation methodologies through model-based optimization, specifically targeting patients with epidural implants.
- Experience with the acquisition of EMG, IMU, EEG data from healthy subjects and patients (SCI).

15/11/2022 – 01/06/2023 Genève, Switzerland

RESEARCH INTERN TRANSLATIONAL NEURAL ENGINEERING (TNE) LAB, EPFL

- Project title: Characterization and decoding of EEG signals for closed-loop sensory neuroprosthetics
- Supervisor: Silvestro Micera
- Developed new visual stimulation protocol to characterize the EEG response of healthy subjects.
- Acquired and analysed EEG data of 12 healthy subjects.
- Implemented single-trial decoding using standard machine learning methods.

15/10/2020 – 16/12/2020

RESEARCH INTERN SCUOLA SUPERIORE SANT'ANNA

- Supervisor: Prof. Michele Emdin
- Project title: Phase-contrast angiography for flux measurement in magnetic resonance

EDUCATION AND TRAINING

2020 – 2023 Pisa, Italy

MSC IN PHYSICS Università di Pisa

Field of study Physics of Complex Systems, Computational Neuroscience, Machine learning, Dynamical Systems. |

Final grade 110/110 cum laude | **Thesis** Characterization and decoding of EEG signals for closed-loop sensory neuroprosthetics

15/11/2022 – 01/06/2023 Genève, Switzerland

RESEARCH INTERN EPFL (École Polytechnique Fédérale de Lausanne)

Awarded with the mobility grant allocated by the University of Pisa for students to develop their thesis abroad.

Thesis Characterization and decoding of EEG signals for closed-loop sensory neuroprosthetics

2017 – 2020 Pisa, Italy

BSC IN PHYSICS Università di Pisa

- Thesis supervisor: Prof. Michele Emdin, Scuola Superiore Sant'Anna

Final grade 105/110 | **Thesis** Phase-contrast angiography for flux measurement in magnetic resonance

2012 – 2017 Castelnuovo di Garfagnana, Italy

SCIENTIFIC HIGH SCHOOL DIPLOMA Liceo Scientifico Galileo Galilei

Final grade 100/100

PUBLICATIONS

2024

A geometrical model to develop wide field-of-view optic nerve neuroprostheses

- Submitted to iScience

S. Romeni, D. De Luca, L. Pierantoni, L. Toni, G. Marino, S. Moccia, S. Micera

2024

Decoding electroencephalographic responses to visual stimuli compatible with electrical stimulation

- Submitted to APL Bioengineering

S. Romeni*, L. Toni*, F. Artoni, S. Micera

2024

Characterization of machine learning-based surrogate models of neural activation under electrical stimulation

- Submitted to Bioelectromagnetics

L. Toni, C. Verardo, L. Pierantoni, S. Romeni, S. Micera

CONFERENCES AND SEMINARS

15/04/2024 – 19/04/2024 Dubrovnik, Croatia

Neural Control of Movement (NCM)

- Abstract title: Optimization of Peripheral Electrical Stimulation to Improve Muscle Contraction Patterns
- Authors: Laura Toni, Simone Romeni, Claudio Verardo, Luca Pierantoni, Silvestro Micera

DIGITAL SKILLS

Python | MATLAB | NEURON | COMSOL | Microsoft Powerpoint | Microsoft Word | Labview (basic level)

LANGUAGE SKILLS

Mother tongue(s): ITALIAN

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C1	C1	C1	C1	C1
FRENCH	A2	A2	A2	A2	A2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

VOLUNTEERING

2019 – 2022 Pisa

Scout Leader

Led a group of thirty boys and girls, from ages eight to twelve, in various activities that teach social skills and the importance of community.

2019 – 2022 Pisa

Private tutor of Physics and Maths

Taught Physics and Maths to five high school students.

COMMUNICATION AND INTERPERSONAL SKILLS

Problem solving

Natural and strong inclination to problem solving, enhanced during my academic and volunteering experiences.

Motivator and Teamworker

Broad experience with diverse teams, from scientific research groups to charity environments. Tendency to work hard for the common goal and experience as team leader.

Creativity

