Nicole Alati

Curriculum Vitae

PhD Student in Automatic Control and Operational Research

Department of Electrical, Electronic and Information Engineering – DEI

Personal Information

First Name	Nicole
Last Name	Alati
Place and Date of birth	Faenza (Italy), August 19, 1998
Nationality	Italian
Position	PhD Student
Affiliation	Department of Electrical, Electronic and Information Engineering – DEI
E-mail	nicole.alati@unibo.it

Education

Nov 2024 – Ongoing

PhD Student in Biomedical, Electrical and System Engineering (IBES) - Curriculum: Automatic Control and Operational Research
University of Bologna, Bologna, Italy
Responsibilities: Development of human-robot interfaces for the control of robotic hands using biological signals, in particular electroencephalography (EEG) and electromyography (EMG), integration of sensory feedback into the control loop, and enhancement of the user's embodiment and sense of agency.

June 2024 – Oct 2024

Postgraduate scholarship
University of Bologna, Bologna, Italy

2020 – 2024

Master's Degree in Biomedical Engineering – Curriculum: Bioengineering for Human Movement
University of Bologna, Cesena, Italy
Finale grade: 110/110 with honors
Score weighted average: 28.60/30
Thesis: *Characterization of somatosensory EEG correlates for enhancement of tactile encoding*.
Supervisor: Prof. Lorenzo Chiari
Co-supervisors: Prof. Silvestro Micera, Dr. Pierpaolo Palumbo, Dr. Valeria De Seta, Dr. Franklin Leong

2017 – 2020

Bachelor's Degree in Biomedical Engineering
University of Bologna, Cesena, Italy
Final grade: 110/110 with honors
Score weighted average: 28.63/30
Thesis: *The Phantom Limb Phenomenon following amputation: A review of proposed mechanisms and potential treatments*.
Supervisor: Prof. Cristiano Cuppini

2012 – 2017

High School Diploma in Scientific Studies
Liceo scientifico Torricelli Ballardini, Faenza, Italy

Additional Courses

May 2025 **Identification of errors-in-variables models**
Organizer: University of Bologna
Professor: Prof. Roberto Diversi
Mode: In-person (Bologna, Italy)
N. hours: 6

Feb 2025 – Mar 2025 **Graph and network optimization**
Organizer: University of Bologna
Professors: Prof. Alessandro Hill, Prof. Daniele Vigo
Mode: In-person (Bologna, Italy)
N. hours: 12

Feb 2025 **Extremum seeking**
Organizer: University of Bologna
Professors: Prof. Nicola Mimmo
Mode: In-person (Bologna, Italy)
N. hours: 8

Jan 2025 – Feb 2025 **The Craft of Scientific Research**
Organizer: University of Bologna
Professor: Prof. Marco Viceconti
Mode: Online
N. hours: 36

Research Experience

Sept 2023 – Feb 2024 **Master Thesis Student**
Translational Neural Engineering Lab (TNE), EPFL, Geneva, Switzerland

Participation in Research Projects

June 2024 - Ongoing Investigator for **project IntelliMan (AI-Powered Manipulation System for Advanced Robotic Service, Manufacturing, and Prosthetics)**
Coordinator: Prof. Gianluca Palli
Fundings: European Commission under the Horizon Europe program

Publications

1. **Alati, N.**, Bargellini, D., Pasquali, A., Abbass, Y., Valle, M., Palli, G., & Meattini, R. (2025, June). *Leveraging Time-Frequency Features for Contact Classification and Regression with a Piezoelectric Tactile Skin for Robotic Fingertips*. In 2025 55th Annual IEEE/IFIP International Conference on Dependable Systems and Networks Workshops (DSN-W) (pp. 71-78). IEEE.

Schools and Conferences Attended

Doctoral Schools

July 7 – 12, 2025 **SIDRA PhD Summer School**
Bertinoro, Italy
Topics: (1) *An Introduction to Stochastic Control and Reinforcement Learning*, (2) *Control methods for distributed optimization*.

June 17 – 21, 2025 **SAHRI PhD Summer School**
Anacapri, Capri Island, Italy
Topic: *Supervised Autonomy: How to shape Human–Robot Interaction*

Conferences and Workshops

June 26, 2025 Oral presentation at the **1st International Workshop on Safe and Sustainable AI-Aided Manufacturing (S2AIM)** located at the **55th Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DNS 2025)**
Naples, Italy
Title of the work: *Leveraging Time-Frequency Features for Contact Classification and Regression with a Piezoelectric Tactile Skin for Robotic Fingertips*

June 15 – 16, 2025 Oral presentation at **18th International Workshop on Human-Friendly Robotics 2025**
Anacapri, Capri Island, Italy
Title of the work: *Exploring Feature Extraction and Machine Learning with a Piezoelectric Tactile Skin for Robotic Fingertips*

Academic and Didactic Experiences

Teaching and Tutoring Activities

Mar 2025 – Sept 2025 Teaching tutor for the course **Laboratory of Computer Science and Automation P-IM (module 1)**
Professor: Dr. Davide Chiaravalli
Bachelor's Degree in Mechatronics, University of Bologna, Imola, Italy

A.A. 2024 – 2025 Didactic tutor for **Information, Welcome and Orientation Activities**
Bachelor's Degree in Automation Engineering, University of Bologna, Bologna, Italy

Co-supervision

Sept 2024 **Bachelor thesis in Biomedical Engineering**
University of Bologna, Cesena, Italy
Thesis: *A Wearable Multichannel EEG/EMG Sensor System for Corticomuscular Coupling Analysis*.

Other experiences

Jan 2025 – Mar 2025 Expert teacher in Intervention Line: **Development of educational, training, and orientation programs for STEM students**
Istituito Comprensivo Statale A. Baccarini, Russi, Italy
Title: STEM together
Project: *From coding to video game programming*
Target group: 1st year students at Lower Secondary School
N. hours: 24
Fundings: Piano Nazionale di Ripresa e Resilienza (PNRR) Missione 4 – Istruzione e Ricerca – Componente 1 – Potenziamento dell'offerta dei servizi di istruzione: dagli asili nido alle Università – Investimento 3.1: Nuove competenze e nuovi linguaggi-Azioni di potenziamento delle discipline STEM e multilinguistiche (D.M. 65/2023), finanziato dall'Unione Europea – Next Generation EU.
Collaboration: Unitec Group, Lugo, Italy

Personal Skills

Computer Skills

Advanced	Python | Matlab
Confident	C Sharp Language | Unity
Basic	Robot operating system (ROS) | PLC IEC 61131-3 (TwinCAT, Beckhoff) | Qt Designer

Job-related and Technical Skills

Management, planning and setup preparation of experiments involving electrophysiological data acquisition.

Non-invasive EEG data acquisition, pre-processing, and analysis
ANTNeuro (Eego mylab): EEG software, amplifier, and caps.
Emotiv Epoc X: headset and software.
Use of MNE library (Python) and EEGLAB (Matlab).

Signal processing from piezoelectric and inertial sensors.

Languages

Italian	Mother tongue
English	B2 (upper-intermediate level)
Certificates	TOEIC – Test of English for International Communication (2020)

I declare that the information in this Curriculum Vitae is accurate and true. I authorize the processing of my personal data in the cv in accordance with Article 13 of Legislative Decree No. 196 of June 30, 2003 "Code on the Protection of Personal Data" and Article 13 of the GDPR (EU Regulation 2016/679).

Bologna, 27/08/2025

Digitally signed
by: Nicole Alati
on: 27 agosto 2025