Luca Maurelli

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CURRENT POSITION

Ph.D. Student at the Department of Engineering and Applied Sciences
University of Bergamo — Oct 2019 – Present

PREVIOUS POSITION

Research Assistant at the Department of Management, Information and Production Engineering
University of Bergamo — May 2018 – Sep 2019

- Project SMART4CPPS, funded by Regione Lombardia, led by 4 OdR and 10 local companies.
  - Management activity of Pilot 1 and Pilot 4
  - Pilot 1: Design of a health monitoring system for electromechanical actuators (University of Bergamo, Camozzi)
  - Pilot 4: Machine learning algorithms for the zero-defect end-of-line tuning of medium-voltage switches (University of Bergamo, Cosberg, ABB, CNR)
- Project CRYOABLATION:
  - Model identification of the temperature dynamics in *cryoblation* for atrial fibrillation therapy (Dipartimento di Cardiologia, Ospedale di Seriate)
- Project SP@RK-4.0-I.E.S.:
  - Data analysis and development of a health monitoring and predictive maintenance system in high performance workcenters (Mandelli spa)
- Project SMI-PREDICTIVE MAINTENANCE:
  - Design of a predictive maintenance system for beverage packaging machines using accelerometers (SMI Group)

Software Engineer at Consortium Intellimech
Kilometro Rosso — Oct 2017 – Apr 2018

- Project KNOWLEDGIZE, funded by Regione Lombardia, led by Consortium Intellimech, with 2 OdR and 3 local companies.
  - Development of a Knowledge Management Web Platform with an Innovative ML Algorithm based on Tag Searching using Django and Google Services (University of Bergamo, University of Brescia, Cosberg, Elettrocablaggi, Vin Service)
- Development of software applications:
  - Push-bottom panel for testing procedures on PLC in C#
  - Monitoring system using industrial communicating protocols MQTT, MTCONNECT, UPC-UA and MODbus in Python

EDUCATION

Master's degree cum laude in Computer Science — 110L/100
University of Bergamo, Italy — Mar 2018

Development of a Knowledge Management Web Platform with an Innovative ML Algorithm based on Tag Searching

Bachelor's degree in Computer Science — 105/100
University of Bergamo, Italy — Sep 2015

Development of a library for Mobile Robot Trajectory Control

POST-GRADUATE EDUCATION

Ph.D. **Courses** in:

- *Nonlinear System Identification*
  Proff. Luigi Piroddi, Simone Formentin, Simone Garatti, Lorenzo Fagiano and others
  Politecnico of Milan, Italy — 48h, Jan 2019
- *Model based Fault Diagnosis using a MATLAB Linear Framework*
  Proff. Andreas Varga and Daniel Ossmann
  University of Padova, Italy — 48h, Mar 2019
- *Optimization Models and Algorithms*
  Prof. Maria Teresa Vespucci
  University of Bergamo, Italy — 24h, Jul 2019
- *Advanced Mathematical Methods for Engineering*
  Proff. Marco Pedroni and Andrea Raimondo
  University of Bergamo, Italy — 24h, Oct 2019
- *Advanced Numerical Methods for Engineering*
  Prof. Christian Vergara
  University of Bergamo, Italy — 20h, Nov 2019
- *Noise and Vibration Control Engineering*
  Prof. Nicolaas B. Roozen
  University of Brescia, Italy — 15h, Nov 2019
- *Statistical Signal Processing in Engineering*
  Prof. Umberto Spagnolini
  Politecnico of Milan, Italy — 26h, Jan 2020

Ph.D. **Seminars** in:

- *Optimization and control of airborne wind energy systems*
  University of Bergamo, Italy — 2h, Jan 2019
- *Identification for Control*
  University of Bergamo, Italy — 2h, Mar 2019
- *Optimization Models and Algorithms*
  University of Bergamo, Italy — 1h, Jul 2019
- *Fault diagnois application in industry and mechatronics*
  University of Bergamo, Italy — 1h, Oct 2019
- *Kernel-based learning for system identification*
  University of Bergamo, Italy — 1h, Oct 2019

TEACHING EXPERIENCE

Lecture Assistant of the following **MSc courses** at the University of Bergamo:

1. *Controlli Automatici* (Advanced Control Systems) — 20h course, Sep 2018 – Dec 2018
2. *Controlli Automatici* (Advanced Control Systems) — 12h course, Sep 2019 – Dec 2019

Co-advisor of the following **MSc theses** at the University of Bergamo:

1. *Sviluppo preliminare di un sistema di health monitoring per un attuatore elettromeccanico*
   Advisor: prof. Fabio Previdi — Students: Davide Palazzini, Alen Preda
2. *Data-driven health monitoring di attuatori elettromeccanici per automazione industriale*
   Advisor: prof. Fabio Previdi — Students: Davide Presciani, Matteo Gusmini
3. *Simulatore elettro-termo-meccanico di strisce bimetalliche per interruttori industriali a bassa tensione*
   Advisor: prof. Fabio Previdi — Student: Paolo Pasinetti