Luca Maurelli's Curriculum Vitae

Updated: November 9, 2020

name & surname:	Luca Maurelli
sex:	male
date of birth:	June 30, 1993
phone number:	(+39) 340 8192088
e-mail:	luca.maurelli@unibg.it
location:	Treviglio (BG), 24047, Italy

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, University of Bergamo, Italy — 110L/100
Development of a Knowledge Management Web Platform with an Innovative ML Algorithm based on Tag Searching — Mar 2018

Bachelor's degree in Computer Science, University of Bergamo, Italy — 105/100
Development of a library for Mobile Robot Trajectory Control — Sep 2015

POST-GRADUATE EDUCATION

Ph.D. **Courses** in:

- *Nonlinear System Identification* — Politecnico of Milan, Italy
  Proff. L. Piroddi, S. Formentin, S. Garatti, G. Panzani and L. Fagiano — 48h, Jan 2019
- *Optimization Models and Algorithms* — University of Bergamo, Italy
  Prof. M. T. Vespucci — 24h, Jul 2019
- *Advanced Mathematical Methods for Engineering* — University of Bergamo, Italy
  Proff. M. Pedroni and A. Raimondo — 24h, Oct 2019
- *Advanced Numerical Methods for Engineering* — University of Bergamo, Italy
  Prof. C. Vergara — 20h, Nov 2019
- *Noise and Vibration Control Engineering* — University of Brescia, Italy
  Prof. N. B. Roozen — 15h, Nov 2019
- *Statistical Signal Processing in Engineering* — Politecnico of Milan, Italy
  Prof. U. Spagnolini — 26h, Jan 2020
- *Numerical Methods for Optimal Control* — IMT School for Advanced Studies Lucca, Italy
  Prof. M. Zanon — 30h, May 2020
- *Advanced English Course* — University of Bergamo, Italy
  Prof. S. J. Kingshott — 16h, Jun 2020
- *Optimization Models and Algorithms* — University of Bergamo, Italy
  Prof. M. T. Vespucci — 15h, Jun 2020
- *Advanced methods for system identification* — University of Bergamo, Italy
  Prof. M. Mazzoleni — 20h, Jul 2020
- *Model Predictive Control* — Politecnico of Milan, Italy
  Proff. M. Farina, R. Scattolini and L. Fagiano — 26h, Sep 2020
- *Algorithmic Game Theory* — University of Bergamo, Italy
  Prof. N. Gatti and Dr. A. Marchesi — 16h, Oct 2020
- *Applied Functional Analysis and Machine Learning* — University of Padova, Italy
  Prof. G. Pillonetto — 16h, Nov 2020
- *Applied Linear Algebra* — University of Padova, Italy
  Prof. L. Schenat — 16h, Nov 2020

Ph.D. **Schools & Workshops** in:

- *EECI-IGSC 2019 – Model based Fault Diagnosis using a MATLAB Linear Framework* — University of Padova, Italy
  Proff. A. Varga and D. Ossmann — 48h, Mar 2019
- *Machine Learning: A Computational Intelligence Approach* — University of Genova, Italy
  Proff. F. Masulli and S. Rovetta — 20h, Jun 2020
- *RegML 2020 – Regularization Methods for Machine Learning* — University of Genova, Italy
  Prof. L. Rosasco — 20h, Jun 2020
- *IFAC 2020 – Set-based Methods in Estimation and Control* — International Federation of Automatic Control (Virtual)
  Proff. R. Paulen, M. E. Villanueva and B. Chachuat — 6h, Jul 2020
- *EECI-IGSC 2021 – From Data to Decisions: the Scenario Approach* — International Graduate School on Control (Virtual)
  Proff. M. C. Campi and S. Garatti — 48h, Feb 2021
- *EECI-IGSC 2021 – Learning to Control* — International Graduate School on Control (Virtual)
  Prof. S. Formentin — 48h, May 2021

Ph.D. **Seminars** in:

- *Optimization and control of airborne wind energy systems*
  University of Bergamo, Italy — 2h, Dec 2019
- *Identification for Control*
  University of Bergamo, Italy — 2h, Nov 2019
- *Fault diagnosis application in industry and mechatronics*
  University of Bergamo, Italy — 1h, Dec 2019
- *Kernel-based learning for system identification*
  University of Bergamo, Italy — 1h, Dec 2019

TEACHING EXPERIENCE

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

- *Controlli Automatici* A.Y. 2018/2019 — italian, 20h, Sep – Dec 2018
- *Controlli Automatici* A.Y. 2019/2020 — italian, 12h, Sep – Dec 2019
- *Dynamic System Identification* A.Y. 2019/2020 — english, 18h, Jan – Jun 2020
- *Controlli Automatici* A.Y. 2020/2021 — italian, 12h, Jan – Jun 2021
- *Identificazione dei Modelli ed Analisi dei Dati* A.Y. 2020/2021 — italian, 12h, Jan – Jun 2021

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

- *Sviluppo preliminare di un sistema di health monitoring per un attuatore elettromeccanico*
  Advisor: prof. F. Previdi — Students: Davide Palazzini, Alen Preda
- *Data-driven health monitoring di attuatori elettromeccanici per automazione industriale*
  Advisor: prof. F. Previdi — Students: Davide Presciani, Matteo Gusmini
- *Simulatore elettro-termo-meccanico di strisce bimetalliche per interruttori industriali a bassa tensione*
  Advisor: prof. F. Previdi — Student: Paolo Pasinetti
- *Predizione della vita utile residua di valvole elettropneumatiche usando tecniche di machine learning*
  Advisor: prof. F. Previdi — Student: Angela Pomata

PUBLICATIONS

International conferences

- M. Mazzoleni, M. Scandella, L. Maurelli, F. Previdi.
  Mechatronics applications of condition monitoring using a statistical change detection method.
  Accepted for publication to 21st IFAC World Congress, Berlin, Germany, July 12-17, 2020

Waiver

I authorize the treatment of my personal data in compliance with the Italian Legislative Decree 196/2003 and the article GDPR 679/16 - "European regulation on the protection of personal data"