



# Gianmario Rinaldi

## Curriculum Vitae

### Personal Information

Name **Gianmario Rinaldi**  
Nationality Italian  
Date of Birth 26<sup>th</sup> April 1992  
Address Via Ferrata 5, Postcode 27100, Pavia (PV), Italy  
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### Education and Training

#### Current Position

Present– **Ph.D. Student**, *University of Pavia, Department of Electrical, Computer and Biomedical Engineering, Identification and Control of Dynamic Systems Laboratory.*  
(from November 2016) **Field of Research:** Power Systems, Power System Control, State Observers, Sliding Mode Control  
**Supervisor:** Prof. Antonella Ferrara

Present (from September 2011) **Student of Collegio Ghislieri** of Pavia, an institution committed to promote University studies on the basis of merit.

#### Degrees and High School Diploma

28<sup>th</sup> October 2016 **Master Degree in Electrical Engineering at the University of Pavia**  
**Score:** 110/110 summa cum laude  
**Title of the Thesis:** Distributed Observers for State Estimation in Power Grids  
**Advisor:** Prof. Antonella Ferrara  
**Co-advisor:** Dr. Prathyush P. Menon, University of Exeter, United Kingdom.

22<sup>nd</sup> **Bachelor's Degree in Energy Engineering at the University of Pavia:**  
September **Score:** 110/110 summa cum laude  
2014 **Title of the Thesis:** Iberian Electrical Market analysis and simulation of the  
integration in the European Market in 2020  
**Advisor:** Prof. Mario Montagna  
**Co-advisor:** Supervisor: Dr. Stefano Rossi- RSE SpA, Milan, Italy.

July 2011 **High School Diploma** at Liceo Scientifico Balilla Pinchetti, Tirano (SO)-Italy,  
**Score:** 100/100.

### Professional Exams

December **Passed the exam *Esame di Stato per l'Abilitazione alla Professione di In-***  
2017 ***gegnera Industriale-Settore Elettrico-Sezione A* to be licensed as Electrical**  
**Engineer**

### Teaching and Tutorial Activities Organized by the University of Pavia

Present (from **Seminars hold in English for the Master Degree course *Process Control,***  
November **(Prof. Antonella Ferrara). Topic:** design of control schemes for multi-input  
2016) **multi-output systems, (2 seminars per academic year).**

Present (from **Tutorials about *Control Theory* (Prof. Lalo Magni, Prof. Chiara Toffanin),**  
November **numerical test cases implemented in the Matlab-Simulink environment (20 hours**  
2016) **per academic year).**

Present (from **Tutorials about the professional software *MagNet Infolitica* (Prof. Paolo**  
November **Di Barba) to virtually prototype complex electromagnetic and electromechanical**  
2015) **devices (20 hours per academic year).**

from 2012 to **Tutorials and Student Assistance about *Calculus, Thermodynamic and Heat***  
2016 ***Transfer, Electrical Circuits Theory and Applications.***

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### Working Experiences

From May to **Internship experience (225 hours) at RSE SpA (research centre in electrical**  
July 2014 **and energy sector), Milan-Italy for the Bachelor Degree Project in Energy Engi-**  
**neering**

**Aim:** Iberian Electrical Market analysis and simulation of the integration in the  
European Market in 2020

**Supervisor:** Dr. Stefano Rossi

**University tutor:** Prof. Mario Montagna.

September 2013 **Stage experience (80 hours) at Zero Energy**, an engineering firm in Ponte in Valtellina (SO), Italy:  
Buildings energy analysis, using the professional software Edilclima EC 700  
Analysis of floor heating systems, using the software Autocad  
Tours of the construction sites directed by Zero Energy.

## Experiences Abroad

From March to August 2018 **Visiting Ph.D. Student, University of Exeter**, College of Engineering, Mathematics and Physical Sciences, Exeter, United Kingdom:  
**Aim:** design and validation of advanced and robust methods to monitor and control power systems  
**Co-supervisors:** Dr. Prathyush P. Menon (University of Exeter), Prof. Christopher Edwards (University of Exeter).

From March to September 2016 **Erasmus Traineeships Visiting Student-University of Exeter**, College of Engineering, Mathematics and Physical Sciences, Exeter, United Kingdom:  
**Aim:** Master Course Thesis project (power grid state estimation based on distributed observers)  
**Advisors:** Dr. Prathyush P. Menon (University of Exeter), Prof. Christopher Edwards (University of Exeter) and Prof. Antonella Ferrara (University of Pavia).

August 2015 **Visiting student at St. John's College, Cambridge, United Kingdom:**  
Winner of a scholarship promoted by Collegio Ghislieri of Pavia.

## International Conferences Attendance

December 2018 Presentation of the conference paper *Distributed Super-Twisting Sliding Mode Observers for Fault Reconstruction and Mitigation in Power Networks*  
**57-th IEEE Conference on Decision and Control (CDC 2018), Miami Beach, FL, USA**

July 2018 Presentation of the conference papers  
○ *Relative Degree Identification for Sliding Mode Controllers Design*,  
○ *Decentralized Integral Sliding Mode Approach for Frequency Control and Unknown Demand Reconstruction in Power Systems*  
○ *A Super-Twisting-Like Sliding Mode Observer for Frequency Reconstruction in Power Systems: Discussion and Real Data Based Assessment*  
**15-th International Workshop on Variable Structure Systems and Sliding Mode Control (VSS 2018), Graz, Austria**

May 2017 Presentation of the conference paper *Distributed Observers for State Estimation in Power Grids*  
**American Control Conference (ACC 2017), Seattle, WA, USA**

## Languages

- Italian** Mother-tongue  
**English** Full Professional Knowledge  
**German** Basic Knowledge

## Computer Skills

**European Computer Driving License (ECDL)**, a computer literacy certification program provided by ECDL Foundation

**Microsoft Office**

**C Language**

**Matlab and Simulink**, simulation of dynamic systems

**LaTeX and LyX**, professional software for formatting of technical and scientific papers

**Autocad and Autodesk Inventor**, professional software for 2D and 3D engineering drawing

**Comsol Multiphysics and Magnet**, electric and magnetic field simulators based on Finite Element Method

## Artistic Skills and Competences

Music Singer (tenor) at the *Coro Universitario del Collegio Ghislieri* of Pavia

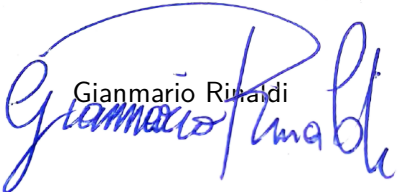
## Interests & Hobbies

Classical and Contemporary Music Listening, Meteorology, Skiing, Hiking, Gardening.

## Attachments

Attachment-1 List of Publications

31<sup>st</sup> January 2019

Gianmario Rinaldi  


## Attachment 1 - List of Publications

### Journal Papers:

- J1. G. Rinaldi, M. Cucuzzella, and A. Ferrara, “**Third order sliding mod observer-based approach for distributed optimal load frequency control,**” IEEE Control Systems Letters, vol. 1, no. 2, pp. 215–220, 2017.
- J2. G. Rinaldi, P. P. Menon, C. Edwards and A. Ferrara, “**Sliding Mode Based Dynamic State Estimation for Synchronous Generators in Power Systems**”, IEEE Control Systems Letters, vol. 2, no. 4, pp. 785-790, 2018.
- J3. G. Rinaldi, M. Cucuzzella, and A. Ferrara, “**Sliding mode observers for a network of thermal and hydroelectric power plants,**” Automatica, vol. 98, pp. 51–57, 2018.
- J4. G. Rinaldi, P. P. Menon, C. Edwards and A. Ferrara, “**Design and Validation of a Distributed Observer-Based Estimation Scheme for Power Grids**”, IEEE Transactions on Control System Technology.

### Conference Papers

- C1. G. Rinaldi, P. P. Menon, C. Edwards, and A. Ferrara, “**Distributed observers for state estimation in power grids,**” in Proc. American Control Conf., Seattle, WA, USA, May 2017, pp. 5824–5829.
- C2. G. Rinaldi and A. Ferrara, “**Higher Order Sliding Mode Observers and Nonlinear Algebraic Estimators for State Tracking in Power Networks,**” in Proc. 56-th IEEE Conference on Decision and Control, Melbourne, Australia, December 2017, pp. 6033–6038.
- C3. G. Rinaldi, P. P. Menon, C. Edwards, and A. Ferrara, “**A Super-Twisting-Like Sliding Mode Observer for Frequency Reconstruction in Power Systems: Discussion and Real Data Based Assessment,**” in Proc. 15-th International Workshop on Variable Structure Systems and Sliding Mode Control, Graz, Austria, July 2018, pp. 444–449.
- C4. G. Rinaldi and A. Ferrara, “**Decentralized Integral Sliding Mode Approach for Frequency Control and Unknown Demand Reconstruction in Power Systems,**” in Proc. 15-th International Workshop on Variable Structure Systems and Sliding Mode Control, Graz, Austria, July 2018, pp. 455–460.
- C5. G. Rinaldi and A. Ferrara, “**Relative Degree Identification for Sliding Mode Controllers Design,**” in Proc. 15-th International Workshop on Variable Structure Systems and Sliding Mode Control, July 2018, Graz, Austria, July 2018, pp. 55–60.
- C6. G. Rinaldi, P.P. Menon, C. Edwards and A. Ferrara, “**Distributed Super-Twisting Sliding Mode Observers for Fault Reconstruction and Mitigation in Power Networks**”, in Proc. 57-th IEEE Conference on Decision and Control, Miami Beach, FL, USA, December 2018, pp. 5550 - 5555.