



Dott. Ing. Alessandro Pilloni (M.Sc.'10, Ph.D.'13)

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Short Biography

Alessandro Pilloni (M.Sc.'10, Ph.D.'13, IEEE Member '19) is currently Assistant Professor at the University of Cagliari, Dept. Electrical and Electronic Engineering, Italy. Since 2010 he has lectured in the courses of Automatic Control, and Nonlinear Control for Engineers, and he currently teaches the master degree course of Stochastic Processes.

His research interests include nonlinear control and variable structure control theory and its application to control, observation, and fault detection for finite and infinite-dimensional dynamical systems. Fields of specialization include the control and observation for distributed-parameter systems and multi-agent systems theory, with focus on cooperative control and optimization over networks. Recent applications include the distributed control of smart grids and the coordination smart loads for demand-side management purposes. Dr. Pilloni has spent visiting periods at universities and research centers in UK, Spain, and Serbia. He co-authored 1 industrial patent, 13 papers on international journals, 5 chapters in monographic books of international relevance, and 30+ papers in international conference proceedings, for which he received more than 500+ citations and an h-index of 11 (source: Google Scholar)

He is currently qualified for access to a position of Associate Professor (professore di II fascia), disciplinary sector ING-INF/04, Automatica, with validity from 31/01/2022 to 31/01/2031 (art. 16, comma 1, Legge 240/10).

He also served as system engineer and technical advisor for local small and medium-sized enterprises.

Research interests:

- Variable structure control theory and sliding mode control
- Observation and control of complex networked systems
- Multi-agent control and distributed optimization
- Microgrid Control and Renewable Distributed Generation;
- Demand Side Management in Urban Areas
- Thermal systems and Distributed Parameter Systems

Academic indicators (30/06/2022)

- Journal papers: 13
- Chapters in monographic books: 5
- Conference proceedings: 30+
- Citations: 524 (Google Scholar); 426 (Scopus).
- H-index: 11 (Google Scholar); 9 (Scopus).
- Patents: 1

National evaluations for access to academic positions

2022 Italian national qualification for access to associate professor position (professore di II fascia), disciplinary sector ING-INF/04 (AUTOMATICA); validity from 31/01/2022 to 31/01/2031 (art. 16, comma 1, Legge 240/10).

Education

May 2013 Ph.D. in Industrial Engineering, Dept. of Electrical and Electronic Engineering, University of Cagliari, Italy. Thesis: "Robust Observation and Control of Complex Networks ". Advisor: Prof. E. Usai.

Dec 2010 Master degree in Electronic Engineering, University of Cagliari, Italy. Honors: 110/110 Summa Cum Laude. Thesis: "Model based fault detection on inductions motors". Advisor: Prof. E. Usai

Academic positions

2022 Aug-2019 Sep Assistant professor (Ricercatore tempo determinato tipo A art. 24 of Law 240/2010). University of Cagliari-DIEE. Position financed by the Sardinian Regional Government, project: ODISS "Ottimizzazione di sistemi DIstribuiti in ambito Smart-city e Smart-grid", call P.O.R. SARDEGNA F.S.E. 2014-2020 –Asse III "Istruzione e Formazione.

2019 Aug-2018 Nov Postdoctoral research fellowship (art. 22 of Law 240/2010). University of Cagliari-DIEE. SSD ING-INF/04–SC 09/G1 AUTOMATICA. Position financed by Sardinian Regional Government, project: Models and control algorithms for the management of a Virtual Power Plant. Supervisor: Prof. Mauro Franceschelli.

2018 Oct -2017 Nov Postdoctoral research fellowship (art. 22 of Law 240/2010). University of Cagliari. SSD ING-INF/04 – SC 09/G1 AUTOMATICA. Position financed by National MIUR, project: Cooperative constrained optimization of networked domestic thermal systems for efficient and coordinated urban energy consumption. Supervisor: Prof. Mauro Franceschelli.

2017 Oct- 2017 Feb Research fellowship University of Cagliari-DIEE. SSD ING-INF/04 – SC 09/G1 AUTOMATICA. Position financed by Sardinian Regional Government, project: Sviluppo, progettazione e realizzazione prototipale di sistemi di gestione e controllo ottimali per una Micro Smart Grid (L.R. 7/2007), tender n.4: Metodologie e tecnologie innovative per la gestione ottimale delle Micro-Smart Grid". Supervisor: Prof. Elio Usai.

2016 Dic- 2014 Nov Postdoctoral research fellowship (art. 22 of Law 240/2010). University of Cagliari-DIEE. SSD ING-INF/04 – SC 09/G1 AUTOMATICA. Position financed by Sardinian Regional Government, project "Modellazione, controllo e sperimentazione di sistemi innovativi per l'accumulo di energia" (L.R. 7/2007 – rif. CRP--60193) CUP F71J12000880002. Supervisor: Prof. Alessandro Pisano

2015 Feb-2014 Oct Contract researcher (Contratto di lavoro autonomo di supporto alla ricerca). University of Cagliari. Activity: Development of algorithms for the decentralized estimation of faults and disturbances in complex systems. Supervisor: Prof. Elio Usai

2014 Sep-2014 Jun Contract researcher (Contratto di lavoro autonomo di supporto alla ricerca). University of Cagliari-DIEE. Position financed by the Sardinian regional government, project: "Modellazione, controllo e sperimentazione di sistemi innovativi per l'accumulo di energia" (L.R. 7/2007 – rif. CRP--60193) CUP F71J12000880002 – Prof. Alessandro PISANO.

2013 Sep-2013 Aug Contract researcher (COCOCO). University of Cagliari-DIEE. Position financed by national project "PRIN 2009 Controllo ed osservazione dello stato per sistemi di ordine non intero in presenza di disturbi ed incertezze di modello". Supervisor: Prof. Alessandro PISANO.

Visiting positions/periods:

2014 Nov Visiting Researcher at the "Signal and System Department, School of Electrical Engineering", University of Belgrade (SRB) under the project "RObust Decentralised Estimation fOr large-scale systems (RODEO)". Local supervisor: Dr. Prof. Željko Đurović.

2012 Feb-Jul Visiting Researcher at the "Control and Instrumentation Research Group", University of Leicester (UK) under the Post-Graduate Erasmus Exchange Program. Local supervisor: Dr. Prof. C. Edwards.

2012 Jan Visiting Researcher at the "Dept. of Electrical Engineering", Universitat Politècnica de València (ESP) under the European FP7 project "Plant Robustification Based on Fault Detection and isolation Algorithms (PRODI)". Local supervisor: Prof. J. Roger-Folch.

Awards and fellowships

2021 Finalist at the Italian “Intellectual Property Award” (IPA 2021) with “Method and architecture for managing the energy demand of the multi-agent type for reducing the peaks of electrical consumption of a plurality of electrical appliances” Inventors: Franceschelli Mauro, Pisano Alessandro, Pilloni, Alessandro, Gasparri Andrea. Reference number 102018000006385, date 15/06/2018. Category: Renewable energy /alternative energy

2019-2014 University of Cagliari Postdoctoral Fellowship

2013 Second Prize in section A4 of the national competition for research grants, call "Energy for research" promoted by ENEL Foundation and Fondazione CRUI, Topic: "Smart grids and renewables: analysis of best practices and development options"

2013 “Doctor Europaeus” diploma supplement to the PhD title awarded by the University of Cagliari

Memberships

Member of IEEE since 2019. Member of IEEE Control System Society (CSS) and IEEE Power & Energy Society (PES).

Participation to research projects as research unit

2023-2020 Regional project Fondazione di Sardegna (L.R. 7/2007 annualità 2020) IQSS “Information Quality aware and Secure Sensor networks for smart cities”. Principal investigator: Paolo Attilio Pegoraro. Role: **Responsible for the Sub-unit 2: Control and Data Processing.**

2019-2021 Regional project FSC 2014-2020 Regione Autonoma della Sardegna, call “RICERCA DI BASE 2017”: “Metodi formali per il MOnitoraggio di SIstemi dinamici Multi-Agente (MOSIMA)”. Code RASSR05871. Role: **Member of the research unit.**

2021- 2019 Regional project Fondazione di Sardegna (L.R. 7/2007 annualità 2019) SISCO “ICT methodologies for the security of complex systems”. Principal investigator: Pisano Alessandro. Role: **Member of the research unit.**

2019-2018 Regional research project (art.22 L. 240/2010) “Models and control algorithms for the management of a Virtual Power Plant (VPP)”. **Supervisor:** Dr. M. Franceschelli. Role: **Research fellowship (art. 22 of Law 240/2010).**

2019-2017 Regional project Fondazione di Sardegna (L.R. 7/2007 annualità 2017) ODIS “Optimization of DIstributed systems in the Smart-city and smart-grid settings”. Principal investigator: Pisano Alessandro. Role: **Member of the research unit.**

2017-2018 National MIUR research project (art.22 L. 240/2010) “Cooperative constrained optimization of networked domestic thermal systems for efficient and coordinated urban energy consumption”. code: RBSI140F6H. **Supervisor:** Dr. M. Franceschelli. Role: **Research fellowship (art. 22 of Law 240/2010)**

2017 Oct-Apr Regional research project “Development, design and prototyping of optimal control systems for Micro Smart Grids”. **Supervisor:** Prof. E. Usai. Role: **Contract researcher.**

2016-2014 Regional research project (art.22 L. 240/2010) “Development of robust control algorithms and model-based fault diagnosis strategies for the improvement of reliability of energy systems. **Supervisor:** Dr. A. Pisano. Role: **Research fellowship (art. 22 of Law 240/2010).**

2016 Nov-2014 Sep National MAECI research project “RObust Decentralised Estimation fOr large-scale systems (RODEO)” del Ministero degli Affari Esteri. Code: MAE-PGR00152. **Supervisor:** Prof. E. USAI. Role: **Contract researcher.**

2014 Aug-May Regional research grant (L.R. 7/2007) “Modeling, control and testing of innovative energy storage systems”. **Presso:** DIEE- UNICA. **Supervisor:** Dr. A. Pisano. Role: **Contract researcher.**

2014 Mar-2013 Sep National research project “PRIN 2009 Controllo ed osservazione dello stato per sistemi di ordine non intero in presenza di disturbi ed incertezze di modello”. **Presso:** DIEE-UNICA. **Supervisor:** Dr. A. Pisano. Role: **Contract researcher.**

- 2014-2011** European research project call FP7 “HYCON2” (Grant Agreement n.257462), 2010-2014: “Highly-complex and networked control systems”. Local supervisor: Prof. A. Giua. **Member of the research unit.**
- 2011-2010** European research project call FP7 “PRODI” (Grant Agreement n.2242332), 2008-2011: “Plant Robustification Based on Fault Detection and isolation Algorithms. Local supervisor: Prof. E. Usai. **Member of the research unit.**

Specific professional experiences

- 2020 Jan-2019 Dec** Occasional Collaboration Contract with the company SitAut SRL. Activity description: Development and testing on PLC Siemens S7-1200 platform of the control algorithms and user web-server interface for the remote control of an electro-hydraulic experimental prototype for the generation of waves in open tanks.
- 2019 May-2019 Mar** Occasional Collaboration Contract with the company Società Cooperativa Infora (<http://www.infora.it>). Activity description: Development of a real-time simulator on the MATLAB/Simulink environment of an electric AC microgrid integrating power-coverters with photovoltaic panel and batteries and a multi-agent-based voltage and frequency secondary control architecture implemented over a digital communication network implemented over a LTE communication infrastructure.
- 2016 Jun-2016 May** Occasional Collaboration Contract with the company SitAut SRL on behalf on Abinsula SRL. Activity description: Feasibility study for the integration of the IEC 611131-3-compliant CODESYS development environment on a proprietary embeded platform through the CodeSys API known as PLCHandler-Based Communication.
- 2015 Oct-2015 Sep** Occasional Collaboration Contract with the company SitAut SRL on behalf on Elianto CSP SRL (<https://www.eliantocsp.it/>). Activity description: Development and testing on the Siemens S7-1200 platform of the high-level supervision and control system for a thermodynamic solar plant and commissioning on the prototype plant located in Ussana (Italy).
- 2015 Oct-2015 Sep** Occasional Collaboration Contract with the company SitAut SRL on behalf on Abinsula SRL. Activity description: Conformity analysis of the Beremiz open-source IDE to the IEC 611131-3 standard and development of a demonstrator that certifies its stability and completeness for industrial control purposes with respect to the IDE IEC 611131-3-compliant Codesys.
- 2013 Dec-2013 Jul** Occasional Collaboration Contract with the company SitAut SRL, commissioned by Elianto CSP SRL on behalf on Falk Renewable SpA. Activity description: Definition of the operative phases and implementation on a Siemens S7 Series PLC platform of the management, communication and control logics for the control of a 1MW concentrating thermodynamic solar energy production plant, and integration of the same on a pre-existing 14MW biomass production plant, property of Falk Renewable SpA. Url: <https://www.falckrenewables.com/storage/app/media/press-releases/2014/it/FKR%20Comunicato%20Solare%20Termodinamico.pdf>

Supervision/Co-supervision of PhD students and Students at the University of Cagliari

- 2021** Milad Golami. “Multi-agent-based control of microgrids with delayed communications”. PhD in Industrial Engineering. **Co-supervisor.**
- 2020** Alessio Falace. “Validation and testing of a PLC-oriented control architecture for improving the energy efficiency in smart buildings”. Master thesis in Electronic Engineering. **Supervisor.**
- 2019** Paolo Murru: “Experimental Validation of Delta Coding Algorithms based on higher-order sliding-mode”. Degree thesis in Electric and Electronic Engineering. **Supervisor.**
- 2017** Carlo Atzeni. “Progettazione e realizzazione, tramite PLC, di un controllore di temperatura e portata per un impianto a concentrazione solare termodinamico”. Master thesis in Electronic Engineering. **Co-supervisor.**
- 2017** Gabriele Fois. “Comparative-performance analysis of Sigma-Delta modulation techniques based on higher order sliding mode algorithms”. Degree thesis in Electric and Electronic Engineering, 2017. **Co-supervisor.**
- 2017** Flavia Serri. “Microgrid Control Strategies for Seamless Transition Between Grid-Connected and Islanded Modes”. Master thesis in Electric Engineering, 2017. **Co-supervisor.**
- 2017** Claudio Gloriani “Ripristino della connettività in reti mobili manets mediante approcci graph-theoretic. Master thesis in Mechanical Engineering, 2017. **Co-supervisor.**

Invited Talks and Seminars

- 2020** Invited Talks to the Webinar: "A Webinar on Under Graduate Control Engineering Practices " organized by the Knowledge Institute of Engineering and Technology (KITE), Bakrol, Anand (India). Talk title: "Control theory tested via a DC motor setup: the experience at the University of Cagliari"
- 2014** Invited talks to the "RObust Decentralised Estimation fOr large-scale systems (RODEO) - Work-in-Progress Meeting" helds at the Computer Center of the School of Electrical Engineering - Bulevar Kralja Aleksandra 73, Belgrade (SRB). Nov. 11, 2014. Talk title: "Model based FDI via sliding modes"
- 2012** Seminar lesson at the Universitat Politècnica de València, València, SPAIN in quality of visiting researcher
Day 1 (09/01/2012): Robust FDI in Induction Motors via Second Order Sliding Mode Technique
Day 2 (20/01/2012): Robust FDI in Induction Motors New results and Future developments

Participation as a speaker at international conferences

- 59th IEEE Conference on Decision and Control - December 11th-13th 2019. Contribution: A. Pilloni, D. Deplano, A. Giua, E. Usai (2021). "A Sliding Mode Observer design for the Average State Estimation in Large-Scale Systems"
- 58th IEEE Conference on Decision and Control - Nice, France - December 11th-13th 2019. Contribution: A. Pisano; Y. Orlov; A. Pilloni; E. Usai. "Combined Backstepping/second-Order Sliding-Mode Boundary Stabilization of an Unstable Reaction-Diffusion Process"
- IFAC Symposium on System Structure and Control Part of 2013 IFAC Joint Conference SSSC, FDA, TDS, Grenoble, France, February 4-6, 2013. Contribution: A Pilloni, A Pisano, E Usai, PP Menon, C. Edwards. "Decentralized state estimation in connected systems".

Participation as a speaker at national conferences

- Convegni Nazionali SIDRA, Automatica.it, Catania, 9 – 10 Settembre 2021. Contribution: Y. Orlov , A. Pilloni, A. Pisano , E. Usai. "Boundary control of an uncertain diffusion PDE with dynamic actuator and unmatched disturbance"
- Convegni Nazionali SIDRA, Automatica.it, Cagliari, 9 – 11 Settembre 2020. Contribution: S. Koch, A. Pilloni, A. Pisano, E. Usai. "Robust Boundary Control of an In-Line Heating System governed by coupled PDE/ODE Dynamics"
- Convegni Nazionali SIDRA, Automatica.it, Ancona, 11 – 13 Settembre 2019. Contribution: A. Pilloni, M. Franceschelli, A. Pisano, E. Usai "Delta modulation (Δ -M) via Second-order Sliding-Mode Control Technique"
- Convegni Nazionali SIDRA, Automatica.it, Firenze, 12-14 settembre 2018. Contribution: A. Pilloni, M. Franceschelli, M. Gholami, A. Pisano, E. Usai. "Sliding mode robustification of networked controllers with application to distributed optimization and microgrid control"
- Convegni Nazionali SIDRA, Automatica.it, Bari, 7-9 settembre 2015. Contributo: G. Fadda, A. Pilloni, A. Pisano, E. Usai, A. Marjanovic, S. Vujnovic. "A combined model- based data-driven approach for FDI in a water-steam power plant"
- Convegni Nazionali SIDRA, Automatica.it, Bari, 7-9 settembre 2015. Contribution: A. Pilloni, A. Pisano, E. Usai, J.A. Luna-Pacho, S. M. Rakhtala, "Controllo ed Osservazione dello Stato Robusta su Celle a Combustibile con Membrana a Scambio Protonico"
- Convegni Nazionali SIDRA, Automatica.it, Palermo, 16-18 settembre 2013. Contribution: A. Pilloni, A. Pisano, E. Usai, M. Franceschelli, A. Giua. Finite-Time Consensus of Perturbed Networks via Discontinuous Algorithms.

Teaching activities

- 2022-2019** Lecturer of the course “Stochastic models” for the Master degree on Internet Engineering and the Master degree on Computer Engineering, Artificial Intelligence and Cybersecurity, University of Cagliari. Teaching language: English. Duration: 50 hours per year.
- 2019-2014** Lecturer of the module "PLC programming" of the course “Sistemi per la supervisione e il controllo di processi industriali” for the PhD School on Industrial Engineering of the University of Cagliari. Teaching language: Italian. Duration: 6 hours per year.
- 2019-2014** Lecturer of the module "PLC programming" of the course “Sistemi per la supervisione e il controllo di processi industriali” for the Master degree in Electronics Engineering of the University of Cagliari. Teaching language: Italian. Duration: 6 hours per year.
- 2019-2015** Teaching assistant of the course “Sistemi di controllo avanzati” (Advanced Control Systems). Lecturer: Prof. E. Usai. Master degree in Electronics Engineering, University of Cagliari. Teaching language: Italian. Duration: 14 hours per year.
- 2019-2017** Teaching assistant of the course “Controlli Automatici” (Automatic Control) for the E-Learning Bachelor degree in Electrical, Electronic and Computer Engineering, University of Cagliari. Lecturer: Prof. E. Usai. Teaching language: Italian. Duration: 20 hours per year.
- 2019-2013** Teaching assistant of the course “Controlli Automatici” (Automatic Control). Lecturer: Prof. E. Usai. Bachelor degree in Electronics Engineering, University of Cagliari. Teaching language: Italian. Duration: 25 hours per year.

Technical reviewer for International Journals (from Jan. 2012 until today (more than 120 papers))

IEEE Journals: Transactions on Automatic Controls (TAC); Transactions on Control Systems Technologies (TCST); IEEE Control Systems Letters (L-CSS); Transactions on Industrial Electronics (TIE); Transactions on Control of Network Systems (TCNS); Transactions on Smart Grid (TSG); Transactions on Sustainable Energy (TSTE); Transactions on Power Electronics (TPS); Transactions on Automation Science and Engineering (T-ASE); Transactions on Systems, Man and Cybernetics: Systems (SMCA). **Elsevier Journals:** Automatica; Nonlinear Analysis: Hybrid Systems (NAHS); Journal of the Franklin Institute. **Wiley Journals:** International Journal of Robust and Nonlinear Control (RNC); International Journal of Adaptive Control and Signal Processing (ACSP); Asian Journal of Control (AJC); IET Control Theory & Applications. **Springer Journals:** Acta Mathematica Scientia. **MDPI Journals:** Energies; Sustainability.

Technical reviewer for International Conferences Proceedings (from Jan. 2012 until today)

- IEEE Conference on Decision and Control (CDC). Year: 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022
- American Control Conference (ACC). Year: 2012, 2013, 2015, 2016, 2017, 2018
- IEEE European Control Conference (ECC). Year: 2016, 2021
- IFAC World Congress. Year: 2014, 2017
- International Workshop on Variable Structure Systems and Sliding Mode Control (VSS). Year: 2014, 2018, 2022
- Mediterranean Conference on Control and Automation (MED). Year: 2021
- IEEE International Conference on Automation Science and Engineering (CASE). Year: 2017, 2019
- International Conf. System Theory, Control and Computing (ICSTCC). Year: 2015
- IFAC Symposium on Mechatronic Systems. Year: 2013
- IEEE Multi-Conference on Systems and Control. Year: 2012
- IEEE International Conference on Control Applications. Year: 2012
- IEEE Conference on Decision and Control and European Control Conference (IEEE CDC-ECC) Year: 2011

Patent

2018: Patent (Italy): “Metodo ed architettura di gestione della domanda energetica di tipo multi-agente per la riduzione dei picchi di consumo elettrico di una pluralità di apparecchiature elettriche” Inventors: Franceschelli Mauro, Pisano Alessandro, Pilloni, Alessandro, Gasparri Andrea. Reference number 102018000006385, date 15/06/2018.

International Journal

[J14] Orlov Y., **Pilloni A.**, Pisano A., Usai E. (2022) “Boundary control of an uncertain heat process with unmatched disturbance and dynamic actuator”, in IEEE TRANSACTIONS ON AUTOMATIC CONTROL (**under review**).

[J13] **Pilloni A.**, Pisano A., Usai E. (2022) “A global finite-time stable first-order sliding-mode strong observer with certain semi-global fixed-time convergence characteristics”, in IEEE TRANSACTIONS ON AUTOMATIC CONTROL (**under review**).

[J12] Kaheni M., **Pilloni A.**, Ruda G. S., Usai E., Franceschelli M., "Distributed Asynchronous Greedy Control of Large Networks of Thermostatically Controlled Loads for Electric Demand Response," in IEEE CONTROL SYSTEM LETTERS, 2022, doi: 10.1109/LCSYS.2022.3186617.

[J11] Koch S., **Pilloni A.**, Pisano A., Usai E. (2022). Sliding-Mode Boundary Control of an In-Line Heating System Governed by Coupled PDE/ODE Dynamics. IEEE TRANSACTION ON CONTROL SYSTEM TECHNOLOGY, doi: 10.1109/TCST.2022.3147373

[J10] **Pilloni A.**, Deplano D., Giua A., Usai E. (2021). A Sliding Mode Observer design for the Average State Estimation in Large-Scale Systems. IEEE CONTROL SYSTEMS LETTERS, vol. 6, p. 632-637, ISSN: 2475-1456, doi: 10.1109/LCSYS.2021.3084526

[J9] Gholami M., **Pilloni A.**, Pisano A., Usai E. (2021). Robust distributed secondary voltage restoration control of ac microgrids under multiple communication delays. ENERGIES, vol. 14, p. 1-22, ISSN: 1996-1073, doi: 10.3390/en14041165

[J8] Pisano A., Orlov Y., **Pilloni A.**, Usai E. (2020). Combined Backstepping/Second-Order Sliding-Mode Boundary Stabilization of an Unstable Reaction-Diffusion Process. IEEE CONTROL SYSTEMS LETTERS, vol. 4, p. 391-396, ISSN: 2475-1456, doi: 10.1109/LCSYS.2019.2927185

[J7] **Pilloni A.**, Franceschelli M., Pisano A., Usai A. (2020). Sliding mode based robustification of consensus and distributed optimization control protocols. IEEE TRANSACTIONS ON AUTOMATIC CONTROL, p. 1-8, ISSN: 1558-2523, doi: 10.1109/TAC.2020.2991694

[J6] Franceschelli M., **Pilloni A.**, Gasparri A. (2020). Multi-Agent Coordination of Thermostatically Controlled Loads by Smart Power Sockets for Electric Demand Side Management. IEEE TRANSACTIONS ON CONTROL SYSTEMS TECHNOLOGY, p. 1-13, ISSN: 1063-6536, doi: 10.1109/TCST.2020.2974181

[J5] **Pilloni A.**, Franceschelli M., Pisano A., Usai E. (2019). Delta modulation (Delta-M) via second-order sliding-mode control technique. CONTROL ENGINEERING PRACTICE, vol. 92, p. 1-10, ISSN: 0967-0661, doi: 10.1016/j.conengprac.2019.104129

[J4] **Pilloni A.**, Pisano A., Usai E. (2018). Robust Finite-Time Frequency and Voltage Restoration of Inverter-Based Microgrids via Sliding-Mode Cooperative Control. IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS, vol. 65, p. 907-917, ISSN: 0278-0046, doi:10.1109/TIE.2017.2726970

[J3] Orlov, Y., Pisano, A., **Pilloni, A.**, Usai, E. (2017). Output feedback stabilization of coupled reaction-diffusion processes with constant parameters. SIAM JOURNAL ON CONTROL AND OPTIMIZATION, vol. 55, p. 4112-4155, ISSN: 0363-0129, doi: 10.1137/15M1034325

[J2] **Pilloni A.**, Pisano A., Orlov Y., Usai E. (2016). Consensus-Based Control for a Network of Diffusion PDEs with Boundary Local Interaction. IEEE TRANSACTIONS ON AUTOMATIC CONTROL, vol. 61, p. 2708-2713, ISSN: 0018-9286, doi:10.1109/TAC.2015.2506990

[J1] **Pilloni A.**, Pisano A., Usai E. (2015). Observer-Based Air Excess Ratio Control of a PEM Fuel Cell System via High-Order Sliding Mode. IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS, vol. 62, p. 5236-5246, ISSN: 0278-0046, doi:10.1109/TIE.2015.2412520

Book chapters

- [B5] A. Pilloni, A. Pisano, Y. Orlov, E. Usai. (2022) Second-order sliding mode leader-follower consensus for networked uncertain diffusion PDEs with spatially-varying diffusivity. In: Sliding-Mode Control and Variable-Structure Systems. Springer Nature Switzerland. **(to appear)**
- [B4] Pilloni A., Gholami M., Pisano A., Usai E. (2020). On the Robust Distributed Secondary Control of Islanded Inverter-Based Microgrids. Studies in Systems, Decision and Control. STUDIES IN SYSTEMS, DECISION AND CONTROL, vol. 271, p. 309-357, Gewerbestr: Springer Nature Switzerland AG, ISBN: 978-3-030-36620-9, ISSN: 2198-4182, doi: 10.1007/978-3-030-36621-6_11
- [B3] Pilloni, Alessandro, Pisano, Alessandro, Usai, Elio (2018). Robustification of cooperative consensus algorithms in perturbed multi-agents systems. In Variable Structure Systems and Sliding Mode Control. Theory and Applications. STUDIES IN SYSTEMS, DECISION AND CONTROL, vol. 115, p. 247-267, Cham:Springer, ISBN: 978-3-319-62896-7, ISSN: 2198-4182, doi: 10.1007/978-3-319-62896-7_10
- [B2] G. Fadda, M. Franceschelli, A. Pilloni, A. Pisano, E. Usai, Z. Đurovic, A. Marjanovic, V. Papic, P. Tadic, S. Vujnovic, "RObust Decentralised Estimation fOr large-scale systems (RODEO)", in *Serbia – Italia: Italian - Serbian Cooperation on Science, Technology and Humanities* (P. R. Andjus and P. Battinelli Eds.), ISBN 978-86-7522-048-0, pp. 45-50, SIGRa star, Belgrade, 2015.
- [B1] Pilloni A., Pisano A., Riera Guasp M., Puche Panadero R., Pineda Sanchez M. (2013). Fault Detection in Induction Motors. In: AC Electric Motors Control: Advanced Design Techniques and Applications. vol. 1, p. 275-309, Chichester, West Sussex, England:John Wiley and Sons, ISBN: 978-1-118-33152-1, doi:10.1002/9781118574263.ch14

International Conferences

- [C24] Pilloni A., Pisano A., Usai E. (2022) "A global finite-time stable first-order sliding-mode strong observer with certain semi-global fixed-time convergence characteristics". In: 2022 16th International Workshop on Variable Structure Systems (VSS); **(accepted)**
- [C23] Kaheni M., Pilloni A., Serra Ruda G., Usai E., Franceschelli M. (2022) "Distributed Asynchronous Greedy Control of Large Networks of Thermostatically Controlled Loads for Electric Demand Response", In: 61st IEEE Conference on Decision and Control (CDC 2022); **(accepted)**
- [C22] Pilloni A., Deplano D., Giua A., Usai E. (2021). A Sliding Mode Observer design for the Average State Estimation in Large-Scale Systems" In: 60th IEEE Conference on Decision and Control (CDC 2021), Austin, Texas (USA)-December 13th-17th 2021.
- [C21] Pisano A., Orlov Y., Pilloni A., Usai E. (2019). Combined Backstepping/Second-Order Sliding-Mode Boundary Stabilization of an Unstable Reaction-Diffusion Process.", In: 58th IEEE Conference on Decision and Control (CDC 2019), Nice, France - December 11th-13th 2019.
- [C20] M. Franceschelli, A. Pilloni, A. Gasparri. "A heuristic approach for online distributed optimization of multi-agent networks of smart sockets and thermostatically controlled loads based on dynamic average consensus." In: Proceedings of the 16th European Control Conference (ECC 2018). p. 2541-2548, 345 E 47TH ST, NEW YORK, NY 10017 USA: IEEE, Limassol (Cyprus), June 12-15, 2018, doi: 10.23919/ECC.2018.8550337
- [C19] M. Gholami, A. Pilloni, A. Pisano, E. Usai. "On the robust distributed control of inverter-based microgrids". 5th International Conference IcETRAN, ISBN 978-86-7466-752-1, pp. 615-622. 2018.
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