ALL. B

Decreto Rettore Università di Roma “La Sapienza” n. 1761/2024 del 17/07/2024.

ALESSANDRO GIUSEPPI
Curriculum Vitae – ai fini della pubblicazione

Roma
17 August 2024

Part I – General Information

Full Name	Alessandro Giuseppi
Spoken Languages	Italian, English

Part II – Education

Type	Grade	Year	Institution	Subject
Bachelor Degree	110 e lode	2014	Univ. of Rome “La Sapienza”	Computer and Automation Engineering
Master Degree	110 e lode	2016	Univ. of Rome “La Sapienza”	Control Engineering
PhD	With honors (con lode)	2020	Univ. of Rome “La Sapienza”	Automatic Control (ABRO XXXII cycle)

Part III – Academic Appointments

Institution	Department of Computer, Control, and Management Engineering “Antonio Ruberti” (DIAG), University of Rome “La Sapienza”

Start	End	Position
2019	2021	Assegnista di ricerca
2021	Today	Ricercatore tempo determinato di tipo a

Part IV – Teaching experience

IV.A – Lecturer

Institution	University of Rome “La Sapienza”

Start	End	Corso di Laurea	Lecture/Course
2023	Today	Master in Control Engineering	Intelligent and Hybrid Control (3 CFU)
2023	Today	Computer and Automation Engineering	Applicazioni dell'automatica (2 CFU)
2021	2022	Master in Management Engineering	Process Identification and Control (2 CFU)

IV.B – Assistant Lecturer

Institution	University of Rome "La Sapienza"

2018	2020	BSc in Computer and Automation Engineering	Controlli Automatici (20 hours/year)
2016	Today	Master in Control Engineering	Control of Communication and Energy networks (6 hours/year)
2016	Today	Master in Control Engineering	Control of Autonomous Multi-Agent Systems (10 hours/year)
2016	2020	BSc in Computer and Automation Engineering	Modellistica e simulazione (8 hours/year)
2016	2018	BSc in Computer and Automation Engineering	Controllo e Gestione delle Reti (4 hours/year)

IV.C Other teaching activities

2023	Today	Co-supervisor of a PhD student enrolled in the National PhD program in Autonomous Systems (Dausy), 39th cycle, and co-supervisor of an open scholarship for a second PhD student the 40th cycle. Both scholarships were partially funded by the company Telespazio spa.
2016	Today	Advisor/Co-advisor of about 35 bachelor and master theses in the fields of control systems and automation

Part V – Editorial Roles, Qualifications, Awards and Honors, Society Memberberships

V.A – Editorial Roles

Start	End	Journal/Conference	Editor	Role
2020	Today	International Journal of Control, Automation, and Systems	Springer	Associate Editor
2022	2022	Drones, special issue "UAVs and Satellite Data for Forest Protection: Remote Sensing, Monitoring, Fire Detection and Emergency Management"	MDPI	Guest Editor
2024	2024	European Conference on Networks and Communications (EuCNC) & 6G Summit 2024	IEEE	Technical Program Committee member
2023	2023	31st Mediterranean Conference on Control and Automation, MED 2023	IEEE	Organizer of the special session "Intelligent Systems and Learning methods in Control and Decision Support Systems"

2023	2023	European Conference on Networks and Communications (EuCNC) & 6G Summit 2023	IEEE	Technical Program Committee member
2022	2022	European Conference on Networks and Communications (EuCNC) & 6G Summit 2022	IEEE	Technical Program Committee member
2022	2022	International Conference on ICT Convergence (ICTC) 2022	IEEE	Technical Program Committee member
2021	2021	International Conference on ICT Convergence (ICTC) 2021	IEEE	Technical Program Committee member
2020	2020	IEEE PES Innovative Smart Grid Technologies Europe (ISGT-Europe) 2020	IEEE	Associate Editor
2019	2019	workshop on Internet of Autonomous Unmanned Vehicles (IAUV 2019) in conjunction with IEEE International Conference on Sensing, Communication and Networking (SECON 2019)	IEEE	Technical Program Committee member

V.B – Research Groups

Start	End	Journal/Conference	Role
2016	Today	"Networked Systems" Research Group, DIAG, University of Rome "La Sapienza"	Researcher
2017	Today	Cybersecurity Research Group, CRAT	Principal Investigator and coordinator

V.C – Qualifications, Awards and Honors

Year	Title
2023	Abilitazione Scientifica Nazionale (National Scientific Qualification) in Settore Concorsuale 09/G1 – AUTOMATICA, Seconda Fascia (Associate Professor)
2023	Sole winner of the fourth edition of the "Minerva Award", issued by "Fondazione Sapienza" for the category best postdoctoral researcher in engineering (Macroarea D). This edition of the award was recognized to the single postdoctoral researcher that reached the most significant research impact among the ones formerly enrolled in a PhD school offered by Sapienza for the PhD cycles XXXII to XXXIV.
2023	ETRI Journal "Best original journal paper award for the year 2021" for the paper: "6G in the sky: On-demand intelligence at the edge of 3D networks", ETRI Journal, 2020, https://doi.org/10.4218/etrij.2020-0205
2021	Sole winner of the third edition of the "Minerva Award", issued by "Fondazione Sapienza" for the category best PhD student in engineering (Macroarea D). This edition of the award was recognized to the single PhD student that reached the most significant research impact among the ones enrolled in a PhD school offered by Sapienza for the PhD cycles XXXII to XXXIII.
2020	Telespazio Technology Contest 2020 - #T-Tec2020 - first place among teams from 32 departments of European universities in the "Photon" category, reserved for scientific innovation in the aerospace sector, for the proposed disaster risk monitoring and control prototype based on satellite data.

V.D – Society Memberships

Year	Title
2022	IEEE Senior Member

Part VI–Startup, Patents, Technology Transfer Activities

VI.A – Startup

Start	End	Name	Role
2023	Today	AUTOMATION INTELLIGENCE AND CONTROL S.P.A.	Founder and CTO

The startup, “Automation Intelligence and Control S.R.L.”, Cod. Fisc. 17291131005, supported by the University of Rome “La Sapienza”, was founded in 2023 by A. Pietrabissa, F. Delli Priscoli and A. Giuseppi. Since then, A. Giuseppi has served as its chief technical officer (CTO), overseeing and coordinating all of its technical and scientific activities. The startup is aimed at the development, production and marketing of innovative products or services with high technological value, employing solutions based on automation, optimization and artificial intelligence methods, for the analysis, management, evaluation and control of complex systems and processes to improve their efficiency and sustainability.

VI.B – Patents

Start	End	Name	Role
2018	Today	Procedimento indirizzato a pazienti con disabilità motorie per scegliere un comando mediante un'interfaccia grafica, relativo sistema e prodotto informatico*	Co-inventor

* Procedure addressed to patients with motor disabilities to choose a control by means of a graphical interface, related system and computer product

The patent was filed in 2018 (application no. 102018000002114) and granted in 2020. The patent is owned by University of Rome “La Sapienza” (80%) and Istituto Superiore di Sanità (20%).
The proposed system assists patients in human-computer interaction by facilitating the use of graphical interfaces. During the use of the interface, the system calculates a prediction on what action the patient wants to take and assists him in the selection. The system is based on model predictive control methodologies assisted by machine learning techniques.

VI.C – Technology Transfer Activities

Start	End	Activity and Role
2024	Today	Member of the Technical Committee of the “Consortium for the Research in Automation and Telecommunication” (CRAT), a non-profit research organization participated by the University of Rome “La Sapienza”.
2023	2023	Co-Principal Investigator of the work contract (Conto Terzi) with the company Telespazio spa for the technology transfer activity titled “Progettazione controllore Cinetelescopio”, for a total funding of about [redacted]
2024	2025	Co-Principal Investigator of the work contract (Conto Terzi) with the company Medinok spa for the technology transfer activity titled “SisteMa di monitoraggio intElligente e multipiattafoRma per la siCURezza dell’Infrastruttura ferrOviaria” (MERCURIO), for a total funding of about [redacted]

Part VII - Funding Information

Since 2015, A. Giuseppi participated in 12 research projects (plus several projects funded by the University of Rome “La Sapienza”, i.e., “progetti di Ateneo”, and third-party contracts): 5 were funded by the European Union (EU), 2 projects by the European Space Agency (ESA), 1 project was funded by the French National Centre for Space Studies (CNES), 4 projects received National funding.
The research units involved in the projects were either the University of Rome “La Sapienza” or the Consortium for the Research in Automation and Telecommunication (CRAT), a non-profit research organization participated by “La Sapienza”.
The main technical contributions to the projects consisted in the design and development of control applications to deal with complex processes in various industries (including telecommunications, e-health, smart energy and environmental protection), the support to dissemination and exploitation activities and the support to the integration of the prototypes for the project demonstrations.

Role in funded project	Number of projects	Grant value (projects)	Grant value (research unit)
Scientific coordinator of the project	1		
Work Package Leader	3		
Scientific coordinator of the research unit	3		
Participant	5		
Total number of projects	12		

VII.A – Project Coordination

The following list details the projects for which A. Giuseppi served as the scientific coordinator of the entire project, overseeing all of its technical and scientific activities.

Year	Title	Program	Grant value (Project)	Grant value (Res. unit)
2020-2021	ARIES	ESA - IAP 5G for L'ART		

Project name: Advanced multi-Rat Integrated multi-sensors solution for Emergency prevention, detection and response operationS.
Grant n.: 4000133127/20/NL/AF.
Website: https://business.esa.int/projects/aries.
Project objective: The project developed for its end users, i.e. the Municipality of L’Aquila/Abruzzo Region, and in particular the Italian Fire Brigades and the Regional Civil Protection Service, an efficient monitoring and decision support system for the prevention, monitoring and management of emergencies (fires, landslides, etc.) in the rural territory of L’Aquila.
Personal research activities focused on the design of optimal sensor network placement algorithm, on developing a deep learning-assisted fire risk propagation model and on the design of multi-connectivity algorithms for remote signaling during emergencies in 5G networks.
Roles of A. Giuseppi: Technical and scientific coordinator of the entire project.

VII.B – Work Package Leader

The following list reports all projects in which A. Giuseppi had a role of coordinator of a Work Package, hence being responsible for the research activities of all the project partners and research units involved in the Work Package. For each project, it is reported a summary of his personal research activities and the scope of the coordinated Work Package.

Year	Title	Program	Grant value (Project)	Grant value (Res. unit)
2023-2025	INSOORE AI	PR FESR Lazio 2021-2027		

Grant n.: A0613-2023-078038

Project objective: the project aims to automate and streamline a large part of the accident management process for the automotive liability insurance industry. The software platform developed in the project combines computer vision, data processing and deep learning in an explainable AI setting to provide decision support in detecting and locating car damage.

Personal research activities focus on the design of the decision support system of the project and in the design of both its damage detection and location deep learning systems.

Roles of A. Giuseppi: Co-coordinator of the research unit and coordinator of the Work-Package titled "WP1 Technology validation - Automatic recognition and localization of car damages", which is responsible for designing and developing the functionalities needed to automatically locate vehicle damage and estimate their severity.

2018-2021	5G-ALLSTAR	H2020 EU-Korea programme*		

*The project was co-funded by EU H2020 and by the South Korea government and was organized in two sub-projects: the EU project with European partners, the KR project with Korean partners. The reported project grant is referred to the EU contribution.

Project name: 5G AgiLe and fLexible integration of SaTellite And cellular

Grant n.: 815323.

Website: https://cordis.europa.eu/project/rcn/217775_en.html.

Project objective: The project, a joint EU-Korea action, aimed at enabling seamless multi-connectivity between the 5G and the satellite Networks, by means of traffic-flow control for load balancing and dynamic spectrum sharing solutions.

Personal research activities focused on the design and development of network control systems for dynamic load balancing in heterogeneous multi-RAT networks, based on Control Theory, Reinforcement Learning and Game Theory.

Roles of A. Giuseppi: Coordinator of the Work-Package "WP4 Multi-Connectivity" responsible for the design and development of network controllers for the traffic-flow balancing problem in heterogeneous multi-RAT networks and the integration of satellite connections in the 5G framework.

2016-2019	ATENA	H2020		

Project name: Advanced Tools to assEss and mitigate the criticality of ICT compoNents and their dependencies over Critical InfrAstructures.

Grant n.: 700581.

Website: https://cordis.europa.eu/project/rcn/202699_en.html.

Project objective: The project focused on the design of advanced control systems for the protection of Critical Infrastructure, modelled as Cyber-Physical Systems, covering all aspects of the Prevent-Detect-Mitigate paradigm for security.

Personal research activities focused on the protection of Power Networks, by means of solutions based on Model Predictive Control and Robust Control Theory, for its efficient and resilient operation, even under ongoing Cyber-Physical Attacks.

Roles of A. Giuseppi: Coordinator of the Work-Package "WP3 IACS design for security" responsible for the development of an optimal planner solution for the design of secure Cyber-Physical Systems, based on the Open Source Security Testing Methodology Manual (OSSTMM), and the identification of the whole ATENA system requirements and architecture.

The total grant value was more than 9,000,000 € (projects) – 1,200,000 € (research unit)

VII.C – Coordination of Research Unit

The following list reports all projects in which A. Giuseppi had a role of coordinator of the local research unit, reporting for each a summary of his personal research activities and the objective of the coordinated unit.

Year	Title	Program	Grant value (Project)	Grant value (Res. unit)
2023-2025	NANCY	Horizon Europe		

Project name: An Artificial Intelligent Aided Unified Network for Secure Beyond 5G Long Term Evolution.
Grant n.: 101096456.
Website: https://cordis.europa.eu/project/id/101096456.
Project objective: The project aims at the development of an architecture for Beyond 5G networks (B5G) that enables secure and intelligent resource management, flexible networking, and orchestration through AI and blockchain.
Task of the research unit: research, development and implementation of AI-aided traffic control and resource allocation algorithms for self-healing, increased resiliency and optimized power consumption in terrestrial and satellite hybrid communication networks.
Role of A. Giuseppi: scientific co-coordinator of the research unit.

2022-2023	HyDemo	ESA HydRON		

Project name: HydRON DEMOnstration System (DS) PHASE A/B1
Grant n.: 1550007580
Website: https://connectivity.esa.int/opportunity-high-throughput-optical-network-demonstration-system-hydronds.
Project objective: The project aims at the development of a high-throughput optical network for broadband in space, as part of the ScyLight programme of the European Space Agency (ESA) for developing secure and laser communication technology.
Task of the research unit: research, development and implementation of traffic steering and resource management algorithms for the seamless integration of space and ground communications.
Role of A. Giuseppi: scientific co-coordinator of the research unit

2021-2022	Allena-Mente	Private national funding		

Project objective: The project, which is a joint action among CRAT, Istituto Superiore di Sanità (ISS) and the pediatric hospital Bambino Gesù, aimed at the development of a set of self-adapting serious games tailored for the rehabilitation of pediatric patients with cognitive disorders
Task of the research unit: design and development of the suite of serious games and of the data analytics solutions of the project to enable patient profiling and decision support.
Role of A. Giuseppi: scientific coordinator of the research unit

The total grant value was about 6,400,000 € (projects) – 440,000 € (research unit)

VII.D – Participation in Research Projects

In the project listed below, A. Giuseppi has participated as a researcher, contributing to the design and development of the project objectives. For each project it is reported a short summary of A. Giuseppi's main contributions.

Year	Title	Program	Grant value (Project)	Grant value (Res. unit)
2021-2024	PON - Green	FSE REACT-EU		

Project name: Monitoraggio e controllo del territorio per la prevenzione di eventi climatici e naturali avversi e mitigazione delle loro conseguenze.
Grant n.: 26-G-15302-2.

Project objective: The project aims at studying, designing and developing decision support systems to - evaluate and manage the risk associated to natural disaster on the basis of ground and satellite data.
Personal research activities were carried-out in collaboration with the aerospace company Telespazio spa and focused on the development of a decision support system to assess wildfire and landslide risk from satellite products.

2019-2022	SESAME	H2020		

Project name: Smart European Space Access through Modern Exploitation of Data Science.
Grant n.: 821875.
Website: https://cordis.europa.eu/project/id/821875.
Project objective: The project aims at improving European launchers' manufacturing and operations through Industry 4.0 solutions and Artificial Intelligence methods for automated logistics and Predictive Maintenance/Quality.
Personal research activities focused on the design and development of dynamic and adaptive optimization solutions for automatic operation management and predictive maintenance in spacecraft launch campaigns, based on Artificial Intelligence and Control Theory.

2022-2025	ENAI	CNES AI Challenge		

Project name: Energy and context aware AI-enabled Decision Support System for optimizing pre and post launch operations.
Grant n.: 5700007530
Project objective: The project aims at optimizing launch campaigns through an AI-enabled optimization of pre and post operations, with a particular focus on energy efficiency and fault resiliency.
Personal research activities focused on the design and development of a predictive operation optimization tool based on the model predictive control paradigm.

2016	T-NOVA	FP7		

Project name: Network Functions as-a-Service over Virtualised Infrastructures
Grant n.: 619520
Website: https://cordis.europa.eu/project/id/619520
Project objective: The project aimed at the design and implementation of a management/orchestration platform for the automated provision, configuration, monitoring and optimization of Virtualised Network Functions and Services over Virtualised Network/IT infrastructures.
Personal research activities focused, starting from the master thesis, on the development of control solutions based on Reinforcement Learning for the optimal allocation of Virtualised Network Resources, and on the design of load balancing algorithms in Software Defined Networks.

2015	PLATINO	MIUR-PON		

Project name: PLATform for INnOvative services in future internet.
Grant n.: PON01_01007
Website: http://www.ponrec.it/open-data/progetti/scheda-progetto?ProgettoID=7608.
Project objective: The project aimed at the design and development of a Quality-of-Experience aware system for smart service provision and media delivery in the Future Internet framework.
Personal research activities were carried out during the bachelor and master thesis studies, leading to two publications, and focused on the design of a model-free controller based on Reinforcement Learning for the problem of optimal network resource management.

VII.E – Collaborations with Research Projects

In the project listed below, A. Giuseppi has contributed to the research activities through scientific collaborations. For each project it is reported a short summary of A. Giuseppi's main contributions.

2021-2024	CADUCEO	MISE-PON FESR 2014-2020		

Project name: Cloud plAtform for intelligent prevention and Diagnosis sUpported by artifiCial IntelligEnce sOlutions

Grant n.: F/180025/02/X43
Project objective: The project aims at the development of a decision support system for the prevention, diagnosis and prognosis of eosinophilic esophagitis, inflammatory bowel disease and portal hypertension.
Personal research activities are related to the design and development of the deep learning solutions enabling the analysis of the project data and the decision support system, including: custom computer vision tools, consensus-based federated learning algorithms, explainable AI solutions.

2021-2023	FedMedAI	POR FESR		

Project name: Elaborazione di dati clinici con metodologie di intelligenza artificiale per strutture sanitarie federate nel rispetto del GDPR.
Grant n.: A0375-2020-36491
Website: https://sites.google.com/diag.uniroma1.it/fedmedai/home.
Project objective: The project aimed at the design and development of a federated learning platform to enable the distributed training of deep learning models for e-health applications without exchanging any confidential data.
Personal research activities focused on the design of federated learning algorithms based on the consensus theory of dynamical systems, allowing for the complete decentralization of the training process with convergence guarantees.

VII.F – Funding Procurement

Since 2016, A. Giuseppi has participated and coordinated the activities related to the procurement of research grants and funding opportunities, starting from the building of consortia to the actual writing of the proposals, in several proposals for European and national funding programmes.
Among the various applications submitted, we mention the procurement of the projects (detailed in sections VII.A-VII.E): NANCY (Horizon Europe), 5G-ALLSTAR (EU-Korea Horizon 2020), SESAME (Horizon 2020), CADUCEO (national), ARIES (ESA), FedMedAI (national), Allena-Mente (national), for a total funding obtained for the research unit (either Sapienza or CRAT) of over

Part VIII – Research Activities

The three main research activities pursued by A. Giuseppi are described in the following sections. Selected publications are cited for each activity. Some activities were carried out in the framework of the projects listed in Section VI, which are referenced in the text by the project name.

VIII.A Distributed control of networks: non-cooperative routing, load balancing and optimal network resource management

Keywords	Brief Description
Distributed control Wardrop equilibrium Load balancing Routing Resource Management	This research activity covers the studies related to the control of smart networks, which spaced from the convergence properties of non-cooperative distributed routing and load balancing algorithms to the optimal management of network resources in connection admission control (CAC) procedures. Regarding routing and load balancing, the sought network equilibria are the Wardrop or Backmann equilibria, which are regarded as Nash equilibria in case of large (potentially infinite) number of competing agents. In this direction, the main achieved results are the analysis of Wardrop equilibria and the study of their convergence through Lyapunov arguments over networks affected by time-varying bounded delays [1] and in time-varying setting, including variable load [2] and latencies [3]. On the contrary, in scenarios in which estimating correctly the exogeneous factors impacting the network and flow dynamics, such as user requests, was challenging, the optimal usage of network resources has been investigated in works such as [4,5] leveraging on model-free control techniques such as Reinforcement Learning. The mentioned theoretical results are the ground of algorithms developed and implemented in the framework of EU projects (e.g., T-NOVA, 5G-ALLSTAR, NANCY), and found applications in 5G communication networks [6] and software-defined networking [7].

[1] **Giuseppi, A**., & Pietrabissa, A. (**2020**). Wardrop equilibrium in discrete-time selfish routing with time-varying bounded delays. **IEEE Transactions on Automatic Control**, 66(2), 526-537, DOI: 10.1109/TAC.2020.2981906

[2] **Giuseppi, A**., & Pietrabissa, A. (**2022**). Stability and wardrop equilibria of noncooperative routing with time-varying load. **IEEE Transactions on Automatic Control**, 68(6), 3814-3821, DOI: 10.1109/TAC.2022.3198028.

[3] **Giuseppi, A**., Menegatti, D., & Pietrabissa, A. (**2023**). Stability of non-cooperative load balancing with time-varying latency. In 2023 62nd **IEEE Conference on Decision and Control** (CDC) (pp. 7445-7450). IEEE, DOI: 10.1109/cdc49753.2023.10383685.

[4] Pietrabissa, A., Priscoli, F. D., Di Giorgio, A., **Giuseppi, A**., Panfili, M., & Suraci, V. (**2017**). An approximate dynamic programming approach to resource management in multi-cloud scenarios. **International Journal of Control**, 90(3), 492-503, DOI: 10.1080/00207179.2016.1185802.

[5] De Santis, E., **Giuseppi, A**., Pietrabissa, A., Capponi, M., & Delli Priscoli, F. (**2022**). Satellite integration into 5G: Deep reinforcement learning for network selection. **Machine Intelligence Research**, 19(2), 127-137, DOI: 10.1007/s11633-022-1326-3.

[6] Priscoli, F. D., De Santis, E., **Giuseppi, A**., & Pietrabissa, A. (**2021**). Capacity-constrained Wardrop equilibria and application to multi-connectivity in 5G networks. **Journal of the Franklin Institute**, 358(17), 9364-9384, doi:10.1016/j.jfranklin.2021.09.025

[7] Pietrabissa, A., Ricciardi Celsi, L., Cimorelli, F., Suraci, V., Delli Priscoli, F., Di Giorgio, A., **Giuseppi, A**., Monaco, S., (**2018**). Lyapunov-based design of a distributed wardrop load-balancing algorithm with application to software-defined networking. **IEEE Transactions on Control Systems Technology**, 27(5), 1924-1936.

VIII.B Intelligent Control Systems: Markov Decision Processes, Neural Control, Reinforcement and Federated Learning

Keywords	Brief Description
Intelligent control systems Markov Decision Proceses Machine learning	This research activity started with the study of the properties of Markov decision processes (MDPs) and their application to telecommunication problems in the framework of EU (e.g., T-NOVA) and National (PLATINO) projects. In such a setting, to address scalability concerns and cope with unmodelled dynamics, Reinforcement Learning (RL)-based controllers were investigated [1] in order to

Reinforcement learning Federated learning	adequately approximate the optimal control law and/or value functions to manage the network resources in realistic settings. Starting from these first results, the integration of RL into traditional control schemes was investigated in works such as [2] and [3], where Deep RL (DRL) was used to deal with challenging optimal control problems involving respectively probabilistic constraints and time-varying tasks under unknown system dynamics. Such DRL-based control laws have been applied to control complex nonlinear systems, such as spectroscopy [4] and the heterogeneous communication networks [5] studied in the EU-Korea project 5G-ALLSTAR. The advantages of including deep neural networks into standard control loops have been further explored to enrich the feedback and measurements collected observing a complex process [6,7] and to identify its underlying dynamics even in the presence of significant levels of noise [8]. Starting from a collaboration with the National-funded project FedMedAI, coordinated by Sapienza, consensus theory of dynamical systems was employed to develop fully decentralized Federated Learning algorithms for distributed and privacy-preserving training of neural networks [9]-[11], finding application in the e-health domain [12] .

[1] Pietrabissa, A., Priscoli, F. D., Di Giorgio, A., **Giuseppi, A**., Panfili, M., & Suraci, V. (**2017**). An approximate dynamic programming approach to resource management in multi-cloud scenarios. **International Journal of Control**, 90(3), 492-503, DOI: 10.1080/00207179.2016.1185802.

[2] **Giuseppi, A**., & Pietrabissa, A. (**2020**). Chance-constrained control with lexicographic deep reinforcement learning. **IEEE Control Systems Letters**, 4(3), 755-760, DOI: 10.1109/lcsys.2020.2979635.

[3] **Giuseppi, A**., & Pietrabissa, A. (**2022**). Bellman's principle of optimality and deep reinforcement learning for time-varying tasks. **International Journal of Control**, 95(9), 2448-2459, DOI: 10.1080/00207179.2021.1913516.

[4] Valensise, C. M., **Giuseppi, A**., Cerullo, G., & Polli, D. (**2021**). Deep reinforcement learning control of white-light continuum generation. **Optica**, 8(2), 239-242, DOI: 10.1364/optica.414634.

[5] De Santis, E., **Giuseppi, A**., Pietrabissa, A., Capponi, M., & Delli Priscoli, F. (**2022**). Satellite integration into 5G: Deep reinforcement learning for network selection. **Machine Intelligence Research**, 19(2), 127-137, DOI: 10.1007/s11633-022-1326-3.

[6] Valensise, C. M., **Giuseppi, A**., Vernuccio, F., De la Cadena, A., Cerullo, G., & Polli, D. (**2020**). Removing non-resonant background from CARS spectra via deep learning. **APL Photonics**, 5(6), DOI: 10.1063/5.0007821.

[7] Vernuccio, F., Bresci, A., Cimini, V., **Giuseppi, A**., Cerullo, G., Polli, D., & Valensise, C. M. (**2022**). Artificial intelligence in classical and quantum photonics. **Laser & Photonics Reviews**, 16(5), 2100399, DOI: 10.1002/lpor.202100399.

[8] **Giuseppi, A.**, Menegatti, D., Pietrabissa, A. (**2024**, in press). Identifying Chaotic Dynamics in Noisy Time Series through Multimodal DNN. Machine Learning: Science and Technology.

[9] **Giuseppi, A**., Manfredi, S., & Pietrabissa, A. (**2022**). A weighted average consensus approach for decentralized federated learning. **Machine Intelligence Research**, 19(4), 319-330, DOI: 10.1007/s11633-022-1338-z.

[10] **Giuseppi, A**., Torre, L. D., Menegatti, D., Priscoli, F. D., Pietrabissa, A., & Poli, C. (**2022**). An adaptive model averaging procedure for federated learning (adafed). **Journal of Advances in Information Technology**, 13(6), 539-548.V, DOI: 10.12720/jait.13.6.539-548

[11] D. Menegatti, A. Giuseppi, S. Manfredi, A. Pietrabissa, "A Discrete-Time Multi-Hop Consensus Protocol for Decentralized Federated Learning", **IEEE Access**, 2023, 11, pp. 80613 - 80623, doi: 10.1109/ACCESS.2023.3299443

[12] Giuseppi, S. Manfredi, D. Menegatti, F. Delli Priscoli, A. Pietrabissa, C. Poli, "Decentralised Federated Learning for Hospital Networks With Application to COVID-19 Detection", 2022 , **IEEE Access**, 10, pp. 92681 - 92691, DOI: 10.1109/ACCESS.2022.3202922

VIII.C Predictive and Secure Control of Cyber-Physical Systems

Keywords	Brief Description
Model Predictive Control Cyber-Physical Systems Safety and Security	This research activity focused on the study of cyber-physical systems (CPS), which are a general class of systems characterized by a strong connection between a physical process and a digital/ICT domain, as is the case for smart grids and critical infrastructures. The control of CPS poses several challenges, as the typical properties sought by traditional control schemes, such as stability and robustness, are paired with concepts such as security, safety and information integrity, calling for hybrid and multi-objective controllers capable of ensuring prescribed system performances with an adequate level of resiliency.

Environmental Protection	In this direction, Economic Model Predictive Control (EMPC) schemes were studied for several complex CPS [1,2], combining nonlinear models of the physical system dynamics with logic constraints to capture operative/security requirements, prescribed procedures and best practices. The resulting hybrid constrained systems were then fed with short-term predictions of the exogeneous signals of interests (e.g., solar power production) and optimized in mixed-integer programming settings, considering multiple competing objectives to capture user, system and service-level key performance indicators. Regarding the security and safety aspects, in the scope of critical infrastructures protection and in particular of the project ATENA, in order to ensure service continuity despite adverse events and/or malicious attacks, robust control schemes were investigated [3,4], leveraging on the capabilities offered by modern power sources and energy storage systems. Risk management and environmental protection were also pursued employing ad-hoc decision support systems in the context of project ARIES, focusing in particular on wildfire risk mitigation through the combination of IoT terrestrial data, satellite sources [5] and a dynamic patrolling logic for a fleet of sensing drones [6] to build a digital twin of the protected area to better predict fire propagation and detect starting fire events.

[1] Liberati, F., Di Giorgio, A., **Giuseppi, A**., Pietrabissa, A., Habib, E., & Martirano, L. (**2019**). Joint model predictive control of electric and heating resources in a smart building. **IEEE Transactions on Industry Applications**, 55(6), 7015-7027, DOI: 10.1109/tia.2019.2932954.

[2] Liberati, F., Di Giorgio, A., **Giuseppi, A**., Pietrabissa, A., & Priscoli, F. D. (**2020**). Efficient and risk-aware control of electricity distribution grids. **IEEE Systems Journal**, 14(3), 3586-3597, DOI: 10.1109/jsyst.2020.2965633.

[3] Germanà, R., **Giuseppi, A**., & Di Giorgio, A. (**2020**). Ensuring the stability of power systems against dynamic load altering attacks: A robust control scheme using energy storage systems. In 2020 **European Control Conference** (ECC) (pp. 1330-1335). IEEE.

[4] Di Giorgio, A., **Giuseppi, A**., Liberati, F., & Pietrabissa, A. (**2017**). Controlled electricity distribution network black start with energy storage system support. In 2017 25th **Mediterranean Conference on Control and Automation** (MED) (pp. 781-786). IEEE, DOI: 10.1109/MED.2017.7984213.

[5] Santopaolo, A., Saif, S. S., Pietrabissa, A., & **Giuseppi, A**. (**2021**). Forest fire risk prediction from satellite data with convolutional neural networks. In 2021 29th **Mediterranean Conference on Control and** Automation (MED) (pp. 360-367). IEEE, DOI: 10.1109/med51440.2021.9480226.

[6] **Giuseppi, A**., Germanà, R., Fiorini, F., Delli Priscoli, F., & Pietrabissa, A. (**2021**). UAV patrolling for wildfire monitoring by a dynamic voronoi tessellation on satellite data. **Drones**, 5(4), 130, DOI: 10.3390/drones5040130.

Part IX – Summary of Scientific Achievements

Product type	Number	Data Base	Start	End
Journal Papers [international]	33	Scopus, 17/08/2024	2017	2024
Conference Papers [International]	46	Scopus, 17/08/2024	2015	2024

Total Impact factor (IF)*	121.96	Data base: Journal Citation Reports, 17/08/2024
Average Impact factor (IF)	3.93	Data base: Journal Citation Reports, 17/08/2024
Total Citations**	681	Data base: Scopus, 17/08/2024
Average Citations per Product***	8.62	Data base: Scopus, 17/08/2024
Hirsch (H) index	16	Data base: Scopus, 17/08/2024
Normalized H index****	1.6	Data base: Scopus, 17/08/2024

* In case of unavailability of the journal IF for the year of publication, the IF of the closest year was considered (e.g., for the publications published in 2024, the IF of 2023 was considered).
** Citations of the international journal and conference papers.
*** Ratio between total citations and the number of international journal and conference papers.
**** H index divided by the academic seniority.

Part X – Selected Publications

N.	Year	Publication	IF*	Cit.**
1	2023	Giuseppi, A.; Pietrabissa, A. (2023). Stability and Wardrop Equilibria of Non-Cooperative Routing with Time-Varying Load. **IEEE TRANSACTIONS ON AUTOMATIC CONTROL**, vol. 68 (6), pp. 3814-3821, doi: 10.1109/TAC.2022.3198028	6.2	1
2	2022	Giuseppi, A.; Manfredi, S.; Pietrabissa, A. (2022). A Weighted Average Consensus Approach for Decentralized Federated Learning. **MACHINE INTELLIGENCE RESEARCH** vol. 19 (4), pp. 319–330, doi: 10.1007/s11633-022-1338-z	6.4	13
3	2021	Giuseppi, A., Pietrabissa, A. (2021). Wardrop Equilibrium in Discrete-Time Selfish Routing with Time-Varying Bounded Delays. **IEEE TRANSACTIONS ON AUTOMATIC CONTROL**, vol. 66, p. 526-537, ISSN: 0018-9286, doi: 10.1109/TAC.2020.2981906	6.549	10
4	2021	Valensise, Carlo M., Giuseppi, Alessandro, Cerullo, Giulio, Polli, Dario (2021). Deep reinforcement learning control of white-light continuum generation. **OPTICA**, vol. 8, p. 239-242, ISSN: 2334-2536, doi: 10.1364/OPTICA.414634	10.644	27
5	2021	Giuseppi, A.; Pietrabissa, A. (2021). Bellman's principle of optimality and deep reinforcement learning for time-varying tasks. **INTERNATIONAL JOURNAL OF CONTROL** vol. 95 (9), doi: 10.1080/00207179.2021.1913516	2.102	4
6	2021	Delli Priscoli, F. , De Santis, E., **Giuseppi, A**., & Pietrabissa, A. (**2021**). Capacity-constrained Wardrop equilibria and application to multi-connectivity in 5G networks. **JOURNAL OF THE FRANKLIN INSTITUTE**, 358(17), 9364-9384, doi: 10.1016/j.jfranklin.2021.09.025	4,246	10
7	2020	Liberati, F., Di Giorgio, A., Giuseppi, A., Pietrabissa, A., & Priscoli, F. D. (2020). Efficient and risk-aware control of electricity distribution grids. **IEEE SYSTEMS JOURNAL**, 14(3), 3586-3597, doi: 10.1109/JSYST.2020.2965633	3,931	8

8	2020	Giuseppi, A.; Pietrabissa, A. (2020). Chance-Constrained Control with Lexicographic Deep Reinforcement Learning. **IEEE CONTROL SYSTEMS LETTERS**, vol. 4 (3), pp. 755-760, doi: 10.1109/LCSYS.2020.2979635	3	5
9	2019	Giuseppi A., Pietrabissa A., Cilione S., Galvagni L. (2019). Feedback linearization-based satellite attitude control with a life-support device without communications. **CONTROL ENGINEERING PRACTICE**, vol. 90, p. 221-230, doi: 10.1016/j.conengprac.2019.06.020	3.193	17
10	2019	Liberati F., Di Giorgio A., Giuseppi A., Pietrabissa A., Habib E., Martirano L. (2019). Joint Model Predictive Control of Electric and Heating Resources in a Smart Building. **IEEE TRANSACTIONS ON INDUSTRY APPLICATIONS**, vol. 55, p. 7015-7027, doi: 10.1109/TIA.2019.2932954	3.488	28
11	2019	Pietrabissa, A., Ricciardi Celsi, L., Cimorelli, F, Suraci, V, Delli Priscoli, F., Di Giorgio, A., Giuseppi, A., Monaco, S (2019). Lyapunov-based design of a distributed Wardrop load-balancing algorithm with application to software-defined networking. **IEEE TRANSACTIONS ON CONTROL SYSTEMS TECHNOLOGY**, vol. 25, p. 1924-1936, doi: 10.1109/TCST.2018.2842044	5.371	25
12	2017	Pietrabissa, A., Delli Priscoli, F., Di Giorgio, A., Giuseppi, A., Panfili, M., Suraci, V (2017). An approximate dynamic programming approach to resource management in multi-cloud scenarios. **INTERNATIONAL JOURNAL OF CONTROL**, vol. 90 (3), p. 492-503, doi: 10.1080/00207179.2016.1185802	2.101	30

* Data base: Journal Citation Reports, 17/08/2024. In case of unavailability of the journal IF for the year of the publication, the IF of the closest year was considered (e.g., for the publications published in 2024, the IF of 2023 was considered).

** Data base: Scopus, 17/08/2024

Part XI – Full Publication List

This section reports all A. Giuseppi's publications indexed by Scopus by 17/08/2024 divided by type (journal and conference papers).

XI.A - Journal Papers

[J33] **A. Giuseppi** and A. Pietrabissa, "Stability and wardrop equilibria of noncooperative routing with time-varying load", ***IEEE Transactions on Automatic Control***, vol. 68, no. 6, pp. 3814–3821, **2023**. doi: 10.1109/tac. 2022.3198028.

[J32] D. Menegatti, **A. Giuseppi**, S. Manfredi, and A. Pietrabissa, "A discrete-time multi-hop consensus protocol for decentralized federated learning", ***IEEE Access***, vol. 11, pp. 80613–80623, **2023**. doi: 10.1109/access.2023. 3299443.

[J31] A. Zivelonghi and **A. Giuseppi**, "Smarthealthyschools: An IoT-enabled conceptformulti-roomdynamicairquality control", ***Internet of Things and Cyber-Physical Systems***, **2023**. doi: 10.1016/j.iotcps.2023.05.005.

[J30] D. Menegatti, **A. Giuseppi**, F. Delli Priscoli, A. Pietrabissa, A. Di Giorgio, F. Baldisseri, M. Mattioni, S. Monaco, L. Lanari, M. Panfili, and V. Suraci, "Caduceo: A platform to support federated healthcare facilities through artificial intelligence", ***Healthcare***, vol. 11, no. 15, p. 2199, **2023**. doi: 10.3390/healthcare11152199.

[J29] F. Baldisseri, A. Wrona, D. Menegatti, A. Pietrabissa, S. Battilotti, C. Califano, A. Cristofaro, P. Di Giamberardino, F. Facchinei, L. Palagi, **A. Giuseppi**, and F. Delli Priscoli, "Deep neural network regression to assist non-invasive diagnosis of portal hypertension", ***Healthcare***, vol. 11, no. 18, p. 2603, **2023**. doi: 10.3390/healthcare11182603.

[J28] F. Vernuccio, A. Bresci, V. Cimini, **A. Giuseppi**, G. Cerullo, D. Polli, and C. M. Valensise, "Artificial intelligence in classical and quantum photonics", ***Laser & Photonics Reviews***, vol. 16, no. 5, p. 2100399, **2022**. doi: 10. 1002/lpor.202100399.

[J27] F. Baldisseri, A. Maiani, E. Montecchiani, F. D. Priscoli, **A. Giuseppi**, D. Menegatti, and V. Fogliati, "An in- tegrated music and artificial intelligence system in support of pediatric neurorehabilitation", ***Healthcare***, vol. 10, no. 10, p. 2014, **2022**. doi: 10.3390/healthcare10102014.

[J26] **A. Giuseppi**, S. Manfredi, D. Menegatti, C. Poli, and A. Pietrabissa, "Decentralised federated learning for hospital networks with application to COVID-19 detection", ***IEEE Access***, vol. 10, pp. 92681–92691, **2022**. doi: 10.1109/ access.2022.3202922.

[J25] F. Sciancalepore, L. Tariciotti, G. Remoli, D. Menegatti, A. Carai, G. Petruzzellis, K. P. Miller, F. D. Priscoli, **A. Giuseppi**, R. Premuselli, A. E. Tozzi, A. Mastronuzzi, N. Vanacore, E. Lacorte, and A.-M. S. Group, "Computer- based cognitive training in children with primary brain tumours: A systematic review", ***Cancers***, vol. 14, no. 16, p. 3879, **2022**. doi: 10.3390/cancers14163879.

[J24] **A. Giuseppi**, S. Manfredi, and A. Pietrabissa, "A weighted average consensus approach for decentralized federated learning", ***Machine Intelligence Research***, vol. 19, no. 4, pp. 319–330, **2022**. doi: 10.1007/s11633-022-1338-z.

[J23] **A. Giuseppi**, F. Delli Priscoli, and A. Pietrabissa, "Robust and fault-tolerant spacecraft attitude control based on an extended-observer

design", ***Control Theory and Technology***, vol. 20, no. 3, pp. 323–337, **2022**. doi: 10.1007/s11768-022-00101-2.

[J22] E. D. Santis, **A. Giuseppi**, A. Pietrabissa, M. Capponi, and F. D. Priscoli, "Satellite integration into 5g: Deep reinforcement learning for network selection", ***Machine Intelligence Research***, vol. 19, no. 2, pp. 127–137, **2022**. doi: 10.1007/s11633-022-1326-3.

[J21] **A. Giuseppi**, L. Della Torre, D. Menegatti, F. Delli Priscoli, A. Pietrabissa, and C. Poli, "An adaptive model averaging procedure for federated learning (ADAFED)", ***Journal of Advances in Information Technology***, vol. 13, no. 6, **2022**. doi: 10.12720/jait.13.6.539-548.

[J20] **A. Giuseppi** and A. Pietrabissa, "Wardrop equilibrium in discrete-time selfish routing with time-varying bounded delays", ***IEEE Transactions on Automatic Control***, vol. 66, no. 2, pp. 526–537, **2021**. doi: 10.1109/tac. 2020.2981906.

[J19] F. D. Priscoli, E. D. Santis, **A. Giuseppi**, and A. Pietrabissa, "Capacity-constrained wardrop equilibria and appli- cation to multi-connectivity in 5G networks", ***Journal of the Franklin Institute***, vol. 358, no. 17, pp. 9364–9384, **2021**. doi: 10.1016/j.jfranklin.2021.09.025.

[J18] **A. Giuseppi**, R. Germanà, F. Fiorini, F. D. Priscoli, and A. Pietrabissa, "UAV patrolling for wildfire monitoring by adynamic voronoi tessellationonsatellitedata", ***Drones***, vol.5, no.4, p.130, **2021**. doi:10.3390/drones5040130.

[J17] **A. Giuseppi** and A. Pietrabissa, "Bellman's principle of optimality and deep reinforcement learning for time- varying tasks", ***International Journal of Control***, pp. 1–12, **2021**. doi: 10.1080/00207179.2021.1913516.

[J16] R. Germanà, F. Liberati, E. D. Santis, **A. Giuseppi**, F. D. Priscoli, and A. D. Giorgio, "Optimal control of plug-in electric vehicles charging for composition of frequency regulation services", ***Energies***, vol. 14, no. 23, p. 7879, **2021**. doi: 10.3390/en14237879.

[J15] C. Valensise, **A. Giuseppi**, G. Cerullo, and D. Polli, "Deep reinforcement learning control of white-light continuum generation", ***Optica***, vol. 8, no. 2, p. 239, **2021**. doi: 10.1364/optica.414634.

[J14] **A. Giuseppi** and A. Pietrabissa, "Chance-constrained control with lexicographic deep reinforcement learning", ***IEEE Control Systems Letters***, pp. 1–6, **2020**. doi: 10.1109/lcsys.2020.2979635.

[J13] C. M. Valensise, **A. Giuseppi**, F. Vernuccio, A. D. la Cadena, G. Cerullo, and D. Polli, "Removing non-resonant background from CARS spectra via Deep Learning", ***APL Photonics***, vol. 5, no. 6, p. 061305, **2020**. doi: 10. 1063/5.0007821.

[J12] E. C. Strinati, S. Barbarossa, T. Choi, A. Pietrabissa, **A. Giuseppi**, E. D. Santis, J. Vidal, Z. Becvar, T. Haustein, N. Cassiau, F. Costanzo, J. Kim, and I. Kim, "6G in the sky: On-demand intelligence at the edge of 3D networks", ***ETRI Journal***, vol. 42, no. 5, pp. 643–657, **2020**. doi: 10.4218/etrij.2020-0205.

[J11] F. Delli Priscoli, **A. Giuseppi**, and F. Lisi, "Automatic transportation mode recognition on smartphone data based on deep neural networks", ***Sensors***, vol. 20, no. 24, p. 7228, **2020**. doi: 10.3390/s20247228.

[J10] J. Kim, G. Casati, N. Cassiau, A. Pietrabissa, **A. Giuseppi**, D. Yan, E. C. Strinati, M. Thary, D. He, K. Guan, H. Chung, and I. Kim, "Design of cellular, satellite, and integrated systems for 5G and beyond", ***ETRI Journal***, vol. 42, no. 5, pp. 669–688, **2020**. doi: 10.4218/etrij.2020-0156.

[J9] F. Liberati, A. Di Giorgio, **A. Giuseppi**, A. Pietrabissa, and F. Delli Priscoli, "Efficient and risk-aware control of electricity distribution grids", ***IEEE Systems Journal***, pp. 1–12, **2020**. doi: 10.1109/jsyst.2020.2965633.

[J8] A. Tortorelli, A. Fiaschetti, R. Germanà, **A. Giuseppi**, V. Suraci, A. Andreani, and F. D. Priscoli, "A decision support tool for optimal configuration of critical infrastructures", ***International Journal of Critical Infras- tructures***, vol. 18, no. 2, p. 105, 2020. doi: 10.1504/ijcis.2022.123415.

[J7] A. Tortorelli, A. Fiaschetti, **A. Giuseppi**, V. Suraci, R. Germanà, and F. Delli Priscoli, "A security metric for assessing the security level of critical infrastructures", ***International Journal of Critical Computer-Based Systems***, vol. 10, no. 1, p. 74, **2020**. doi: 10.1504/ijccbs.2020.108685.

[J6] **A. Giuseppi**, A. Pietrabissa, S. Cilione, and L. Galvagni, "Feedback linearization-based satellite attitude control with a life-support device without communications", ***Control Engineering Practice***, vol. 90, pp. 221–230, **2019**. doi: https://doi.org/10.1016/j.conengprac.2019.06.020.

[J5] F. Liberati, A. Di Giorgio, **A. Giuseppi**, A. Pietrabissa, E. Habib, and L. Martirano, "Joint model predictive control of electric and heating resources in a smart building", ***IEEE Transactions on Industry Applications***, vol. 55, no. 6, pp. 7015–7027, **2019**. doi: 10.1109/TIA.2019.2932954.

[J4] A. Pietrabissa, L. Ricciardi Celsi, F. Cimorelli, V. Suraci, F. Delli Priscoli, A. Di Giorgio, **Giuseppi, A.**, and S. Monaco, "Lyapunov-based design of a distributed wardrop load-balancing algorithm with application to software- definednetworking", ***IEEE Transactions on Control Systems Technology***, vol.27, no.5, pp.1924–1936, **2018**. doi: 10.1109/TCST.2018.2842044.

[J3] F. Adamsky, M. Aubigny, F. Battisti, M. Carli, F. Cimorelli, T. Cruz, A. Di Giorgio, C. Foglietta, A. Galli, **Giuseppi, A.**, F. Liberati, A. Neri, S. Panzieri, F. Pascucci, J. Proenca, P. Pucci, L. Rosa, and R. Soua, "Integrated protection of industrial control systems from cyber-attacks: The atena approach", ***International Journal of Critical Infrastructure Protection***, vol. 21, pp. 72–82, **2018**. doi: https://doi.org/10.1016/j.ijcip.2018. 04.004.

[J2] A. Pietrabissa, F. Delli Priscoli, A. Di Giorgio, **Giuseppi, A.**, M. Panfili, and V. Suraci, "An approximate dynamic programming approach to resource management in multi-cloud scenarios", ***International Journal of Control***, vol. 90, no. 3, pp. 492–503, **2017**. doi: 10.1080/00207179.2016.1185802.

[J1] F. Liberati, **Giuseppi, A.**, A. Pietrabissa, V. Suraci, A. Di Giorgio, M. Trubian, D. Dietrich, P. Papadimitriou, and F. Delli Priscoli, "Stochastic and exact methods for service mapping in virtualized network infrastructures", ***International Journal of Network Management***, vol. 27, no. 6, **2017**. doi: 10.1002/nem.1985.

XI.B - Conference Papers

[C44] V. Becchetti, M. M. Atanasious, D. Menegatti, F. Baldisseri, and **A. Giuseppi**, "Dynamic mode decomposition for individualized model predictive control with application to type 1 diabetes", in ***2024 32nd Mediterranean Conference on Control and Automation***, *(MED 2024)*, IEEE, **2024**. doi: 10.1109/med61351.2024.10566271.

[C43] **A. Giuseppi**, A. Di Paola, A. Santopaolo, S. S. Saif, F. Fiorini, and A. Pietrabissa, "Aries: An intelligent sys- tem for landslide and wildfire risk management", in ***2024 32nd Mediterranean Conference on Control and Automation***, *(MED 2024)*, IEEE, **2024**. doi: 10.1109/med61351.2024.10566274.

[C42] K. Aras, S. S. Saif, **A. Giuseppi**, and V. Coskun, "Automated optical inspection for quality control in pcba assembly lines: A case study for point of sale devices production lines", in ***2024 International Congress on Human-Computer Interaction, Optimization and Robotic Applications***, *(HORA 2024)*, IEEE, **2024**. doi: 10.1109/hora61326.2024.10550768.

[C41] D. Menegatti, S. Manfredi, A. Pietrabissa, C. Poli, and **A. Giuseppi**, "Hierarchical federated learning for edge intelligence through average consensus", in ***2023 22nd IFAC World Congress***, *(IFAC)*, vol. 56, Elsevier BV, **2023**, pp. 862–868. doi: 10.1016/j.ifacol.2023.10.1673.

[C40] D. Menegatti, **A. Giuseppi**, and A. Pietrabissa, "Distributed MARL with limited sensing for robot navigation problem", in ***2023 22nd IFAC World Congress**, (IFAC)*, vol. 56, Elsevier BV, **2023**, pp. 2032–2037. doi: 10.1016/j.ifacol.2023.10.1100.

[C39] **A. Giuseppi**, D. Menegatti, and A. Pietrabissa, "Stability of non-cooperative load balancing with time-varying latency", in ***2023 62nd IEEE Conference on Decision and Control** (CDC)*, IEEE, **2023**. doi: 10.1109/ cdc49753.2023.10383685.

[C38] D. Menegatti, A. Pietrabissa, S. Manfredi, and **A. Giuseppi**, "Load demand prediction for electric vehicles smart charging through consensus-based federated learning", in ***2023 31st Mediterranean Conference on Control and Automation**, (MED)*, IEEE, **2023**. doi: 10.1109/med59994.2023.10185743.

[C37] D. Menegatti, E. Ciccarelli, M. Viscione, and **A. Giuseppi**, "Vertically-advised federated learning for multi- strategic stock predictions through stochastic attention-based lstm", in ***2023 31st Mediterranean Conference on Control and Automation**, (MED)*, IEEE, **2023**. doi: 10.1109/med59994.2023.10185757.

[C36] **A. Giuseppi**, L. P. L. Porto, A. Wrona, and D. Menegatti, "Landslide susceptibility prediction from satellite data through an intelligent system based on deep learning", in ***2023 31st Mediterranean Conference on Control and Automation**, (MED)*, IEEE, **2023**. doi: 10.1109/med59994.2023.10185824.

[C35] D. Menegatti, F. Betello, F. D. Priscoli, and A. Giuseppi, "Deep image inpainting to support endoscopic procedures", in ***2023 31st Mediterranean Conference on Control and Automation**, (MED)*, IEEE, **2023**. doi: 10.1109/ med59994.2023.10185683.

[C34] F. Baldisseri, E. Montecchiani, A. Maiani, D. Menegatti, A. Giuseppi, A. Pietrabissa, V. Fogliati, and F. D. Priscoli, "Behavioural cloning for serious games in support of pediatric neurorehabilitation", in ***2023 31st Mediterranean Conference on Control and Automation**, (MED)*, IEEE, **2023**. doi: 10.1109/med59994.2023.10185734.

[C33] S. S. Saif, K. Aras, and **A. Giuseppi**, "Automated optical inspection for printed circuit board assembly manufac- turing with transfer learning and synthetic data generation", in ***30th Mediterranean Conference on Control and Automation**, MED 2022*, IEEE, **2022**. doi: 10.1109/med54222.2022.9837280.

[C32] D. Menegatti, **A. Giuseppi**, and A. Pietrabissa, "Model predictive control for collision-free spacecraft formation with artificial potential functions", in ***30th Mediterranean Conference on Control and Automation**, (MED 2022)*, IEEE, **2022**. doi: 10.1109/med54222.2022.9837252.

[C31] A. Ornatelli, **A. Giuseppi**, and A. Tortorelli, "A distributed average cost reinforcement learning approach for power control in wireless 5g networks", in ***2022 IEEE World AI IoT Congress**, (AIIoT 2022)*, IEEE, **2022**. doi: 10.1109/aiiot54504.2022.9817168.

[C30] N. Cassiau, I. Kim, E. C. Strinati, G. Noh, A. Pietrabissa, F. Arnal, G. Casati, T. Choi, Y.-J. Choi, H. Chung, S. Colombero, P. D. Zotto, E. D. Santis, J.-B. Dore, **A. Giuseppi**, J.-M. Houssin, J. Kim, M. Laugeois, F. Pigni, X. Popon, L. Raschkowski, M. Thary, and S. H. Won, "5g-ALLSTAR: Beyond 5g satellite-terrestrial multi-connectivity", in ***2022 Joint European Conference on Networks and Communications &amp 6G Summit**, (EuCNC/6G Summit 2022)*, IEEE, **2022**. doi: 10.1109/eucnc/6gsummit54941.2022.9815664.

[C29] **A. Giuseppi**, S. Manfredi, D. Menegatti, A. Pietrabissa, and C. Poli, "Decentralized federated learning for non- intrusive load monitoring in smart energy communities", in ***30th Mediterranean Conference on Control and Automation**, MED 2022*, IEEE, **2022**. doi: 10.1109/med54222.2022.9837291.

[C28] R. Germana, **A. Giuseppi**, A. Pietrabissa, and A. D. Giorgio, "Optimal energy storage system placement for robust stabilization of power systems against dynamic load altering attacks", in ***30th Mediterranean Conference on Control and Automation**, MED 2022*, IEEE, **2022**. doi: 10.1109/med54222.2022.9837241.

[C27] A. Mastronuzzi, D. E. Secco, B. Laus, A. Carai, A. Tozzi, R. Premuselli, F. Delli Priscoli, A. Pietrabissa, **A. Giuseppi**, D. Menegatti, E. Rizzotto, G. Garone, F. Sciancalepore, E. Lacorte, L. Tariciotti, G. Remoli, N. Vanacore, and U. Raucci, "Cognitive deficits in children with brain tumours: A project to create a software for cognitive training", in ***Journal of the Neurological Sciences***, **Abstracts from the World Congress of Neurology**, WCN 2021, vol. 429, Elsevier BV, **2021**, p. 118 451. doi: https://doi.org/10.1016/j.jns.2021.118451.

[C26] **A. Giuseppi**, L. D. Torre, D. Menegatti, and A. Pietrabissa, "AdaFed: Performance-based adaptive federated learning", in ***The 5th International Conference on Advances in Artificial Intelligence**, (ICAAI 2021)*, ACM, **2021**. doi: 10.1145/3505711.3505717.

[C25] A. Santopaolo, S. S. Saif, A. Pietrabissa, and **A. Giuseppi**, "Forest fire risk prediction from satellite data with convolutional neural networks", in ***Mediterranean Conference on Control and Automation**, MED 2021*, IEEE, **2021**. doi: 10.1109/med51440.2021.9480226.

[C24] A. Ornatelli, A. Tortorelli, **A. Giuseppi**, and F. Delli Priscoli, "Hierarchical RL for load balancing and QoS management in multi-access networks", in ***Mediterranean Conference on Control and Automation**, MED 2021*, IEEE, **in press**. doi: 10.1109/med51440.2021.9480246.

[C23] D. Polli, **A. Giuseppi**, F. Vernuccio, A. D. la Cadena, G. Cerullo, and C. M. Valensise, "Deep learning for real-time removal of the non-resonant background from broadband CARS spectra", in ***High-Speed Biomedical Imaging and Spectroscopy VI***, vol. 11654, SPIE, **2021**. doi: 10.1117/12.2578118.

[C22] **A. Giuseppi**, A. Pietrabissa, F. Liberati, and A. D. Giorgio, "Controlled optimal black start procedures in smart grids for service restoration in presence of electrical storage systems", in ***2020 28th Mediterranean Conference on Control and Automation**, MED 2020*, **2020**. doi: 10.1109/med48518.2020.9183176.

[C21] A. Ornatelli, **A. Giuseppi**, V. Suraci, and A. Tortorelli, "User-aware centralized resource allocation in heteroge- neous networks", in ***2020 28th Mediterranean Conference on Control and Automation**, MED 2020*, **2020**. doi: 10.1109/med48518.2020.9183080.

[C20] C. M. Valensise, **A. Giuseppi**, F. Vernuccio, A. D. la Cadena, G. Cerullo, and D. Polli, "Deep-learning CARS: Real-time removal of the non-resonant background", in ***The 22nd International Conference on Ultrafast Phenomena 2020***, OSA, **2020**. doi: 10.1364/up.2020.tu3a.7.

[C19] T. Choi, S. H. Won, **A. Giuseppi**, A. Pietrabissa, and S. Kwon, "Management and orchestration architecture for integrated access of satellite and terrestrial in 5G", in ***2020 International Conference on Information Networking**, ICOIN 2020*, **2020**, pp. 40–45. doi: 10.1109/icoin48656.2020.9016484.

[C18] F. D. Priscoli, **A. Giuseppi**, F. Liberati, and A. Pietrabissa, "Traffic steering and network selection in 5G networks based on reinforcement learning", in ***European Control Conference 2020**, ECC2020*, IEEE, **2020**, pp. 595–601. doi: 10.23919/ecc51009.2020.9143837.

[C17] R. Germanà, **A. Giuseppi**, and A. Di Giorgio, "Ensuring the stability of power systems against dynamic load altering attacks: A robust control scheme using energy storage systems", in ***European Control Conference 2020**, ECC2020*, IEEE, **2020**, pp. 1330–1335. doi: 10.23919/ecc51009.2020.9143620.

[C16] J. Kim, G. Casati, A. Pietrabissa, **A. Giuseppi**, E. Calvanese Strinati, N. Cassiau, G. Noh, H. Chung, I. Kim, M. Thary, J.-M. Houssin, F. Pigni, S. Colombero, P. D. Zotto, L. Raschkowski, and S. Jaeckel, "5G-ALLSTAR: An integrated satellite-cellular system for 5G and beyond", in ***2020 IEEE Wireless Communications and Networking Conference Workshops***, *WCNC 2020*, **2020**. doi: 10.1109/wcncw48565.2020.9124751.

[C15] **A. Giuseppi**, E. De Santis, F. Delli Priscoli, S. H. Won, T. Choi, and A. Pietrabissa, "Network selection in 5G networks based on markov games and friend-or-foe reinforcement learning", in ***2020 IEEE Wireless Commu- nications and Networking Conference Workshops***, *WCNC 2020*, **2020**. doi: 10.1109/wcncw48565.2020. 9124723.

[C14] A. Ornatelli, A. Tortorelli, and **A. Giuseppi**, "Iterative MPC for energy management and load balancing in 5G heterogeneous networks", in ***11th IEEE Annual Ubiquitous Computing, Electronics & Mobile Commu- nication Conference***, *(UEMCON 2020)*, **2020**. doi: 10.1109/uemcon51285.2020.9298113.

[C13] A. Di Giorgio, **A. Giuseppi**, R. Germanà, and F. Liberati, "Decentralised model predictive control of electric vehicles charging", in ***2019 IEEE International Conference on Systems, Man, and Cybernetics***, *SMC 2019*, **2019**, pp. 3216–3222. doi: 10.1109/SMC.2019.8914040.

[C12] **A. Giuseppi**, E. D. Santis, and A. Di Giorgio, "Model predictive control of energy storage systems for power regulation in electricity distribution networks", in ***2019 IEEE International Conference on Systems, Man, and Cybernetics***, *SMC 2019*, **2019**, pp. 3365–3370. doi: 10.1109/SMC.2019.8914059.

[C11] A. Tortorelli, **A. Giuseppi**, F. Lisi, E. De Santis, and F. Liberati, "Operations management of satellite launch centers", in ***25th Ka and Broadband Communications Conference***, *KaConf 2019*, **2019**. doi: 10.5281/zenodo.3478307.

[C10] **A. Giuseppi**, A. Tortorelli, R. Germanà, F. Liberati, and A. Fiaschetti, "Securing cyber-physical systems: An optimization framework based on osstmm and genetic algorithms", in ***2019 27th Mediterranean Conference on Control and Automation***, *MED 2019*, **2019**. doi: 10.1109/MED.2019.8798506.

[C9] L. Martirano, E. Habib, **A. Giuseppi**, and A. Di Giorgio, "Nearly zero energy building model predictive control for efficient heating", in ***2018 IEEE Industry Applications Society Annual Meeting***, *IAS 2018*, **2018**, pp. 1–6. doi: 10.1109/IAS.2018.8544632.

[C8] **A. Giuseppi**, R. Germanà, and A. Di Giorgio, "Risk adverse virtual power plant control in unsecure power systems", in ***2018 26th Mediterranean Conference on Control and Automation***, *MED 2018*, **2018**, pp. 210–216. doi: 10.1109/MED.2018.8442768.

[C7] V. Suraci, L. Ricciardi Celsi, **A. Giuseppi**, G. Manfredi, and A. Di Giorgio, "Distributed wardrop load balancing in multi-mtu scada systems", in ***2018 26th Mediterranean Conference on Control and Automation***, *MED 2018*, **2018**, pp. 466–472. doi: 10.1109/MED.2018.8442485.

[C6] M. Panfili, **A. Giuseppi**, A. Fiaschetti, H. B. Al-Jibreen, A. Pietrabissa, and F. Delli Priscoli, "A game-theoretical approach to cyber-security of critical infrastructures based on multi-agent reinforcement learning", in ***2018 26th Mediterranean Conference on Control and Automation***, *MED 2018*, **2018**, pp. 460–465. doi: 10.1109/ MED.2018.8442695.

[C5] V. Suraci, L. Ricciardi Celsi, **A. Giuseppi**, and A. Di Giorgio, "A distributed wardrop control algorithm for load balancing in smart grids", in ***2017 25th Mediterranean Conference on Control and Automation***, *MED 2017*, **2017**, pp. 761–767. doi: 10.1109/MED.2017.7984210.

[C4] A. Di Giorgio, **A. Giuseppi**, F. Liberati, and A. Pietrabissa, "Controlled electricity distribution network black start with energy storage system support", in ***2017 25th Mediterranean Conference on Control and Automation***, *MED 2017*, **2017**, pp. 781–786. doi: 10.1109/MED.2017.7984213.

[C3] A. Di Giorgio, **A. Giuseppi**, F. Liberati, A. Ornatelli, A. Rabezzano, and L. Ricciardi Celsi, "On the optimization of energy storage system placement for protecting power transmission grids against dynamic load altering attacks", in ***2017 25th Mediterranean Conference on Control and Automation***, *MED 2017*, **2017**, pp. 986–992. doi: 10.1109/MED.2017.7984247.

[C2] J. F. Riera, J. Batalle, J. Bonnet, M. Dias, M. McGrath, G. Petralia, F. Liberati, **A. Giuseppi**, A. Pietrabissa, A. Ceselli, A. Petrini, M. Trubian, P. Papadimitrou, D. Dietrich, A. Ramos, J. Melian, G. Xilouris, A. Kourtis, T. Kourtis, and E. K. Markakis, "Tenor: Steps towards an orchestration platform for multi-pop nfv deployment", in ***2016 IEEE NetSoft Conference and Workshops: Software-Defined Infrastructure for Networks, Clouds, IoT and Services***, *IEEE NETSOFT 2016*, **2016**, pp. 243–250. doi: 10.1109/NETSOFT.2016.7502419.

[C1] A. Pietrabissa, S. Battilotti, F. Facchinei, **A. Giuseppi**, G. Oddi, M. Panfili, and V. Suraci, "Resource management in multi-cloud scenarios via reinforcement learning", in ***Chinese Control Conference 2015***, *CCC 2015*, **2015**, pp. 9084–9089. doi: 10.1109/ChiCC.2015.7261077.

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