Giovanni Palombo

Phone:

Address:

Mail:

EDUCATION

Ph.D. in Information Engineering and Computer Science (April 2016).

> Dissertation: "Some Innovative Topics on Modeling, Filtering and Control for Special Classes of systems".

Master's Degree in Biomedical Engineering at Università Campus Biomedico di Roma, Rome, with final mark 110/110 magna cum laude (October 2012).

Bachelor's Degree in Biomedical Engineering at Università Campus Biomedico di Roma, Rome, with final mark 110/110 (October 2010).

PRESENT EMPLOYMENT

May 2017 – Today: Post-Doc at IASI-CNR.

> Main research theme: System Biology, Automatics, Stochastic Theory

PAST EMPLOYMENTS

October 2016 – January 2017: collaboration research contract with Università degli Studi di Genova, at the DITEN department.

> Main research theme: Distribution Network Modelling.

FOREINGN EXPERINCES

April 2016 – June 2016: Research Project at Max Plank Institute

> Main research topic: Model Order Reduction for linear and nonlinear systems with delays.

RESEARCH TOPICS

Stochastic modeling and theory making use of the White Noise Theory in Hilbert space developed by A.V. Balakrishnan.

Filtering design and control techniques for linear and nonlinear systems, discrete time and continuous time systems and for Gaussian and non-Gaussian noise driven systems.

Estimation techniques and observer design for deterministic nonlinear systems.

Estimation techniques and observer design for delayed systems.

Complex systems modeling and analysis.

System Biology deterministic and stochastic model development

Neural Network and Physical Informed Neural Network

SKILLS

Languages: Italian: mother tongue.

              English: very fluent.

Software: MATLAB

        SIMULINK

Programming languages: C/C++

              HTML

UNIVERSITY TEACHING EXPERINCES

Academic years 2016/2017, 2017/2018, 2018/2019, 2019/2020, 2020/2021, 2021/2022, 2022/2023 : Teacher assistant for the course "Probabilità e Statistica per l'ingegneria" (Probability and Statistics), held by Prof. Filippo Cacace, at Università Campus Bio-Medico di Roma.

Academic years 2019/2020, 2020/2021: Teacher assistant for the course "Fondamenti di Automatica" (Control Systems) held by Prof. Fabio della Rossa at Centro ELIS, in partnership with Politecnico di Milano.

Academic year 2018/2019: Teacher assistant for the course "Financial Mathematics", held by Prof. Sergio Scarlatti, at Università Tor Verogata, Roma.

Academic year 2015/2016: Teacher assistant for the course "Matematica" (Matematics) held by Prof. Marco Papi, at Università Campus Bio-Medico di Roma.

Academic year 2014/2015: Professor in charge of the course "MATLAB per le Applicazioni Automatiche" (advanced informatics for dynamic systems simulation with MATLAB) at Università dell'Aquila.

Academic years 2013/2014 and 2014/2015: Teacher assistant for the course "Complementi di Automatica" (Foundamentals of Automatic) and"Identificazione dei Sistemi e Analisi dei Dati" (Identification Theory) held by Prof. Alfredo Germani, at Università dell'Aquila

PUBLICATIONS

(6 papers in A class international Journals)

Palombo G, Borri A, Papa F, Papi M, Palumbo P. *Parameter Identification in Metabolic Reaction Networks by Means of Multiple Steady-State Measurements. Symmetry*. 2023; 15(2):368. https://doi.org/10.3390/sym15020368

Cacace, F., Conte, F., d'Angelo, M., Germani, A., & Palombo, G. (2022). *Filtering linear systems with large time-varying measurement delays. Automatica*, *136*, 110084.

Palombo, G., Merone, M., Altomare, A., Gori, M., Terradura, C., Bacco, L., ... & Piemonte, V. (2021). *The impact of the intestinal microbiota and the mucosal permeability on three different antibiotic drugs. European Journal of Pharmaceutical Sciences*, 105869.

Cacace, F., Conte, F., Germani, A., Palombo, G.. *Optimal linear and quadratic estimators for tracking from distance measurements*. Systems & Control Letters, 139, 104674. 2020 https://doi.org/10.1016/j.sysconle.2020.104674

G. Mavelli, G. Palombo, P. Palumbo, "*A Stochastic Optimal Regulator for a Class of Nonlinear Systems*", Mathematical Problems in Engineering, vol. 2019, Article ID 9763193, 8 pages, 2019. https://doi.org/10.1155/2019/9763193

C. Cosentino, C. Manes, G. Palombo and P. Palumbo, "Noise Propagation in Chemical Reaction Networks: Analysis of a Molecular Subtractor Module," 2019 18th European Control Conference (ECC), Naples, Italy, 2019, pp. 704-709, doi: 10.23919/ECC.2019.8795976.

F. Conte, F. D'Agostino, S. Massucco, G. Palombo, F. Silvestro, C. Bossi, M. Cabiati, "*Dynamic Equivalent Modeling of Active Distribution Networks for TSO-DSO Interactions*", 7th IEEE Innovative smart Grid Technologies - ISGT PES Europe, Torino – Italy, 2017. DOI: 10.1109/ISGTEurope.2017.8260235

F.Cacace, F.Conte, A. Germani, G. Palombo, "*Feedback Quadratic Filtering*", Automatica 82(August), Elsevier, 158–164, 2017. https://doi.org/10.1016/j.automatica.2017.04.046

F.Cacace, F.Conte, A. Germani, G. Palombo, "*Joint state estimation and delay identification for nonlinear systems with delayed measurements*", IEEE Transactions on Automatic Control 62(9), 4848-4854, 2017. DOI: 10.1109/TAC.2017.2689503

F.Cacace, F.Conte, A. Germani, G. Palombo, "*White Noise Solution for Nonlinear Stochastic Systems*", IFAC NOLCOS 2016. https://doi.org/10.1016/j.ifacol.2016.10.186

F.Cacace, F.Conte, A. Germani, G. Palombo, "*Delay identification for a class of nonlinear systems*", Taylor & Francis International Journal of control, 2016. https://doi.org/10.1080/00207179.2016.1157898

F.Cacace, F.Conte, A. Germani, G. Palombo, "*A new method for the simultaneous estimation of state and delay in time delay systems*", IEEE CDC 2016 Osaka. DOI: 10.1109/CDC.2015.7403108

F. Cacace, F. Conte, A. Germani, G. Palombo, "*Optimal control of linear systems with large and variable input delays*", Systems and Control Letters, Elsevier, 2015. https://doi.org/10.1016/j.sysconle.2015.12.003
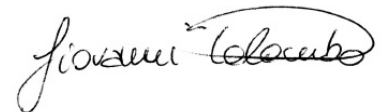
F.Cacace, F.Conte, A. Germani, G. Palombo, "*Quadratic filtering for non-Gaussian and not asymptotically stable linear discrete-time systems*", IEEE Conference on Decision and Control, Los Angeles 2014. DOI: 10.1109/CDC.2014.7040169

F. Cacace, F. Conte, A. Germani, G. Palombo, "*Filtering of Nonlinear Systems with Sampled Noisy Data by Output Injection* ", IEEE Conference on Decision and Control, Firenze 2013, DOI: 10.1109/CDC.2013.6761108

PUBLICATION ACCEPTED

Anna Sabatini, Luca Bacco, Leonardo Lotini, Giovanni Palombo, Giulia Di Tomaso, Riccardo Sabbadini, Mario Merone, Luca Vollero, *Photoplethysmographic Signal Quality Assessment: A Comparative Study of Unsupervised and Supervised Neural Networks*, 2023 IEEE International Workshop on Metrology for Industry 4.0 &IoT

Roma, 19 maggio 2023

Giovanni Palombo