

CURRICULUM VITAE

Gabriele Pannocchia

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General Info

Name: Gabriele Pannocchia
Birth: April 18, 1973 in Castelnuovo di Garfagnana (LU), Italy
Nationality: Italian

Home Address: Piazza SS. Pietro e Paolo 25. 57126 Livorno (LI), Italy
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Family: Married to Rita (working as nurse in optical surgery), with three children:
Caterina (born in 2002), Niccolò (born in 2004), and Alessio (born in 2009)



1. Educational and Professional Record

- Dec. 2020–now: Full Professor (SSD ING-IND/26) at the Department of Civil and Industrial Engineering (DICI) – Chemical Engineering Section, University of Pisa.
- Dec. 2015–Nov. 2020: Associate Professor (SSD ING-IND/26) at the Department of Civil and Industrial Engineering (DICI) – Chemical Engineering Section, University of Pisa.
- Sep. 2012–Dec. 2015: Tenured Assistant Professor (Ricercatore Confermato, SSD ING-IND/26) at the Department of Civil and Industrial Engineering (DICI) – Chemical Engineering Section, University of Pisa.
- June 2009–Sep. 2012: Tenured Assistant Professor (Ricercatore Confermato, SSD ING-IND/26) at the College of Engineering of the University of Pisa, affiliated with the Department of Chemical Engineering.
- Oct.–Dec. 2008: Honorary Fellow at the Chemical & Biological Engineering Department of the University of Wisconsin, Madison (WI, USA).
- June 2006–May 2009: Assistant Professor (Ricercatore, SSD ING-IND/26) at the College of Engineering of the University of Pisa, affiliated with Department of Chemical Engineering.
- Apr. 2002–May 2006: Post-Doc researcher at the Department of Chemical Engineering of the University of Pisa.
- April 29, 2002: PhD degree in Chemical Engineering awarded from the University of Pisa. PhD thesis entitled “Strategies for robust multivariable model-based control”.
- Feb. 2002–Apr. 2002: Process Engineer at Huntsman-Tioxide in Scarlino (Grosseto), Italy.

- Nov. 2001–Jan. 2002: Research Associate at the Department of Chemical Engineering of the University of Pisa.
- Jan. 2000–May 2001: Visiting Associate at the Department of Chemical Engineering of the University of Wisconsin, Madison (WI, USA).
- Nov. 1998–Oct. 2001: PhD student, with National Grant, in Chemical Engineering at the University of Pisa, with a visiting period at the University of Wisconsin, Madison (WI, USA).
- July 1998–Oct. 1998: Research Associate at the Department of Chemical Engineering of the University of Pisa.
- Oct. 1992–Apr. 1998: MS (*Laurea Quinquennale*) in Chemical Engineering at the University of Pisa. Graduated *summa cum laude* (110 e lode) on April 26, 1998. MS thesis entitled "Robust predictive control of chemical processes".

2. Scientific Performance Summary

- International Journal Papers: 50
- Book Chapters: 4
- International Conference Papers: 62
- Edited Monographs: 2
- International Patents: 2
- H-index: 19 (Scopus¹), 24 (Google Scholar²)

3. List of Publications

3.1 International Journal Papers

- [J1] M. Alamir, G. Pannocchia. A new formulation of Economic Model Predictive Control without terminal constraint. *Automatica*, in press, 2020.
- [J2] G. Pannocchia, W.P. Heath. Offset-free IMC with generalized disturbance models. *Automatica*, 122, 1092070, 2020.
- [J3] G. Pannocchia. Handbook of Model Predictive Control [Bookshelf]. *IEEE Control Systems Magazine*, 40(5), 96-99, 2020.
- [J4] M. Vaccari, G. Pannocchia, L. Tognotti, M. Paci, R. Bonciani. A rigorous simulation model of geothermal power plants for emission control. *Applied Energy*, 263, 114563, 2020.
- [J5] M. Razzanelli, E. Crisostomi, L. Pallottino, G. Pannocchia. Distributed model predictive control for energy management in a network of microgrids using the dual decomposition method. *Optimal Control Applications and Methods*, 41(1), 25-41, 2020.
- [J6] R. Bacci di Capaci, M. Vaccari, C. Scali, G. Pannocchia. Enhancing MPC formulations by identification and estimation of valve stiction *Journal of Process Control*, 81, 31-39, 2019.
- [J7] T. Faulwasser, G. Pannocchia. Toward a Unifying Framework Blending Real-Time Optimization and Economic Model Predictive Control. *Industrial Engineering & Chemistry Research*, 58(30), 13583-13598, 2019.
- [J8] M. Vaccari, G.M. Mancuso, J. Riccardi, M. Cantù, G. Pannocchia. A Sequential Linear Programming Algorithm for Economic Optimization of Hybrid Renewable Energy Systems. *Journal of Process Control*, 189-201, 2019.
- [J9] M. Antognoli, C. Galletti, R. Bacci di Capaci, G. Pannocchia, C. Scali. Numerical investigation of the mixing of highly viscous liquids with Cowles impellers. *Chemical Engineering Transactions*, 74, 973-978, 2019.

¹See profile at <http://www.scopus.com/authid/detail.url?authorId=6603482876>

²See profile at <http://scholar.google.com/citations?user=NPncxbMAAAAJ>

- [J10] R. Bacci Di Capaci, A.L. Tasca, G. Pannocchia, C. Scali, L. Tognotti, E. Brunazzi, C. Nicolella, M. Puccini. Biomethane Production: Mass and Energy Balances of Alternative Supply Chains. *Industrial and Engineering Chemistry Research*, 2019 (in press).
- [J11] R. Bacci di Capaci, M. Vaccari, G. Pannocchia. Model predictive control design for multivariable processes in the presence of valve stiction. *Journal of Process Control*, 71, 25-34, 2018.
- [J12] G. Landucci, A. Pupillo, A. Mencaroni, G. Pannocchia. Quantitative consequence assessment of industrial accidents supported by dynamic process simulators. *Chemical Engineering Transactions*, 67, 139-144, 2018.
- [J13] M. Razzanelli, G. Pannocchia. Parsimonious cooperative distributed MPC algorithms for offset-free tracking. *Journal of Process Control*, 60, 1-13, 2017.
- [J14] M. Jost, G. Pannocchia, M. Mönnigmann. Accelerating linear model predictive control by constraint removal. *European Journal of Control*, 35, 42-49, 2017.
- [J15] M. Vaccari, G. Pannocchia. A Modifier-Adaptation Strategy towards Offset-Free Economic MPC. *Processes*, 5(1), Art. no. 2, 2017.
- [J16] R. Bacci di Capaci, C. Scali, G. Pannocchia. System identification applied to stiction quantification in industrial control loops: A comparative study. *Journal of Process Control*, 46, 11-23, 2016.
- [J17] M. Jost, G. Pannocchia, M. Mönnigmann. Online constraint removal: accelerating MPC with a Lyapunov function. *Automatica*, 57 (7), 164-169, 2015.
- [J18] G. Pannocchia, J. B. Rawlings, D. Q. Mayne, G. M. Mancuso. Whither discrete time model predictive control? *IEEE Transactions on Automatic Control*, 60 (1), 246-252, 2015.
- [J19] G. M. Mancuso, E. Bini, G. Pannocchia. A Framework for Optimal Priority Assignment of Control Tasks. *ACM Transactions on Embedded Computing Systems*, 13 (5s), Art. no. 161, 2014.
- [J20] G. Pannocchia, S. J. Wright, J. B. Rawlings. On the use of suboptimal solvers for efficient cooperative distributed linear MPC. *Intelligent Systems, Control and Automation: Science and Engineering*, 69, 553-568, 2014.
- [J21] G. Landucci, G. Pannocchia. On the Use of Dynamic Process Simulators for the Quantitative Assessment of Industrial Accidents. *Chemical Engineering Transactions* 36, 505-510, 2014.
- [J22] G. Pannocchia, A. De Luca, M. Bottai. Prediction error based performance monitoring, degradation diagnosis and remedies in offset-free MPC: Theory and applications. *Asian Journal of Control*, 16 (4), 995-1005, 2014.
- [J23] G. Pannocchia, E. Morano, M. Laurino, S. Nozza, G. Tambussi, A. Landi. Identification and experimental validation of an HIV model for HAART treated patients. *Computer Methods and Programs in Biomedicine*, 112 (3), 432-440, 2013.
- [J24] G. Landucci, G. Pannocchia, C. Nicolella, L. Pelagagge. Analysis and simulation of an industrial vegetable oil refining process. *Journal of Food Engineering*, 116, 840-851, 2013.
- [J25] G. Pannocchia, M. Bottai, A. De Luca. Application of a method to diagnose the source of performance degradation in MPC systems. *Chemical Engineering Transactions* 32, 1189-1194, 2013.
- [J26] F. Galvanin, M. Barolo, G. Pannocchia, F. Bezzo. A disturbance estimation approach for online model-based redesign of experiments in the presence of systematic modelling errors. *Computers and Chemical Engineering*, 42, 138-151, 2012.
- [J27] A. Bardi, G. Pannocchia. A multivariable approach for control system optimization of IGCC with CCS in DECARBit project, *Energy Procedia*, 23, 370-380, 2012.
- [J28] G. Pannocchia, S. J. Wright, J. B. Rawlings. Partial enumeration MPC: Robust stability results and application to an unstable CSTR. *Journal of Process Control*, 21 (10), 1459-1466, 2011.
- [J29] G. Pannocchia, J. B. Rawlings, S. J. Wright. Conditions under which suboptimal nonlinear MPC is inherently robust. *Systems and Control Letters*, 60 (9), 747-755, 2011.

- [J30] G. Pannocchia, J. B. Rawlings, D. Q. Mayne, W. Marquardt. On computing solutions to the continuous time constrained linear quadratic regulator. *IEEE Transactions on Automatic Control*, 55 (9), 2192-2198, 2010.
- [J31] B. T. Stewart, A. N. Venkat, J. B. Rawlings, S. J. Wright, G. Pannocchia. Cooperative distributed model predictive control. *Systems and Control Letters*, 59 (8), 460-469, 2010.
- [J32] G. Pannocchia, M. Laurino, A. Landi. A model predictive control strategy toward optimal structured treatment interruptions in anti-HIV therapy. *IEEE Transactions on Biomedical Engineering*, 57 (5), 1040-1050, 2010.
- [J33] G. Pannocchia and M. Calosi. A predictor form PARSIMonious algorithm for closed-loop subspace identification. *Journal of Process Control*, 20 (4), 517-524, 2010.
- [J34] E. Biagini, A. Bardi, G. Pannocchia, L. Tognotti. Development of a gasifier model for process optimization studies. *Industrial & Engineering Chemistry Research*, 48 (19), 9028-9033, 2009.
- [J35] A. Micchi, G. Pannocchia. Comparison of input signals in subspace identification of multivariable ill-conditioned systems. *Journal of Process Control*, 18 (6), 582-593, 2008.
- [J36] G. Pannocchia, M. Puccini, M. Seggiani, S. Vitolo. Experimental and modeling studies on high temperature capture of CO₂ using lithium zirconate based sorbents. *Industrial & Engineering Chemistry Research*, 46, 6696-6706, 2007.
- [J37] G. Pannocchia, A. Brambilla. How auxiliary variables and plant data collection affect closed-loop performance of inferential control. *Journal of Process Control*, 17 (8), 653-663, 2007.
- [J38] G. Pannocchia, A. Bemporad. Combined design of disturbance model and observer for offset-free model predictive control. *IEEE Transactions on Automatic Control*, 52 (6), 1048-1053, 2007.
- [J39] G. Pannocchia, J. B. Rawlings, S. J. Wright. Fast, large-scale model predictive control by partial enumeration. *Automatica*, 43 (5), 852-860, 2007.
- [J40] G. Pannocchia, A. Brambilla. Model predictive control for optimal oral anticoagulant drug administration. *AIChE Journal*, 52 (9), 3315-3320, 2006.
- [J41] G. Pannocchia, E. C. Kerrigan. Offset-free receding horizon control of constrained linear systems. *AIChE Journal*, 51 (12), 3134-3146, 2005.
- [J42] G. Pannocchia, A. Brambilla. How to use simplified dynamics in model predictive control of superfractionators. *Industrial & Engineering Chemistry Research*, 44 (8), 2687-2696, 2005.
- [J43] G. Pannocchia, N. Laachi, J. B. Rawlings. A candidate to replace PID control: SISO constrained LQ control. *AIChE Journal*, 51 (4), 1178-1189, 2005.
- [J44] G. Pannocchia. Robust model predictive control with guaranteed setpoint tracking. *Journal of Process Control*, 14 (8), 927-937, 2004.
- [J45] M. Seggiani, G. Pannocchia. Prediction of coal ash thermal properties using partial least squares regression. *Industrial & Engineering Chemistry Research*, 42 (20), 4919-4926, 2003.
- [J46] G. Pannocchia, A. Brambilla. Consistency of property estimators in distillation column control. *Industrial & Engineering Chemistry Research*, 42 (20), 4452-4460, 2003.
- [J47] G. Pannocchia. Robust disturbance modeling for model predictive control with application to multivariable ill-conditioned processes. *Journal of Process Control*, 13 (8), 693-701, 2003.
- [J48] G. Pannocchia, S. J. Wright, J. B. Rawlings. Existence and computation of infinite horizon model predictive control with active steady-state input constraints. *IEEE Transactions on Automatic Control*, 48 (6), 1002-1006, 2003.
- [J49] G. Pannocchia, J. B. Rawlings. Disturbance models for offset-free model predictive control. *AIChE Journal*, 49 (2), 426-437, 2003.
- [J50] D. Semino, G. Pannocchia. Robust multivariable inverse based controllers: theory and application. *Industrial & Engineering Chemistry Research*, 38 (6), 2375-2382, 1999.

3.2 Book Chapters

- [BC1] M. Gabiccini, A. Artoni, G. Pannocchia, J. Gillis. A Computational Framework for Environment-Aware Robotic Manipulation Planning. In *Springer Proceedings in Advanced Robotics*, 2, 363-387, 2018.
- [BC2] G. Pannocchia. Distributed model predictive control. In: T. Samad, Baillieul (Eds.) *Encyclopedia of Systems and Control*, Springer, Article # 364755, Chapter # 5, 2014.
- [BC3] G. Pannocchia, A. Frassi, C. Verdicchio, A. Ansiati. A simulation tool for three-phase cryogenic separation of natural gas with high content of CO₂. In *Chemical Engineering Greetings to Prof. Paolo Andreussi on the occasion of his 65th birthday* (A. Soldati Ed.), 237-242, 2013. ISBN 978-88-95608-56-3.
- [BC4] G. Pannocchia, G. Scaturchio, A. Brambilla. A prediction error-based method for the performance monitoring of model predictive controllers. In: L. Ferrarini, C. Veber (Eds.) *Modeling, Control, Simulation and Diagnosis of Complex Industrial and Energy Systems*, 183-204, 2009. ISBN/ISSN: 978-1-934394-90-8.

3.3 International Conference Papers

- [C1] M. Vaccari, F. Pelagagge, D. Bonvin, G. Pannocchia. Estimation technique for offset-free economic MPC based on modifier adaptation. In *Proceedings of 21st IFAC World Congress*, Berlin (Germany), 2020.
- [C2] M. Vaccari, R. Bacci di Capaci, E. Brunazzi, L. Tognotti, P. Pierno, R. Vagheggi, G. Pannocchia. Implementation of an Industry 4.0 system to optimally manage chemical plant operation. In *Proceedings of 21st IFAC World Congress*, Berlin (Germany), 2020.
- [C3] M. Mönnigmann, G. Pannocchia. Reducing the computational effort of MPC with closed-loop optimal sequences of affine laws. In *Proceedings of 21st IFAC World Congress*, Berlin (Germany), 2020.
- [C4] M. Vaccari, G. Pannocchia. A Performance Monitoring Algorithm for Sustained Optimal Operation with Economic MPC. In *Proceedings of 18th European Control Conference, ECC2019*, Naples (Italy), Art. no. 8795761, 3353-3358, 2019.
- [C5] M. Razzanelli, M. Innocenti, G. Pannocchia, L. Pollini. Vision-based model predictive control for unmanned aerial vehicles automatic trajectory generation and tracking. In *Proceedings of AIAA Scitech 2019 Forum*, San Diego (CA, USA), 2019.
- [C6] S. Adelpour, M. Haeri, G. Pannocchia. Decentralized Robust Model Predictive Control for Multi-input Linear Systems. In *Proceedings of 2018 UKACC 12th International Conference on Control, CONTROL 2018*, Sheffield (UK), Art. no. 8516722, 13-18, 2018.
- [C7] G. Armenise, R. Bacci di Capaci, M. Vaccari, G. Pannocchia. An open-source System Identification Package for multivariable processes. In *Proceedings of 2018 UKACC 12th International Conference on Control, CONTROL 2018*, Sheffield (UK), Art. no. 8516791, 152-157, 2018.
- [C8] G. Pannocchia. An economic MPC formulation with offset-free asymptotic performance. In *Proceedings of IFAC Symposium ADCHEM 2018*, Shenyang (China), IFAC-PapersOnLine, 51 (18), 393-398, 2018.
- [C9] M. Vaccari, G. Pannocchia. Implementation of an economic MPC with robustly optimal steady-state behavior. In *Proceedings of IFAC Conference NMPC 2018*, Madison (WI, USA), IFAC-PapersOnLine, 51 (20), 92-97, 2018.
- [C10] R. Bacci di Capaci, M. Vaccari, G. Pannocchia, C. Scali. Identification and estimation of valve stiction by the use of a smoothed model. In *Proceedings of IFAC Symposium ADCHEM 2018*, Shenyang (China), IFAC-PapersOnLine, 51 (18), 684-689, 2018.
- [C11] M. Schulze Darup, M. Jost, G. Pannocchia, M. Mönnigmann. On the Maximal Controller Gain in Linear MPC. In *Proceedings of IFAC World Congress*, Toulouse (France), IFAC-PapersOnLine, 50 (1), 9218-9223, 2017.
- [C12] R. Bacci di Capaci, M. Vaccari, G. Pannocchia. A Valve Stiction Tolerant Formulation of MPC for Industrial Processes. In *Proceedings of IFAC World Congress*, Toulouse (France), IFAC-PapersOnLine, 50 (1), 9044-9049, 2017.

- [C13] W. P. Heath, M. Polignano, G. Pannocchia. Observer-Based Offset-Free Internal Model Control. In Proceedings of *IFAC World Congress*, Toulouse (France), IFAC-PapersOnLine, 50 (1), 898-903, 2017.
- [C14] M. Jost, G. Pannocchia, M. Mönnigmann. Constraint removal in linear MPC: an improved criterion and complexity analysis. In Proceedings of *European Control Conference (ECC'16)*, Aalborg (Denmark), Art. no. 7810379, 752-757, 2016.
- [C15] M. Razzanelli, G. Pannocchia. Parsimonious Cooperative Distributed MPC for Tracking Piece-Wise Constant Setpoints. Keynote lecture in Proceedings of *IFAC Symposium DYCOPS-CAB 2016*, Trondheim (Norway). IFAC-PapersOnLine, 49 (7), 520-525, 2016.
- [C16] M. Jost, G. Pannocchia, M. Mönnigmann. Accelerating tube-based model predictive control by constraint removal. In Proceedings of *54th IEEE Conference on Decision and Control*, 3651-3656, Osaka (Japan), 2015.
- [C17] G. Pannocchia, M. Gabiccini, A. Artoni. Offset-free MPC explained: novelties, subtleties, and applications. Invited semi-plenary paper: in Proceedings of *5th IFAC Conference on Nonlinear Model Predictive Control*, Seville (Spain). IFAC-PapersOnLine, 48(23), 342-351, 2015.
- [C18] B. Morabito, M. J. Koegel, E. Bullinger, G. Pannocchia, R. Findeisen. Simple and efficient moving horizon estimation based on the fast gradient method In Proceedings of *5th IFAC Conference on Nonlinear Model Predictive Control*, Seville (Spain). IFAC-PapersOnLine, 48(23), 428-433, 2015.
- [C19] G. Pannocchia. Offset-free tracking MPC: A tutorial review and comparison of different formulations. In Proceedings of the *2015 European Control Conference*, 527-532, Linz (Austria), 2015.
- [C20] M. Jost, G. Pannocchia, M. Mönnigmann. Assessing the speedup achievable by online constraint removal in MPC. In Proceedings of the *2015 European Control Conference*, 3439-3444, Linz (Austria), 2015.
- [C21] R. Bacci di Capaci, C. Scali, G. Pannocchia. Identification techniques for stiction quantification in the presence of nonstationary disturbances. In Proceedings of *ADCHEM 2015*, Whistler (BC, Canada). IFAC-PapersOnLine, 28(8), 629-634, 2015.
- [C22] M. Laurino, A. Landi, G. Pannocchia. Parameters identification of HIV dynamic models for HAART treated patients: a comparative study. In Proceedings of *2014 American Control Conference*, 2759-2764, Portland (OR, USA), 2014.
- [C23] G. Pannocchia, M. Bottai, A. De Luca. MPC performance monitoring of a rigorously simulated industrial process. In Proceedings of *DYCOPS 2013 (10th International Symposium on Dynamics and Control of Process Systems)*, 601-606, Mumbai (India), 2013.
- [C24] M. Laurino, M. Stano, M. Betta, G. Pannocchia, A. Landi. Combining pharmacological therapy and vaccination in chronic myeloid Leukemia via model predictive control. In Proceedings of *35th Annual International Conference of the IEEE EMBS*, 3925-3928, Osaka (Japan), 2013.
- [C25] G. Pannocchia, D. Q. Mayne, J. B. Rawlings, G. M. Mancuso. A parsimonious algorithm for the solution of continuous-time constrained LQR problems with guaranteed convergence. In Proceedings of *the 2013 European Control Conference*, 1553-1558, Zurich (Switzerland), 2013.
- [C26] S. Grammatico, G. Pannocchia. Achieving a large domain of attraction with short-horizon linear MPC via polyhedral Lyapunov functions. In Proceedings of *the 2013 European Control Conference*, 1059-1064, Zurich (Switzerland), 2013.
- [C27] G. Pannocchia, A. De Luca. Performance degradation diagnosis and remedies in offset-free MPC. In Proceedings of *2012 American Control Conference*, Montreal (Canada), 2012.
- [C28] G. Pannocchia, J. B. Rawlings, S. J. Wright. Inherently robust suboptimal nonlinear MPC: Theory and application. In Proceedings of *50th IEEE Conference on Decision and Control and European Control Conference*, 3398-3403, Orlando, FL (USA), 2011.
- [C29] G. Pannocchia, J. B. Rawlings, S. J. Wright. Is suboptimal nonlinear MPC inherently robust? In Proceedings of *18th IFAC World Congress*, Paper WeB07.4, Milano (Italy), 2011.

- [C30] G. M. Mancuso, E. Bini, G. Pannocchia. Optimal computational resource allocation for control task under fixed priority scheduling. In *Proceedings of 18th IFAC World Congress*, Paper ThC07.1, Milano (Italy), 2011.
- [C31] G. Landucci, B. Nucci, M. Pierini, G. Pannocchia, L. Pelagagge, C. Nicolella. Hazards assessment of vegetable oil storage and processing plants. In *Proceedings of ICheap-10 (10th International Conference on Chemical and Process Engineering)*, *Chemical Engineering Transactions* 24, 1093-1098, Florence (Italy), 2011.
- [C32] F. Galvanin, M. Barolo, G. Pannocchia, F. Bezzo. A disturbance estimation approach for online model-based redesign of experiments in the presence of systematic errors. In *Proceedings of 21st European Symposium on Computer-Aided Process Engineering*, 467-471, Porto Carras (Greece), 2011.
- [C33] G. Pannocchia, J. B. Rawlings, S. J. Wright. Partial enumeration MPC: Robust stability results and application to an unstable CSTR. In *Proceedings of DYCOPS 2010 (9th International Symposium on Dynamics and Control of Process Systems)*, 7-12, Leuven (Belgium), 2010.
- [C34] G. Pannocchia, M. Calosi. Closed-loop PARSIMonious subspace identification: Theory and application to MPC. In *Proceedings of DYCOPS 2010 (9th International Symposium on Dynamics and Control of Process Systems)*, 361-366, Leuven (Belgium), 2010.
- [C35] E. Biagini, L. Masoni, M. Simone, E. Bargagna, G. Pannocchia, C. Nicolella, L. Tognotti. Advanced process models for biomass gasifiers. In *Proceedings of 18th Biomass European Conference & Exhibition*, 838-846, Lion (France), 2010.
- [C36] G. Pannocchia, A. Landi, M. Laurino. On the use of nonlinear model predictive control for pharmacological therapy optimization. In *Proceedings of 2010 IEEE Workshop on Health Care Management*, Paper no. 5441282, Venice (Italy), 2010.
- [C37] B. T. Stewart, J. B. Rawlings, G. Pannocchia. Cooperative, distributed model predictive control for managing resource coupled constraints. In *Proceedings of AIChE Ethylene Producers Conference*, 309-321, Tampa (FL, USA), 2009.
- [C38] G. Pannocchia, S. J. Wright, B. T. Stewart, J. B. Rawlings. Efficient cooperative distributed MPC using partial enumeration. In *Proceedings of ADCHEM 2009 (International Symposium on Advanced Control of Chemical Process)*, 637-642, Istanbul (Turkey), 2009.
- [C39] G. Pannocchia, J. B. Rawlings, D. Q. Mayne, W. Marquardt. Computation of the infinite horizon continuous time constrained linear quadratic regulator. In *Proceedings of ADCHEM 2009 (International Symposium on Advanced Control of Chemical Process)*, 243-248, Istanbul (Turkey), 2009.
- [C40] E. Biagini, L. Masoni, G. Pannocchia, L. Tognotti. Development of gasifier models for hydrogen production optimization. In *Proceedings of ICheapP-9 (9-th International Conference on Chemical and Process Engineering)*, *Chemical Engineering Transactions* 17, 1221-1226, Rome (Italy), 2009.
- [C41] E. Biagini, G. Pannocchia, L. Tognotti. An optimization approach to integrated gasification processes for hydrogen production. In *Proceedings of 31th Meeting on Combustion*, Paper no. XII-3, Turin (Italy), 2008.
- [C42] E. Biagini, A. Frassi, T. Bacci, G. Pannocchia, L. Tognotti. Process study on hydrogen production from co-gasification of biomass fuels. In *Proceedings of 16th European Conference & Exhibition - Fiera Valencia*, 1025-1039, Valencia (Spain), 2008.
- [C43] A. Micchi, G. Pannocchia. On test design for subspace identification of multivariable ill-conditioned systems. In *Proceedings of DYCOPS 2007 (8th International Symposium on Dynamics and Control of Process Systems)*, vol. 2, 219-224, Cancun (Mexico), 2007.
- [C44] G. Pannocchia, C. Scali. A new performance evaluation strategy for decentralized multivariable PID control systems. In *Proceedings of DYCOPS 2007 (8th International Symposium on Dynamics and Control of Process Systems)*, vol. 3, 187-192. Cancun (Mexico), 2007.
- [C45] G. Pannocchia, G. Scaturchio, A. Brambilla. A prediction error based method for performance monitoring of model predictive controllers. In *Proceedings of ANIPLA 2006, International Congress on Methodologies for Emerging Technologies in Automation*, M214. Rome (Italy), 2006.

- [C46] G. Pannocchia, M. Puccini, A. Catani, S. Vitolo, M. Innocenti. High temperature capture of CO₂ on lithium zirconate based sorbents: Modelling and experimental studies. In Proceedings of *First Mediterranean Congress on Chemical Engineering for Environment*, 18-24, Venice (Italy), 2006.
- [C47] G. Pannocchia, M. Bientinesi, S. Vitolo, D. Castiello, N. Andreatini. Development and validation of an activated sludge model for an MBR equipped domestic wastewater plant. In Proceedings of *First Mediterranean Congress on Chemical Engineering for Environment*, 133-140, Venice (Italy), 2006.
- [C48] E. Biagini, G. Pannocchia, M. Zanobini, G. Gigliucci, I. Riccardi, F. Donatini, L. Tognotti. Process optimization of hydrogen production from coal gasification. In Proceedings of *29th Meeting on Combustion*, Paper no. VI-5, Pisa (Italy), 2006.
- [C49] G. Pannocchia, A. Micchi, R. Bulleri, A. Brambilla, G. Marchetti. Multivariable subspace identification and predictive control of a heat-integrated superfractionator. In Proceedings of *ADCHEM 2006 (International Symposium on Advanced Control of Chemical Process)*, 421-426, Gramado (Brazil), 2006.
- [C50] G. Pannocchia, L. Gallinelli, A. Brambilla, G. Marchetti, F. Trivella. Rigorous simulation and model predictive control of a crude distillation unit. In Proceedings of *ADCHEM 2006 (International Symposium on Advanced Control of Chemical Process)*, 635-640, Gramado (Brazil), 2006.
- [C51] G. Pannocchia, J. B. Rawlings, S. J. Wright. A partial enumeration strategy for fast large-scale linear model predictive control. In Proceedings of *CPC 7 (Chemical Process Control)*, Lake Louise, Alberta (Canada), 2006.
- [C52] G. Pannocchia, N. Laachi, J. B. Rawlings. A fast, easily tuned, SISO, model predictive controller. In Proceedings of *DYCOPS 7 (International Symposium on Dynamics and Control of Process Systems)*, Paper WA3.5, Cambridge, MA (USA), 2004.
- [C53] G. Pannocchia, P. Leoni, A. Brambilla. A critical comparison of linear and nonlinear property estimators in inferential control. In Proceedings of *DYCOPS 7 (International Symposium on Dynamics and Control of Process Systems)*, Paper WP2.3, Cambridge, MA (USA), 2004.
- [C54] D. Pastore, A. Brambilla, G. Pannocchia. Estimator design with PLS model for consistent control of refinery main fractionators. In Proceedings of *ADCHEM 2003 (International Symposium on Advanced Control of Chemical Processes)*, vol. I, 129-134, Hong Kong, 2004.
- [C55] G. Pannocchia, E. C. Kerrigan. Offset-free control of constrained linear discrete-time systems subject to persistent unmeasured disturbances. In Proceedings of *42nd IEEE Conference on Decision and Control*, 3911-3916, Hawaii (USA), 2003.
- [C56] G. Pannocchia, A. Brambilla. Implications of the training data set on the performance of property estimators. In Proceedings of *6-th Italian Conference on Chemical and Process Engineering*, vol. II, 1117-1122. Pisa (Italy), 2003.
- [C57] G. Pannocchia. Robust offset-free model predictive control. In Proceedings of *the 15th IFAC World Congress*, Paper T-We-A17-5, Barcelona (Spain), 2002.
- [C58] G. Pannocchia, J. B. Rawlings. Infinite horizon model predictive control with active steady-state constraints. In *Annual AIChE Meeting*, Paper no. 284a, Reno, NV (USA), 2001.
- [C59] G. Pannocchia, D. Semino. Use of different kinds of linear models in predictive control of distillation columns. In Proceedings of *ADCHEM 2000 (International Symposium on Advanced Control of Chemical Processes)*, vol. II, 713-718, Pisa (Italy), 2000.
- [C60] G. Pannocchia, D. Semino. Implications of distillation column design on ill-conditioning. In Proceedings of *ADCHEM 2000 (International Symposium on Advanced Control of Chemical Processes)*, vol. I, 557-562, Pisa (Italy), 2000.
- [C61] G. Pannocchia, D. Semino. Optimal modified models for robust predictive controllers. In Proceedings of *the 14th IFAC World Congress*, vol. N-7, 157-162, Beijing (China), 1999.
- [C62] D. Semino, G. Pannocchia. Robust optimized decouplers and inverse-based controllers. In Proceedings of *the Mediterranean Conference on Electronics and Automatic Control*, 468-471, Marrakech (Maroc), 1998.

3.4 Edited Monographs

- [M1] G. Pannocchia (Ed.). *Process Control: Current Trends and Future Challenges*. A special issue of *Processes - Open Access Journal*, 2015. ISSN: 2227-9717.
- [M2] M.A. Henson, G. Pannocchia, R. Gudi, S.C. Patwardhan (Eds.). *10th IFAC International Symposium on Dynamics and Control of Process Systems*. IFAC PROCEEDINGS VOLUMES. International Federation of Automatic Control, 2013. ISBN: 978-3-902823-59-5.

3.5 International Patents

- [P1] J. B. Rawlings, G. Pannocchia, S. J. Wright. Fast, large-scale model predictive control by partial enumeration. US Patent 7,587,253 B2, 2009.
- [P2] J. B. Rawlings, G. Pannocchia, N. Laachi. A fast, easily tuned, single-input, single-output (SISO) model predictive controller. US Patent 7,400,933 B2, 2008.

4. Research Activities

4.1 Summary of main research topics

The research activity embraces the fields of process systems modeling and analysis, control engineering, numerical optimization and analysis. Applications range from industrial process and energy systems to biomedical and robotic systems. In particular, current/recent research projects are/were focused on:

1. theory, design and implementation of optimization-based control systems (Model Predictive Control, MPC);
2. control performance monitoring and multivariable systems identification for industrial process systems;
3. efficient numerical algorithms for real-time MPC;
4. distributed modeling, optimization and control of large-scale dynamical systems;
5. numerical optimization algorithms for energy districts;
6. trajectory planning and numerical optimal control, with focus on model predictive control (MPC), for robotic manipulation and locomotion;
7. rigorous simulation, analysis and optimization of complex industrial processes and energy systems;
8. biomedical systems modeling and optimization of drug administration protocols;
9. numerical analysis and solution algorithms for high-fidelity dynamic simulation of multiphase (oil & gas) flow networks.

The research activity is carried out within the Chemical Engineering Section of the Department of Civil and Industrial Engineering of the University of Pisa, also in collaboration with researchers of prestigious international universities such as the University of Wisconsin (Madison, WI, USA), Imperial College (London, UK), Ruhr Universität Bochum (Germany), University of Magdeburg (Germany), University of Manchester (UK). Moreover, several research projects are carried out in collaboration with industrial partners, such as ENEL Engineering and Research, ENEL Green Power, ENI Refining & Marketing, General Electric (Oil & Gas), TEA Sistemi, Gas & Heat.

4.2 Editorial and reviewing activity

For international journal and scientific committees

- Since April 1, 2018: Member of the *Editorial Board* of *Automatica* as *Associate Editor*.
- *Vice Chair for Education* of IFAC Technical Committee 2.4. Design Methods - Optimal Control since 2017.
- Since January 2016: member of the *Editorial Board* of the international journal *Processes*.
- *Guest Editor* of the Special Issue "Process Control: Current Trends and Future Challenges" for *Processes - Open Access Journal*, 2014-2015.
- Since December 2013: *Senior Editor* of *Journal of Process Control*.
- Since January 1, 2008: member of the *Editorial Board* of *Journal of Process Control* as *Associate Editor*.

- Peer reviewing carried out regularly for international journals in the fields of control and process systems engineering, namely: IEEE Transactions on Automatic Control, Automatica (nominated “Outstanding Reviewer” for the period July 2004 – June 2005), Journal of Process Control, Control Engineering Practice, International Journal of Robust and Nonlinear Control, Optimal Control Applications and Methods, International Journal of Control, Asian Journal of Control, Computers & Chemical Engineering, Industrial & Engineering Chemistry Research.

For international conferences

- *Associate Editor* of IFAC World Congress 2020, held in Berlin (Germany) 12-17 July 2020 for the areas:
 - 2.4. Design Methods - Optimal Control
 - 6.1. Power and Process System - Chemical Process Control
- *Associate Editor* of 12th UKACC International Conference on Control, held in Sheffield (UK), 5-7 September 2018.
- *Area Co-Chair* of the *International Program Committee* of the 6th IFAC Conference on Nonlinear Model Predictive Control (NMPC 2018), held in Madison (WI, USA) 19-22 August 2018.
- *Associate Editor* for Area 6.1. Power and Process System - Chemical Process Control of the IFAC World Congress 2017, to be held in Toulouse (France) in 2017.
- *Area Co-Chair* of the International Program Committee of the IFAC Symposium DYCOPS 2016 to be held in Trondheim (Norway), June 2016.
- *Co-Chair* of the *International Program Committee* of the IFAC Symposium DYCOPS 2013 held in Mumbai (India).
- Peer reviewing carried out regularly for relevant international congresses in control and process systems engineering, such as IFAC World Congress, Conference on Decision and Control, IFAC DYCOPS, IFAC ADCHEM, European Control Conference, American Control Conference.

4.3 Awards

1. Chair of National Organizing Committee of 11th IFAC Symposium on Advanced Control of Chemical Processes (ADCHEM 2021) to be held (virtually) in June 13-16, 2021.
2. Plenary speaker at 2019 IEEE 4th Colombian Conference on Automatic Control (CCAC), Medellin (Colombia), October 15-18, 2019.
3. Keynote speaker at 10th IFAC Symposium on Advanced Control of Chemical Processes, (ADCHEM 2018), Shenyang (China), July 25-27, 2018.
4. Appointed as *Associate Editor* of Automatica from April, 2018.
5. Keynote speaker at the 11th IFAC Symposium on Dynamics and Control of Process Systems, Including Biosystems (DYCOPS-CAB 2016), Trondheim (Norway), June 2016.
6. Invited semi-plenary speaker at the 5th IFAC Conference on Nonlinear Model Predictive Control, Seville (Spain), September 2015.
7. Invited author of an article entitled “Distributed Model-Predictive Control” for the “Encyclopedia of Systems and Control”, Springer, 2014.
8. Appointed as *Senior Editor* of Journal of Process Control from December, 2013.
9. Co-Chair of the International Program Committee of the IFAC Symposium on “Dynamics and Control of Process Systems” DYCOPS 2013, Mumbai (India), December 18-20, 2013.
10. Recipient of the Prize “Giovani Ricercatori” of the University of Pisa in 2011.
11. Keynote speaker at the IFAC Symposium on “Dynamics and Control of Process Systems” DYCOPS 2010, Leuven (Belgium), July 5-7, 2010.

4.4 Invited Seminars and Workshops

<i>Year</i>	<i>Location</i>	<i>Title</i>
2019	Department of Electronics, Information and Bio-Engineering of Politecnico of Milano	"Recent advances in economic MPC: Towards sustained optimal performance in the presence of uncertainties"
2019	Workshop at 2019 IEEE 4th Colombian Conference on Automatic Control (CCAC), Medellin (Colombia)	"Algorithms and software tools for application of MPC in process control systems"
2018	Workshop "Advanced Methods for Control and Estimation of Dynamic Systems (AM-CEDS 2018)", at School of Information Science and Technology della ShanghaiTech University (Shanghai, Cina)	"Optimization based control in the presence of uncertainties: offset-free design principles"
2018	Institute for Automation Engineering of the Otto-von-Guericke-Universität Magdeburg (Germany)	"Optimization based planning and feedback control: an on-going journey"
2017	Institute for Systems Theory and Automatic Control, University of Stuttgart (Germany)	"The Offset-Free Control Design Principles: A Comprehensive Survey from Internal Model Control to Model Predictive Control Algorithms"
2016	Automatic Control Laboratory, EPFL (Switzerland)	"Fundamentals of offset-free MPC algorithms and recent advances"
2016	DTU (Denmark)	"Distributed MPC: a comprehensive overview and some recent advances"
2016	IMT-Lucca (Italy)	"A tutorial overview on multivariable identification algorithms for process systems"
2015	Department of Microsystems Engineering - IMTEK, University of Freiburg (Germany)	"A tutorial overview on theory and design of offset-free MPC algorithms"
2015	Department of Microsystems Engineering - IMTEK, University of Freiburg (Germany)	"Multivariable system identification for Model Predictive Control: fundamentals and practice"
2014	Institute for Automation Engineering of the Otto-von-Guericke-Universität Magdeburg (Germany)	"Linear model predictive control: discrete-time or continuous-time?"
2014	Department of Engineering of the University of Cambridge (UK)	"Whither discrete-time Model Predictive Control?"
2013	Department of Mechanical Engineering of the Ruhr Universität Bochum (Germany)	"Quo vadis linear discrete-time MPC? ... Efficient and guaranteed solutions of linear constrained CT-LQR"
2012	Centro di Ricerca "E. Piaggio", Pisa (Italy)	"Intensive course on Model Predictive Control"
2011	Department of Chemical & Biological Engineering – Univ. of Wisconsin, Madison (USA)	"Inherently robust suboptimal nonlinear MPC: Theory and application, plus..."
2009	PhD School in Chemical Engineering – Univ. of Padova	"Model Predictive Control: From the industrial success to new (biomedical) applications"
2008	Department of Chemical & Biological Engineering – Univ. of Wisconsin, Madison (USA)	"Optimal control of constrained continuous-time systems and efficient distributed MPC"
2008	National PhD School on Control in the Process Industries (CIP), Muravera (CA), Italy	"Model Predictive Control"
2004-2008	Dept. of Information Engineering - Univ. of Siena	"Application of Model Predictive Controllers to distillation processes"
2004	Department of Electrical and Electronic Engineering – Imperial College of Science, Technology and Medicine, London (UK)	"Robust offset-free receding horizon control of uncertain linear systems"

2004	Department of Engineering – University of Cambridge, Cambridge (UK)	“Property estimator design for consistent inferential distillation control”
2004	Department of Engineering – University of Cambridge, Cambridge (UK)	“A candidate to replace PID control: SISO constrained LQ control”
2003	Dept. of Information Engineering - Univ. of Siena	“Recent advances in robust control of multi-variable constrained systems”
2002	National PhD School on Control in the Process Industries (CIP), Villasimius (CA), Italy	“Introduction to PLS regression technique”
2000	Texas – Wisconsin Modeling and Control Consortium, Madison, WI (USA)	“Disturbance modeling for robust control of ill-conditioned processes with MPC”

4.5 Public research projects

1. Co-Investigator in the project “True Colors”, POR Toscana, 2018-2020.
2. Co-Investigator in the SOMA Project (Soft Manipulation), supported by the European Commission, under the Horizon 2020 Framework Programme (H2020-ICT-645599), 2015-2018.
3. Co-Investigator in the University Research Project “Chains of production of bio-methane from renewable sources”, supported by Università di Pisa, 2015-2016.
4. Co-Investigator in the PACMAN Project (Probabilistic and Compositional Representations of Objects for Robotic Manipulation), supported by the European Commission, under the 7th Framework Programme (FP7-ICT-600918), 2014-2016.

4.6 Industrial research projects

1. Principal Investigator of the project ‘Modeling of plant structures of geothermal power plants with environmental technical optimization’, in collaboration with “ENEL Green Power S.p.A.”, 2019.
2. Principal Investigator of the project “Development and validation of a stationary simulation model of the natural gas separation and liquefaction process”, in collaboration with “SofTec S.r.l.”, 2018.
3. Principal Investigator of the project “Study of the control system of a BOG storage and management plant, installed on an LNG Carrier Vessel using dynamic simulation models”, in collaboration with “Gas & Heat S.p.A.”, 2018.
4. Principal Investigator of the project “Energy optimization and integration of a hot water system in a refinery”, in collaboration with “Tea Sistemi S.p.A.”, 2017.
5. Co-Principal Investigator of the project “Simulation model of a downdraft biomass gasifier”, in collaboration with “ENEL Green Power S.p.A.”, 2016-2017.
6. Co-Principal Investigator of the project “Model for conservative estimation of Hg emissions”, in collaboration with “ENEL Green Power S.p.A.”, 2015.
7. Principal Investigator of the project “Development of a new calculation routines and software update of the ECOS simulation tool”, in collaboration with “ENEL Ingegneria e Ricerca S.p.A.”, 2014-2015.
8. Principal Investigator of the project “Development of a software tool for the optimization of steady-state operation of energy districts”, in collaboration with “ENEL Ingegneria e Ricerca S.p.A.”, 2013-2014.
9. Principal Investigator of the project “Development of modeling tools for the simulation of Integrated Gasification and Combined Cycle (IGCC) systems with Carbon Capture and Sequestration (CCS)”, in collaboration with “ENEL Ingegneria e Innovazione S.p.A.”, 2010-2012.
10. Principal Investigator of the project “Development and preliminary design of the control system of a three-generative process for the combined production of electric power, heat and cold”, in collaboration with “ENEL Produzione S.p.A.”, 2008-2009.
11. Co-Investigator in the research project “INNOVazione di processo e di impianto per la produzione sostenibile di olio alimentare”, POR Toscana, in collaboration with “SALOV”, 2009-2011.

12. Co-Investigator in several research projects about performance monitoring of industrial control systems in collaboration with "ENI Refining & Marketing".
13. Co-Investigator in several research projects about performance monitoring of industrial control systems in collaboration with "ENEL Ingegneria e Ricerca S.p.A.".

5. Teaching activities

5.1 Courses taught at the University of Pisa

Current courses

<i>Course title and info</i>	<i>Role</i>	<i>Period</i>	<i>Hours</i>	<i>Times</i>
Theory and Development of Reactive Systems (MS in Chemical Engineering, 6 CFU, SSD ING-IND/26)	teacher	2015-2020	60	6
Process Dynamics and Control (MS in Energy Engineering, 6 CFU, SSD ING-IND/26)	teacher	2018-2020	60	3
Synthesis and Simulation of Chemical Processes (MS in Chemical Engineering, 6 CFU, SSD ING-IND/26)	co-teacher	2018-2020	45	3
Sustainability Analysis of Industrial Processes (MS in Chemical Engineering, 6 CFU, SSD ING-IND/26)	co-teacher	2019-2020	30	63

Past courses

<i>Course title and info</i>	<i>Role</i>	<i>Period</i>	<i>Hours</i>	<i>Times</i>
Advanced Process Control (MS in Chemical Engineering, 6 CFU, SSD ING-IND/26)	teacher	2017-2020	60	3
Process Simulation Techniques (MS in Chemical Engineering, 6 CFU, SSD ING-IND/26)	teacher	2012-2017	60	6
Advanced Process Control (MS in Chemical Engineering, 6 CFU, SSD ING-IND/26)	co-teacher	2003-2016	24	9
Fundamentals of Chemical Reaction Engineering (MS in Chemical Engineering, 6 CFU, SSD ING-IND/24)	teacher	2013-2015	60	2
Process Analysis and Optimization (MS in Chemical Engineering, 6 CFU, SSD ING-IND/26)	teacher	2006-2010	60	4
Process Control Laboratory (MS in Chemical Engineering, 6 CFU, SSD ING-IND/26)	teacher	2003-2008	60	2
Fundamentals of Chemical Reaction Engineering (MS in Chemical Engineering, 6 CFU, SSD ING-IND/24)	co-teacher	2002-2013	24	9
Advanced Chemical Reaction Engineering (MS in Chemical Engineering, 6 CFU, SSD ING-IND/24)	co-teacher	2002-2011	24	9

5.2 Courses taught at other Universities

- Process Dynamic Simulation, Master Program in "Management of Health, Safety, Environment and Quality Systems" at ENI Corporate University, nine times in 2013-2020.
- Advanced Process Control, Post-Graduate Master Program for Electrical and Control Engineers in "Oil & Gas Production Plants" at the University of Bologna, nine times in 2006-2015.
- Chemistry and Biochemistry, BS course at National Marine Academy of Livorno, three times in 2005-2008.

6. Management Activities

6.1 Current activities

- Vice President of Undergraduate and Graduate programs in Chemical Engineering at the University of Pisa, 2019-present.
- Member elect of Council of the School of Engineering of the University of Pisa, 2017-present.
- Member of the Exams Committee of the School of Engineering of the University of Pisa, 2020-present.
- Responsible for activities for disabled students and students with specific learning disabilities of the Department of Civil and Industrial Engineering of the University of Pisa, 2017-present.
- Member of the PhD Program in “Smart Industry”, of Universities of Firenze, Pisa and Siena, 2018-present.
- Member of the BS and MS Programs in Chemical Engineering of the University of Pisa, 2006-present.
- Member of the MS Program in Energy Engineering of the University of Pisa, 2018-present.

6.2 Past activities

- Responsible for the Orientation and Admission Test activities of the Department of Civil and Industrial Engineering of the University of Pisa, 2014-2020.
- Responsible for Job Placement activities of the Department of Civil and Industrial Engineering of the University of Pisa, 2017-2020.
- Member elect of the Council of the Department of Civil and Industrial Engineering of the University of Pisa, 2016-2020.
- Member of the Didactic Committee of the Faculty of Engineering of the University of Pisa in 2011-2012.
- Board Secretary of the BS and MS programs in Chemical Engineering of the University of Pisa in 2009-2012.
- Member of the Timetable Committee of the Faculty of Engineering (after 2012, School of Engineering) of the University of Pisa since 2007-2014.
- Member of the Professional Habilitation Exam Committee of the Faculty of Engineering of the University of Pisa since 2007-2008.

7. Tutoring and Evaluation Activities

7.1 Tutoring activities

Supervisor of:

- 51 MS Theses in Chemical Engineering, Control Systems Engineering and Biomedical Engineering at the University of Pisa, several of which in collaboration with industrial partners and foreign universities.
- 1 PhD Thesis in Smart Industry at the University of Pisa.
- 3 PhD Theses in Chemical Engineering at the University of Pisa.
- 1 PhD Thesis in Mechanical Engineering at the University of Pisa.
- 1 PhD Thesis in “Innovative Technologies of Information & Communication Engineering and Robotics, curriculum Embedded Systems” at the International Doctoral School of Scuola Superiore Sant’Anna, Pisa (Italy).

7.2 Evaluation activities

- Member of the PhD evaluation committee in “Doctoral Programme in Systems and Control” at Politecnico di Milano, in 2019.
- Member of the PhD evaluation committee in “Chemical and Environmental Engineering” at Università di Padova, in 2019.
- Member of the PhD evaluation committee in “Doctor of Science” of École Polytechnique Fédérale de Lausanne (Switzerland), in 2018.
- Member of the PhD evaluation committee in “Doctor of Engineering” of Ecole de Mines ParisTech Paris (France), in 2017.
- Member of the PhD evaluation committee in “Doctor of Engineering” of Universität Stuttgart (Germany), in 2017.
- Member of the PhD evaluation committee in “Computer Science and Engineering” della IMT School for Advances Studies, Lucca (Italy) in 2016.
- Member of the PhD evaluation committee in “Doctor of Engineering” at the Department of Applied Mathematics and Computer Science at the Technical University of Denmark (Denmark) in 2016.
- Member of the PhD evaluation committee in “Doctor of Engineering” at the Faculty of Mechanical Engineering at the Ruhr University Bochum (Germany) in 2015.
- Member of the evaluation committee for appointing an Assistant Professor in “Convex Optimization” at IMT-Lucca (Italy) in 2014.
- Member of the PhD evaluation committee in “Control Systems” at the Department of Engineering of the University of Cambridge (UK) in 2014.
- Member of the PhD evaluation committee in “Digital Emerging Technologies” at Scuola Superiore Sant’Anna (Italy) in 2013.
- Member of the PhD evaluation committee in “Automatic Control Systems” at the School of Engineering of the University of Manchester (UK) in 2013.
- Member of the evaluation committee of tenure-track researchers of the research unit “Dynamical Systems, Control and Optimization” at IMT-Lucca (Italy) in 2013.
- Member of the PhD evaluation committee in “Ingenieria de Sistemas y Automática” at the “Escuela Técnica Superior de Ingenieros Universidad de Sevilla” (Spain) in 2011.
- Member of the PhD evaluation committee in “Information Engineering” at the University of Siena (Italy) in 2011.
- Member of evaluation committee in the Engineering Professional Habilitation Exam at the University of Pisa in 2007-2008.

7. Other Information

- Languages: Italian (mother tongue), English (fluent).
- Computer skills:
 - Operating systems: experienced user and administrator of Linux, MacOS, and Windows, systems.
 - General purpose software: Office and OpenOffice, L^AT_EX, iWork.
 - Programming languages and numerical computing: Python, Matlab/Octave, C++, Fortran.
 - Process simulation software: Aspen Plus, Aspen HYSYS, Honeywell UniSim Design.
- Hobbies:
 - Cycling (finisher of several “Gran Fondo” races since 2008).
 - Music (graduated in Classical Guitar at the “Istituto Musicale Mascagni” Livorno in 1998).
 - Skiing.