

## PUBLICATIONS of Angelo Alessandri

### International journals

1. A. Alessandri, M. Gaggero, M. Sanguineti, "Data-driven performance evaluation of neural learning based on extended Kalman filter," *Int. Journal of Adaptive Control and Signal Processing*, under review.
2. A. Alessandri, "Robust moving-horizon estimation for nonlinear systems with perfect and imperfect optimization," *Automatica*, under review.
3. B. Piaggio, V. Garofano, S. Donnarumma, A. Alessandri, R. Negenborn, M. Martelli, "Follow-the-leader guidance, navigation and control of surface vessels: Design and experiments," *IEEE Journal of Oceanic Engineering*, to appear.
4. D. Bouhadjra, A. Alessandri, P. Bagnerini, A. Zemouche, "Moving horizon estimation of Amnioserosa cell dynamics during *Drosophila* dorsal closure," *European Journal of Control*, vol. 72, pp. 100829, 2023.
5. G. Yang, H. Rezaee, A. Alessandri, T. Parisini, "State estimation using a network of distributed observers with switching communication topology," *Automatica*, vol. 147, pp. 110690, 2023.
6. S. Tarbouriech, A. Alessandri, D. Astolfi, L. Zaccarian, "LMI-based stubborn and dead-zone redesign in linear dynamic output feedback," *IEEE Control Systems Letters*, vol. 7, pp. 187-192, 2022.
7. A. Alessandri, P. Bagnerini, M. Gaggero, L. Mantelli, V. Santamaria, A. Traverso, "Black-box modeling and optimal control of a two-phase flow using level set methods," *IEEE Trans. on Control Systems Technology*, vol. 30, pp. 520-534, 2022.
8. A. Alessandri, R. Sanfelice, "Hysteresis-based switching observers for linear systems using quadratic boundedness," *Automatica*, vol. 136, pp. 109982, 2022.
9. A. Alessandri, P. Bagnerini, M. Gaggero, D. Lengani, D. Simoni, "Detection of flow regime transitions using dynamic mode decomposition and moving horizon estimation," *IEEE Trans. on Control Systems Technology*, vol. 29, pp. 1324-1331, 2021.
10. A. Alessandri, F. Bedouhene, D. Bouhadjra, A. Zemouche, P. Bagnerini, "Observer-based control for a class of hybrid linear and nonlinear systems," *Discrete and Continuous Dynamical Systems, Series S*, vol. 14, p. 1213-1231, 2021.
11. A. Alessandri, P. Bagnerini, M. Gaggero, L. Mantelli, "Parameter estimation of fire propagation models using level set methods," *Applied Mathematical Modelling*, vol. 92, pp. 731-747, 2021.
12. D. Astolfi, A. Alessandri, L. Zaccarian, "Stubborn and dead-zone redesign for nonlinear observers and filters," *IEEE Trans. on Automatic Control*, vol. 66, pp. 667-682, 2021.
13. A. Alessandri, F. Boem, "State observers for systems subject to bounded disturbances using quadratic boundedness," *IEEE Trans. on Automatic Control*, vol. 65, pp. 5352-5359, 2020.
14. A. Alessandri, P. Bagnerini, R. Cianci, "State observation for Lipschitz nonlinear dynamical systems based on Lyapunov functions and functionals," *Mathematics*, vol. 8, 2020.
15. H. Arezki, A. Zemouche, F. Bedouhene, A. Alessandri, "State observer design method for a class of non-linear systems," *IET Control Theory & Applications*, vol. 14, pp. 1648-1655, 2020.
16. A. Alessandri, P. Bagnerini, M. Gaggero, A. Rossi, "State and observer-based feedback control of normal flow equations," *Automatica*, vol. 117, pp. 108980, 2020.
17. A. Alessandri, M. Gaggero, "Fast moving horizon state estimation for linearly constrained discrete-time systems," *Int. Journal of Adaptive Control and Signal Processing*, vol. 34, pp. 706-720, 2020.

18. A. Alessandri, G. Battistelli, "Moving horizon estimation: Open problems, theoretical progress, and new application perspectives," *Int. Journal of Adaptive Control and Signal Processing*, vol. 34, pp. 703-705, 2020.
19. A. Alessandri, "Lyapunov functions for state observers of dynamic systems using Hamilton-Jacobi inequalities," *Mathematics*, vol. 8, 2020.
20. A. Alessandri, "On Hamilton-Jacobi approaches to state reconstruction for dynamic systems," *Advances in Mathematical Physics*, vol. 2020, 2020.
21. A. Alessandri, P. Bagnerini, R. Cianci, S. Donnarumma, A. Taddeo, "Stabilization of diffusive systems using backstepping and the circle criterion," *Int. Journal of Heat and Mass Transfer*, vol. 149, pp. 1-10, 2020.
22. A. Alessandri, P. Bagnerini, R. Cianci, R. Revetria, "Transport and balance equations with boundary values problems for modeling and estimation of thermal flows," *Advances in Mathematical Physics*, vol. 20, 2020.
23. A. Alessandri, P. Bagnerini, R. Cianci, M. Gaggero, "Optimal propagating fronts using Hamilton-Jacobi equations," *Mathematics*, vol. 7, 2019.
24. A. Alessandri, S. Donnarumma, M. Martelli, S. Vignolo, "Motion control for autonomous navigation in blue and narrow waters using switched controllers," *Journal of Marine Science and Engineering*, vol. 7, 196, 2019.
25. G. Casadei, D. Astolfi, A. Alessandri, L. Zaccarian, "Synchronization in networks of identical nonlinear systems via dynamic dead zones," *IEEE Control Systems Letters*, vol. 3, pp. 667-672, 2019.
26. A. Alessandri, P. Bagnerini, M. Gaggero, D. Lengani, D. Simoni, "Dynamic mode decomposition for the inspection of three-regime separate transitional boundary layers using a least squares method," *Physics of Fluids*, vol. 31, pp. 044103-1044103-13, 2019.
27. A. Alessandri, P. Bagnerini, M. Gaggero, "Optimal control of propagating fronts by using level set methods and neural approximations," *IEEE Trans. on Neural Networks and Learning Systems*, vol. 30, pp. 902-912, 2019.
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29. M. Dureau, A. Alessandri, P. Bagnerini, S. Vincent, "Modeling and identification of Amnioserosa cell mechanical behavior by using mass-spring lattices," *IEEE/ACM Trans. on Computational Biology and Bioinformatics*, vol. 14, pp. 1476-1481, 2017.
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31. A. Alessandri, M. Awawdeh, "Moving-horizon estimation with guaranteed robustness for discrete-time linear systems and measurements subject to outliers," *Automatica*, vol. 67, pp. 85-93, 2016.
32. A. Alessandri, A. Rossi, "Increasing-gain observers for nonlinear systems: stability and design," *Automatica*, vol. 57, pp. 180-188, 2015.
33. H. Kheloufi, F. Bedouhene, A. Zemouche, A. Alessandri, "Observer-based stabilisation of linear systems with parameter uncertainties by using enhanced LMI conditions," *Int. Journal of Control*, vol. 88, pp. 1189-1200, 2015.
34. A. Alessandri, A. Rossi, "Time-varying increasing-gain observers for nonlinear systems," *Automatica*, vol. 49, pp. 2845-2852, 2013.
35. A. Alessandri, C. Cervellera, M. Gaggero, "Predictive control of container flows in maritime intermodal terminals," *IEEE Trans. on Control Systems Technology*, vol. 21, pp. 1423-1431, 2013.
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38. A. Alessandri, M. Gaggero, F. Tonelli, "Min-max and predictive control for the management of distribution in supply chains," *IEEE Trans. on Control Systems Technology*, vol. 19, pp. 1075-1089, 2011.
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41. A. Alessandri, G. Gnecco, M. Sanguineti, "Minimizing sequences for a family of functional optimal estimation problems," *Journal of Optimization Theory and Applications*, vol. 147, pp. 243-262, 2010.
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45. A. Alessandri, L. Cassettari, R. Mosca, "Nonparametric nonlinear regression using polynomial and neural approximators: a numerical comparison," *Computational Management Science*, vol. 6, pp. 5-24, 2009.
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51. A. Alessandri, M. Cuneo, S. Pagnan, M. Sanguineti, "A recursive algorithm for nonlinear least-squares problems," *Computational Optimization and Applications*, vol. 38, pp. 195-216, 2007.
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62. A. Alessandri, "Fault diagnosis for nonlinear systems using a bank of neural estimators," *Computers in Industry*, vol. 52, pp. 271-289, 2003.
63. A. Alessandri, M. Baglietto, G. Battistelli, "Receding-horizon estimation for discrete-time linear systems," *IEEE Trans. on Automatic Control*, vol. 48, pp. 473-478, 2003.
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69. A. Alessandri, M. Caccia, G. Veruggio, "Fault detection of actuator faults in unmanned underwater vehicles," *IFAC Control Engineering Practice*, vol. 7, pp. 357-368, 1999.
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## Book reviews

1. A. Alessandri, "Adaptive Neural Network Control of Robotic Manipulators," by S. S. Ge, T. H. Lee, and C. J. Harris, *Automatica*, vol. 40, pp.2011-2012, 2004.

## Book chapters

1. A. Alessandri, P. Bagnnerini, R. Cianci, M. Gaggero, "Optimal control of level sets generated by the normal flow equation," *Theory, Numerics and Applications of Hyperbolic Problems I*, HYP 2016, C. Klingenberg and M. Westdickenberg M. (Eds.), vol. 236, pp. 29-41, Springer-Verlag, 2018.
2. A. Alessandri, S. Donnarumma, S. Vignolo, M. Figari, M. Martelli, R. Chiti, L. Sebastiani, "System control design of autopilot and speedpilot for a patrol vessel by using LMIs," *Towards Green Marine Technology and Transport*, CRC Press, C.G. Soares, R. Dejhalla, D. Pavletic (Eds.), pp. 577-584, 2015.
3. A. Alessandri, R. Filippini, "Evaluation of resilience of interconnected systems based on stability analysis," *CRITIS 2012*, B. Hämmerli, N. Kalstad Svendsen, and J. Lopez (Eds.), *Lecture Notes in Computer Sciences*, vol. 7722, pp. 180-190, Springer-Verlag, 2013.
4. A. Alessandri, M. Cuneo, M. Sanguineti, "An algorithm for nonlinear least-squares: exponential boundedness and numerical results," *Advances in Mathematical Problems in Engineering and Aerospace Sciences Mathematical Problems in Engineering and Aerospace Sciences*, S. Sivasundaram Editor, Cambridge Scientific Publishers, pp. 319-329, 2009.
5. A. Alessandri, C. Cervellera, M. Cuneo, M. Gaggero, "Nonlinear model predictive control for re source allocation in the management of intermodal container terminals," L. Magni et al. (Eds.): *Nonlinear Model Predictive Control – Towards New Challenging Applications*, *Lecture Notes in Control and Information Sciences*, Springer-Verlag, vol. 384, pp. 205-213, 2009.
6. A. Alessandri, M. Baglietto, G. Battistelli, "Minimum-distance receding-horizon state estimation for switching discrete-time linear systems," in *Assessment and Future Directions of Nonlinear Model Predictive Control*, R. Findeisen, F. Allgower, and L. Biegler, (Eds.), *Lecture Notes in Control and Information Sciences*, Springer-Verlag, vol. 358, pp. 347–358, 2007.
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## Italian journals

1. A. Alessandri, E. Punta, "Traffico autostradale: ottimizzazione con segnalazioni variabili di velocità," *Automazione e Strumentazione*, Anno XLV, No. 6, pp. 119-126, Giugno, 1997.

## Presentations at invited sessions of international conferences

1. A. Alessandri, P. Bagnerini, C. Prieur, A. Rossi, "Control of normal flow PDEs with ISS properties," *Proc. 2021 IEEE Conference on Decision and Control (CDC)*, Austin, Texas, USA, pp. 1856-1861, 2021.
2. A. Alessandri, P. Bagnerini, C. Carmeli, M. Gaggero, D. Lengani, D. Simoni, "On-line mode decomposition of fluid flows using moving horizon estimation," *Proc. 58th IEEE Conference on Decision and Control*, pp. 2163-2168, Nice, France, 2019.
3. A. Alessandri, P. Bagnerini, M. Gaggero, D. Lengani, D. Simoni, "Moving horizon trend identification based on switching models for data driven decomposition of fluid flow," *Proc. 57th IEEE Conference on Decision and Control*, pp. 2138-2143, Miami Beach, FL, USA, 2018.
4. A. Alessandri, P. Bagnerini, M. Gaggero, A. Rossi, "Feedback control on the velocity field and source term of a normal flow equation," *Proc. American Control Conference*, pp. 1714-1719, Milwaukee, USA, 2018.
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9. A. Alessandri, P. Bagnerini, M. Gaggero, M. Ghio, R. Martinelli, "Design specifications of an UAV for environmental monitoring, safety, video surveillance, and urban security," *Safety Euro-Med*, Genova, Italia, 2011.
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13. A. Alessandri, M. Caccia, G. Veruggio, "Model-based actuator fault diagnosis in unmanned underwater vehicles," *Second International Workshop on Fault Detection and Compensation*, Denver, Colorado, 1998.
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- Neural Networks for Management, Planning and Optimization*, Dortmund, Germany, pp. 146-151, 1997.
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### **Presentations at international conferences**

1. S. Tarbouriech, A. Alessandri, D. Astolfi, L. Zaccarian, "LMI-based stubborn and dead-zone redesign in linear dynamic output feedback," *Proc. 61st IEEE Conference on Decision and Control (CDC)*, Cancún, Mexico, 2022.
2. D. Bouhadjra, A. Alessandri, P. Bagnerini, A. Zemouche, "A high-gain observer for stage-structured susceptible-infectious epidemic model with linear incidence rate," *Proc. American Control Conference*, pp. 1579-1584, Atlanta, USA, pp. 1336-1340, 2022.
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9. A. Alessandri, P. Bagnerini, M. Gaggero, L. Mantelli, V. Santamaria, A. Traverso, "Black-box modeling and optimal control of a two-phase flow by using Navier-Stokes equations and level set methods," *Proc. American Control Conference*, pp. 3429-3434, Milwaukee, USA, 2018.
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17. S. Donnarumma, L. Zaccarian, A. Alessandri, S. Vignolo, "Anti-windup synthesis of heading and speed regulators for ship control with actuator saturation," *Proc. European Control Conference*, pp. 1284-1290, Aalborg, Denmark, 2016.
18. A. Taddeo, A. Alessandri, P. Bagnnerini, S. Donnarumma, "Backstepping-based stabilization of the pool-boiling system: an application of the circle criterion," *Proc. European Control Conference*, pp. 283-288, Aalborg, Denmark, 2016.
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