

Publications of Andrea Garulli

Books and Special Issues

- [L1] A. Garulli, A. Tesi and A. Vicino (Editors), *Robustness in Identification and Control*, Lecture Notes in Control and Information Sciences, no. 245, Springer-Verlag, 1999.
- [L2] A. Garulli and A. Vicino (Guest Editors), Special Issue “Robustness in Identification and Control”, su *International Journal of Robust and Nonlinear Control*, vol. 11, no. 7, June 2001.
- [L3] D. Henrion and A. Garulli (Editors), *Positive Polynomials in Control*, Lecture Notes in Control and Information Sciences, no. 312, Springer-Verlag, 2005.
- [L4] G. Chesi, A. Garulli, A. Tesi and A. Vicino, *Homogeneous Polynomials Forms for Robustness Analysis of Uncertain Systems*, Lecture Notes in Control and Information Sciences, no. 390, Springer-Verlag, 2009.

Journal papers

- [J1] L. Chisci, A. Garulli and G. Zappa, “Fast algorithms for generalized predictive control”, *System and Control Letters*, vol. 23, pp. 339-348, 1994.
- [J2] L. Chisci, A. Garulli and G. Zappa, “Recursive state bounding by parallelotopes”, *Automatica*, vol. 32, pp. 1049-1056, 1996.
- [J3] L. Chisci, A. Garulli and G. Zappa, “Fast parallel LQ regulator design for adaptive control”, *Int. J. of Adaptive Control and Signal Processing*, vol. 11, pp. 395-413, 1997.
- [J4] L. Chisci, A. Garulli, A. Vicino and G. Zappa, “Block recursive parallelotopic bounding in set membership identification”, *Automatica*, vol. 34, pp. 15-22, 1998.
- [J5] A. Garulli, B. Z. Kacewicz, A. Vicino and G. Zappa, “Reliability of projection algorithms in conditional estimation”, *Journal of Optimization Theory and Applications*, vol. 101, no. 1, pp. 1-14, 1999.
- [J6] A. Garulli, A. Vicino and G. Zappa, “Optimal induced-norm and set membership state smoothing and filtering for linear systems with bounded disturbances”, *Automatica*, vol. 35, no. 5, pp. 767-776, 1999.

- [J7] A. Garulli, “Tight error bounds for projection algorithms in conditional set membership estimation”, *Systems and Control Letters*, vol. 37, no. 5, pp. 293-300, 1999.
- [J8] A. Garulli, A. Vicino and G. Zappa, “Conditional central algorithms for worst-case set membership identification and filtering”, *IEEE Transactions on Automatic Control*, vol. 45, no. 1, pp. 14-23, 2000.
- [J9] A. Garulli, B. Z. Kacewicz, A. Vicino and G. Zappa, “Error bounds for conditional algorithms in restricted complexity set membership identification”, *IEEE Transactions on Automatic Control*, vol. 45, no. 1, pp. 160-164, 2000.
- [J10] A. Bemporad and A. Garulli, “Output-feedback predictive control of constrained linear systems via set-membership state estimation”, *International Journal of Control*, vol. 73, no. 8, pp. 655-665, 2000.
- [J11] A. Garulli, “Robust control: the parametric approach, by S. P. Bhattacharyya, H. Chappellat and L. H. Keel” (Book review), *Automatica*, vol. 36, no. 10, pp. 1563-1566, 2000.
- [J12] A. Garulli and A. Vicino, “Set membership localization of mobile robots via angle measurements”, *IEEE Transactions on Robotics and Automation*, vol. 17, no. 4, pp. 450-463, 2001.
- [J13] M. Di Marco, A. Garulli, S. Lacroix and A. Vicino, “Set membership localization and mapping for autonomous navigation”, *International Journal of Robust and Nonlinear Control*, vol. 11, no. 7, pp. 709-734, 2001.
- [J14] G. Chesi, A. Garulli, A. Tesi and A. Vicino, “A convex approach to the characterization of the frequency response of ellipsoidal plants”, *Automatica*, vol. 38, no. 2, pp. 249-259, 2002.
- [J15] G. Chesi, A. Garulli, A. Vicino and R. Cipolla, “Estimating the fundamental matrix via constrained least squares: a convex approach”, *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 24, no. 3, pp. 397-401, 2002.
- [J16] W. Reinelt, A. Garulli and L. Ljung, “Comparing different approaches to model error modeling in robust identification”, *Automatica*, vol. 38, no. 5, pp. 787-803, 2002.
- [J17] A. Caiti, A. Garulli, F. Livide and D. Prattichizzo “Set-membership acoustic tracking of autonomous underwater vehicles”, *Acta Acustica united with Acustica*, vol. 88, no. 5, pp. 648-652, 2002.

- [J18] A. Garulli, L. Giarrè and G. Zappa, “Identification of approximated Hammerstein models in a worst-case setting”, *IEEE Transactions on Automatic Control*, vol. 47, no. 12, pp. 2046-2050, 2002.
- [J19] M. Casini, A. Garulli and A. Vicino, “On worst-case approximation of feasible system sets via orthonormal basis functions”, *IEEE Transactions on Automatic Control*, vol. 48, no. 1, pp. 96-101, 2003.
- [J20] G. Chesi, A. Garulli, A. Tesi and A. Vicino, “Solving quadratic distance problems: an LMI-based approach”, *IEEE Transactions on Automatic Control*, vol. 48, no. 2, pp. 200-212, 2003.
- [J21] A. Garulli, C. Mocenni, A. Tesi and A. Vicino, “Integrating identification and qualitative analysis for the dynamic model of a lagoon”, *International Journal of Bifurcation and Chaos*, vol. 13, no. 2, pp. 357-374, 2003.
- [J22] M. Di Marco, A. Garulli, A. Giannitrapani and A. Vicino, “Simultaneous localization and map building for a team of cooperating robots: a set membership approach”, *IEEE Transactions on Robotics and Automation*, vol. 19, no. 2, pp. 238-249, 2003.
- [J23] G. Chesi, A. Garulli, A. Tesi and A. Vicino, “Homogeneous Lyapunov functions for systems with structured uncertainties”, *Automatica*, vol. 39, no. 6, pp. 1027-1035, 2003.
- [J24] M. Di Marco, A. Garulli, D. Prattichizzo and A. Vicino, “A set theoretic approach for time-to-contact estimation in dynamic vision”, *Automatica*, vol. 39, no. 6, pp. 1037-1044, 2003.
- [J25] G. Chesi, A. Garulli, A. Tesi and A. Vicino, “Characterizing the solution set of polynomial systems in terms of homogeneous forms: an LMI approach”, *International Journal of Robust and Nonlinear Control*, vol. 13, no. 13, pp. 1239–1257, 2003.
- [J26] M. Di Marco, A. Garulli, A. Giannitrapani and A. Vicino, “A set theoretic approach to dynamic robot localization and mapping”, in *Autonomous Robots*, vol. 16, pp. 23-47, 2004.
- [J27] G. Chesi, A. Garulli, A. Tesi and A. Vicino, “Robust analysis of LFR systems through homogeneous polynomial Lyapunov functions”, *IEEE Transactions on Automatic Control*, vol. 49, no. 7, pp. 1211-1216, 2004.
- [J28] G. Chesi, A. Garulli, A. Tesi, and A. Vicino “LMI-based computation of optimal quadratic Lyapunov functions for odd polynomial systems”, *International Journal of Robust and Nonlinear Control*, vol. 15, pp. 34–49, 2005.

- [J29] G. Chesi, A. Garulli, A. Tesi, and A. Vicino “Polynomially parameter-dependent Lyapunov functions for robust stability of polytopic systems: an LMI approach”, *IEEE Transactions on Automatic Control*, vol. 50, no. 3, pp. 365–370, 2005.
- [J30] A. Caiti, A. Garulli, F. Livide and D. Prattichizzo, “Localization of autonomous underwater vehicles by floating acoustic buoys: a set-membership approach”, *IEEE Journal of Oceanic Engineering*, vol. 30, no. 1, pp. 140-152, 2005.
- [J31] M. Casini, A. Garulli, D. Prattichizzo and A. Vicino, “Remote identification and control experiments on a DC motor”, *Learning Technology*, vol. 7, no. 3, pp. 36-39, 2005.
- [J32] A. Bemporad, A. Garulli, S. Paoletti and A. Vicino, “A bounded-error approach to piecewise affine system identification”, *IEEE Transactions on Automatic Control*, vol. 50, no. 10, pp. 1567-1580, 2005.
- [J33] M. Casini, A. Garulli and A. Vicino, “On input design in ℓ_∞ conditional set membership identification”, *Automatica*, vol. 42, no. 5, pp. 815-823, 2006.
- [J34] G. Chesi, A. Garulli, A. Tesi, and A. Vicino “Robust stability of time-varying polytopic systems via parameter-dependent homogeneous Lyapunov functions”, *Automatica*, vol. 43, no. 2, pp. 309-316, 2007.
- [J35] F. Morbidi, A. Garulli, D. Prattichizzo, C. Rizzo, P. Manganotti and S. Rossi, “Off-line removal of TMS-induced artifacts on human electroencephalography by Kalman filter”, *Journal of Neuroscience Methods*, vol. 162, no. 1-2, pp. 293-302, 2007.
- [J36] M. Casini, A. Garulli and A. Vicino, “Efficient computation of ℓ_1 uncertainty model from an impulse response set”, *Automatica*, vol. 44, no. 10, pp. 2570-2576, 2008.
- [J37] F. Morbidi, A. Garulli, D. Prattichizzo, C. Rizzo and S. Rossi, “Application of Kalman filter to remove TMS-induced artifacts from EEG recordings”, *IEEE Transactions on Control Systems Technology*, vol. 16, no. 6, pp. 1360-1366, 2008.
- [J38] N. Ceccarelli, M. Di Marco, A. Garulli and A. Giannitrapani, “Collective circular motion of multi-vehicle systems”, *Automatica*, vol. 44, no. 12, pp. 3025-3035, 2008.
- [J39] A. Garulli and A. Vicino, “Convex relaxations in circuits, systems, and control”, *IEEE Circuits and Systems Magazine*, vol. 9, no. 2, pp. 46-56, 2009.
- [J40] S. Paoletti, J. Roll, A. Garulli and A. Vicino, “On the input-output representation of piecewise affine state space models”, *IEEE Transactions on Automatic Control*, vol. 55, no. 1, pp. 60-73, 2010.

- [J41] D. Benedettelli, N. Ceccarelli, A. Garulli and A. Giannitrapani, “Experimental validation of collective circular motion for nonholonomic multi-vehicle systems”, *Robotics and Autonomous Systems*, vol. 58, no. 8, pp. 1028-1036, 2010.
- [J42] A. Garulli, A. Giannitrapani “Analysis of consensus protocols with bounded measurement errors”, *Systems and Control Letters*, vol. 60, no. 1, pp. 44-52, 2011.
- [J43] E. Pepona, S. Paoletti, A. Garulli and P. Date, “Identification of piecewise affine LFR models of interconnected systems”, *IEEE Transactions on Control Systems Technology*, vol. 19, no. 1, pp. 148-155, 2011.
- [J44] A. Giannitrapani, N. Ceccarelli, F. Scortecci and A. Garulli, “Comparison of EKF and UKF for spacecraft localization via angle measurements”, *IEEE Transactions on Aerospace and Electronic Systems*, vol. 74, no. 1, pp. 75-84, 2011.
- [J45] N. Ceccarelli, M. Di Marco, A. Garulli, A. Giannitrapani and A. Vicino, “Path planning with uncertainty: a set membership approach”, *International Journal on Adaptive Control and Signal Processing*, vol. 25, pp. 273-287, 2011.
- [J46] M. Casini, A. Garulli and A. Vicino, “Input design in worst-case system identification using binary sensors”, *IEEE Transactions on Automatic Control*, vol. 56, no. 5, pp. 1186-1191, 2011.
- [J47] A. Garulli, A. Giannitrapani, M. Leomanni and, F. Scortecci, “Autonomous low-Earth-orbit station-keeping with electric propulsion”, *Journal of Guidance Control and Dynamics*, vol. 34, no. 6, pp. 1683-1693, 2011.
- [J48] A. Fabbri, A. Garulli and P. Mercorelli, “A trajectory generation algorithm for optimal consumption in electromagnetic actuators”, *IEEE Transactions on Control Systems Technology*, vol. 20, no. 4, pp. 1025-1032, 2012.
- [J49] D. Benedettelli, A. Garulli and A. Giannitrapani, “Cooperative SLAM using M-Space representation of linear features”, *Robotics and Autonomous Systems*, vol. 60, no. 10, pp. 1267-1278, 2012.
- [J50] M. Casini, A. Garulli and A. Vicino, “Input design in worst-case system identification with quantized measurements”, *Automatica*, vol. 48, no. 12, pp. 2997-3007, 2012.
- [J51] A. Garulli, A. Masi, G. Valmorbidia and L. Zaccarian, “Global stability and finite \mathcal{L}_{2m} -gain of saturated uncertain systems via piecewise polynomial Lyapunov functions”, *IEEE Transactions on Automatic Control*, vol. 58, no. 1, pp. 242-246, 2013.

- [J52] A. Garulli, A. Hansson, S. Khoshfetrat Pakazad, A. Masi, R. Wallin, “Robust finite-frequency \mathcal{H}_2 analysis of uncertain systems with application to flight comfort analysis”, *Control Engineering Practice*, vol. 21, no. 6, pp. 887-897, 2013.
- [J53] A. Garulli, A. Masi, and A. Vicino, “Equivalence of sum of squares convex relaxations for quadratic distance problems”, *International Journal of Robust and Nonlinear Control*, vol. 23, no. 9, pp. 965-977, 2013.
- [J54] M. Casini, A. Garulli, A. Giannitrapani and A. Vicino, “A remote lab for experiments with a team of mobile robots”, *Sensors*, vol. 14, no. 9, pp. 16486-16507, 2014.
- [J55] F. Taccogna, D. Pagano, F. Scortecci and A. Garulli, “Three-dimensional plume simulation of multi-channel thruster configuration”, *Plasma Sources Science and Technology*, vol. 23, no. 6,, pp. 065034, 2014.
- [J56] M. Casini, A. Garulli and A. Vicino, “Feasible parameter set approximation for linear models with bounded uncertain regressors”, *IEEE Transactions on Automatic Control*, vol. 59, no. 11, pp. 2910-2920, 2014.
- [J57] M. Leomanni, A. Garulli, A. Giannitrapani and, F. Scortecci, “All-electric spacecraft precision pointing using model predictive control”, *Journal of Guidance Control and Dynamics*, vol. 38, no. 1, pp. 161-167, 2015.
- [J58] L. Palopoli, A. Argyros, J. Birchbauer, A. Colombo, D. Fontanelli, A. Legay, A. Garulli, A. Giannitrapani, et al., “Navigation assistance and guidance of older adults across complex public spaces: the DALi approach”, *Intelligent Service Robotics*, pp. 1-16, 2015.
- [J59] A. Garulli, S. Paoletti and A. Vicino, “Models and techniques for electric load forecasting in the presence of demand response”, *IEEE Transactions on Control Systems Technology*, vol. 23, no. 3, pp. 1087-1097, 2015.
- [J60] A. Garulli, A. Giannitrapani and M. Leomanni, “Minimum switching control for systems of coupled double integrators”, *Automatica*, vol. 60, pp. 115-121, 2015.

Book chapters

- [B1] A. Garulli, B. Z. Kacewicz, A. Vicino and G. Zappa, “Suboptimal conditional estimators for restricted complexity set membership identification”, in *Robustness in Identification and Control* (A. Garulli, A. Tesi and A. Vicino eds.), Lecture Notes in Control and Information Sciences, no. 245, pp. 117-133, Springer Verlag, 1999.

- [B2] G. Chesi, A. Garulli, A. Tesi and A. Vicino, “On the role of homogeneous forms in robustness analysis of control systems”, in *Multidisciplinary Research in Control: The Mohammed Dahleh Symposium 2002* (L. Giarre’ and B. Bamieh Eds.), Lecture Notes in Control and Information Sciences, no. 289, pp. 161-177, Springer-Verlag, Berlin, 2003.
- [B3] A. Bemporad, A. Garulli, S. Paoletti and A. Vicino, ”A greedy approach to identification of piecewise affine models”, in *Hybrid Systems: Computation and Control* (O. Maler and A. Pnueli Eds.), Lecture Notes in Computer Science, no. 2623, pp. 97-112, Springer-Verlag, 2003.
- [B4] A. Garulli, A. Tesi and A. Vicino, “Uncertainty models for robustness analysis”, in *Control Systems, Robotics and Automation*, edited by H. Unbehauen, in Encyclopedia of Life Support Systems (EOLSS), developed under the auspices of the UNESCO, Eolss Publishers, Oxford, UK, 2004. [<http://www.eolss.net>]
- [B5] G. Chesi, A. Garulli, A. Tesi and A. Vicino, “An LMI-based technique for robust stability analysis of linear systems with polynomial parametric uncertainties”, in *Positive polynomials in control* (A. Garulli and D. Henrion Eds.), Lecture Notes on Control and Information Sciences, vol. 312, Springer-Verlag, Berlin, 2005.
- [B6] N. Ceccarelli, M. Di Marco, A. Garulli, A. Giannitrapani and A. Vicino, “Set membership localization and map building for mobile robots”, in *Current Trends in Nonlinear Systems and Control* (L. Menini, L. Zaccarian and C.T. Abdallah Eds.), pp. 289-308, Birkhauser, 2006.
- [B7] A. Garulli, A. Masi, S. Paoletti and E. Turkoglu, “Lyapunov-based robustness analysis techniques for clearance”, in *Optimization Based Clearance of Flight Control Laws: A Civil Aircraft Application* (A. Varga, A. Hansson and G. Puyou Eds.), pp. 161-178, Lecture Notes in Control and Information Sciences, vol. 416, pp. 161-178, Springer, 2012.
- [B8] A. Garulli, A. Masi, S. Paoletti and E. Turkoglu, “Applications of Lyapunov-based analysis techniques for clearance”, in *Optimization Based Clearance of Flight Control Laws: A Civil Aircraft Application* (A. Varga, A. Hansson and G. Puyou Eds.), pp. 253-275, Lecture Notes in Control and Information Sciences, vol. 416, pp. 253-275, Springer, 2012.
- [B9] R. Wallin, S. Khoshfetrat Pakazad, A. Hansson, A. Garulli and A. Masi, “Applications of IQC-Based analysis techniques for clearance”, in *Optimization Based Clearance of Flight Control Laws: A Civil Aircraft Application* (A. Varga, A. Hansson and G. Puyou Eds.), pp. 277-297 , Lecture Notes in Control and Information Sciences, vol. 416, pp. 277-297, Springer, 2012.

- [B10] S. Paoletti and A. Garulli, “PWA identification of interconnected systems with LFR structure”, in *Linear Parameter-Varying System Identification - New Developments and Trends*, (P. Lopes dos Santos, T. P. Azevedo Perdicoulis, C. Novara, J. A. Ramos and D. E. Rivera Eds.), pp. 317-346, Advanced Series in Electrical and Computer Engineering, vol. 14, World Scientific, 2012.

Conference papers

- [C1] L. Chisci, A. Garulli and G. Zappa, “Fast algorithms for LQ control design of time-invariant systems”, *Proc. of the 32th IEEE CDC*, San Antonio, pp. 116-121, 1993.
- [C2] L. Chisci, A. Garulli and G. Zappa, “From systolic to transputer arrays: a clustering approach”, *Proc. of the 4th Symposium on Automatic Control and Computer Science*, Iasi, Romania, pp. 430-441, 1993.
- [C3] L. Chisci, A. Garulli and G. Zappa, “Recursive set membership state estimation via parallelotopes”, *Prep. 9th IFAC/IFORS SYSID*, vol. III, Copenhagen, pp. 383-388, 1994.
- [C4] L. Chisci, A. Garulli and G. Zappa, “Fast parallel algorithms for predictive control”, *Proc. of Control '94*, Warwick, pp. 1248-1253, 1994.
- [C5] L. Chisci, A. Garulli and G. Zappa, “Fast computation of stabilizing predictive control laws”, *Prep. 3rd IFAC/IFIP Workshop on Algorithms and Architectures for Real-Time Control*, Ostend, pp. 525-531, 1995.
- [C6] L. Chisci, A. Garulli and G. Zappa, “Properties of optimal bounding parallelotope algorithms”, *Proc. of the 3rd ECC*, Roma, pp. 7-12, 1995.
- [C7] L. Chisci, A. Garulli, A. Vicino and G. Zappa, “Block recursive bounding in set membership identification”, *Proc. of the 34th IEEE CDC*, New Orleans, pp. 3516-3521, 1995.
- [C8] L. Chisci, A. Garulli, A. Vicino and G. Zappa, “Recursive parallelotopic bounding algorithms in set membership identification”, *Proc. of the 13th IFAC World Congress*, San Francisco, vol. I, pp. 49-54, 30 Giugno-5 Luglio 1996.
- [C9] A. H. Sayed, A. Garulli and S. Chandrasekaran “Iterative solution of min-max parameter estimation with bounded uncertainties”, *Proc. ICASSP'97*, Munich, Germany, pp. 3561-3564, 21-24 Aprile 1997.

- [C10] A. H. Sayed, A. Garulli and S. Chandrasekaran, “A fast iterative solution for worst-case parameter estimation with bounded model uncertainties”, *Proc. ACC’97*, Albuquerque, New Mexico, pp. 1499-1503, vol. 3, 4-6 Giugno 1997.
- [C11] A. H. Sayed, A. Garulli, V. H. Nascimento and S. Chandrasekaran, “Exponentially-weighted iterative solutions for worst-case parameter estimation”, *Proc. 5th Mediterranean Conf. on Control and Systems*, Cyprus, 21-23 Luglio 1997.
- [C12] A. Garulli, P. Guarnieri, A. Vicino and G. Zappa, “Set membership identification of mixed parametric/nonparametric models for robust control”, *Prep. of the 2nd IFAC Symposium on Robust Control Design*, Budapest, pp. 95-100, 25-27 Giugno 1997.
- [C13] A. Bemporad and A. Garulli, “Predictive control via set-membership state estimation for constrained linear systems with disturbances”, *Proc. of the 4th ECC*, Bruxelles, 1-4 Luglio 1997.
- [C14] A. Garulli, A. Vicino and G. Zappa, “Induced-norm state estimation: the set membership viewpoint”, *Proc. of the 4th ECC*, Bruxelles, 1-4 Luglio 1997.
- [C15] A. Garulli, A. Vicino and G. Zappa, “An information-based complexity framework for optimal induced-norm and set membership state estimation”, *Proc. of the 11th IFAC Symposium on System Identification*, pp. 99-104, Kitakyushu City, 8-11 Luglio 1997.
- [C16] A. Garulli, A. Vicino and G. Zappa, “Conditional central algorithms for worst case estimation and filtering”, *Proc. 36th IEEE Conference on Decision and Control*, San Diego (USA), pp. 2453-2458, 10-12 Dicembre 1997.
- [C17] A. Garulli, A. Vicino and G. Zappa, “Optimal and suboptimal \mathcal{H}_2 and \mathcal{H}_∞ estimators for set-membership identification”, *Proc. 36th IEEE Conference on Decision and Control*, San Diego (USA), pp. 764-766, 10-12 Dicembre 1997.
- [C18] A. Garulli, D. Prattichizzo, A. Vicino and G. Zappa, “Uncertainty interval evaluation for time to contact estimation problems”, *Proc. 3rd IFAC Symposium on Intelligent Autonomous Vehicles*, Madrid (E), pp. 301-306, 25-27 Marzo 1998.
- [C19] A. Garulli, B. Z. Kacewicz, A. Vicino and G. Zappa, “Properties of conditional algorithms in restricted complexity set membership identification”, *Proc. 37th IEEE Conference on Decision and Control*, Tampa (USA), pp. 4452-4457, 16-18 Dicembre 1998.
- [C20] A. Garulli, B. Z. Kacewicz, A. Vicino and G. Zappa, “Error evaluation for projection algorithms in conditional set membership estimation”, *Proc. 37th IEEE Conference on Decision and Control*, Tampa (USA), pp. 4476-4481, 16-18 Dicembre 1998.

- [C21] L. Giarrè, A. Garulli, and G. Zappa, “Generalized projection algorithms for identification of mixed uncertainty models”, *Proc. 37th IEEE Conference on Decision and Control*, Tampa (USA), pp. 4470-4471, 16-18 Dicembre 1998.
- [C22] A. Garulli, D. Prattichizzo and A. Vicino , “A set theoretic approach for time to contact estimation in dynamic vision”, *Proc. 37th IEEE Conference on Decision and Control*, Tampa (USA), pp. 2001-2006, 16-18 Dicembre 1998.
- [C23] A. Garulli, “Tight ℓ_∞ and ℓ_1 error bounds for projection algorithms in conditional set membership estimation”, *Proc. 14th IFAC World Congress*, Beijing, China, pp. 337-342, vol. H, 5-9 Luglio 1999.
- [C24] A. Garulli, C. Mocenni and A. Vicino, “Identification of simplified biological models of a lagoon”, *Proc. 14th IFAC World Congress*, Beijing, China, pp. 151-156, vol. L, 5-9 Luglio 1999.
- [C25] A. Garulli and A. Vicino, “Uncertainty sets for dynamic localization of mobile robots”, *Proc. 38th IEEE Conference on Decision and Control*, Phoenix (USA), pp. 1488-1493, 7-10 Dicembre 1999.
- [C26] W. Reinelt, A. Garulli, L. Ljung, J. H. Braslavsky and A. Vicino, “Model error concepts in identification for control”, *Proc. 38th IEEE Conference on Decision and Control*, Phoenix (USA), pp. 1240-1245, 7-10 Dicembre 1999.
- [C27] G. Chesi, A. Garulli, A. Tesi and A. Vicino, “Exact bounds for the frequency response of an uncertain plant with ellipsoidal perturbations”, *Proc. IFAC Symposium on System Identification*, Santa Barbara (USA), pp. 181-186, 21-23 Giugno 2000.
- [C28] A. Garulli and W. Reinelt, , “On Model Error Modeling in Set Membership Identification”, *Proc. IFAC Symposium on System Identification*, Santa Barbara (USA), pp. 169-174, 21-23 Giugno 2000.
- [C29] M. Di Marco, A. Garulli, D. Prattichizzo and A. Vicino, “Constructing and updating navigation maps with uncertainty”, *Proc. IFAC Symposium on System Identification*, Santa Barbara (USA), pp. 1013-1018, 21-23 Giugno 2000.
- [C30] G. Chesi, A. Garulli, A. Vicino and R. Cipolla, “On the estimation of the fundamental matrix: a convex approach to constrained least-squares”, *6th European Conference on Computer Vision*, Dublin (Ireland), Part I, pp. 236-250, 26 Giugno - 1 Luglio 2000.

- [C31] M. Di Marco, A. Garulli, S. Lacroix and A. Vicino, “A set theoretic approach to the simultaneous localization and map building problem”, *Proc. 39th IEEE Conference on Decision and Control*, Sydney (Australia), pp. 833-838, 12-15 Dicembre 2000.
- [C32] G. Chesi, A. Garulli, A. Tesi and A. Vicino, “An LMI-based approach for characterizing the solution set of polynomial systems”, *Proc. 39th IEEE Conference on Decision and Control*, Sydney (Australia), pp. 1501-1506, 12-15 Dicembre 2000.
- [C33] M. Di Marco, A. Garulli and A. Vicino, “Cooperative localization and map building for multi-robot systems: a set membership approach”, *Proc. 9th International Symposium on Intelligent Robotic Systems (SIRS'2001)*, Toulouse (France), pp. 415-424, 18-20 Luglio 2001.
- [C34] G. Chesi and A. Garulli, “On the characterization of the solution set of polynomial systems via LMI techniques”, *Proc. of the European Control Conference ECC 2001*, Porto (Portugal), pp. 2058-2063, 4-7 Settembre 2001.
- [C35] M. Casini, A. Garulli and A. Vicino, “On worst-case approximation of feasible system sets via orthonormal basis functions”, *Proc. 40th IEEE Conference on Decision and Control*, Orlando (USA), pp. 2695-2700, December 2001.
- [C36] M. Di Marco, A. Garulli, A. Giannitrapani and A. Vicino, “Set membership pose estimation of mobile robots based on angle measurements”, *Proc. 40th IEEE Conference on Decision and Control*, Orlando (USA), pp. 3734-3739, December 2001.
- [C37] G. Chesi, A. Garulli, A. Tesi and A. Vicino, “LMI-Based Techniques for Solving Quadratic Distance Problems”, *Proc. 40th IEEE Conference on Decision and Control*, Orlando (USA), pp. 3587-3592, December 2001.
- [C38] A. Caiti, A. Garulli, F. Livide and D. Prattichizzo, “Set-Membership localization and tracking of AUV”, *6th European Conference on Underwater Acoustics ECUA2002*, Cracovia, 24-27 June 2002.
- [C39] M. Di Marco, A. Garulli, A. Giannitrapani and A. Vicino “Dynamic robot localization and mapping using uncertainty sets”, *15th World IFAC Congress*, Barcellona, July 2002.
- [C40] A. Caiti, A. Garulli, F. Livide and D. Prattichizzo, “Acoustic tracking of autonomous underwater vehicles by a set-membership approach”, *15th World IFAC Congress*, Barcellona, July 2002.

- [C41] G. Chesi, A. Garulli, A. Tesi and A. Vicino, "LMI-based construction of homogeneous Lyapunov functions for systems with structured uncertainties", *Proc. 41st IEEE Conference on Decision and Control*, Las Vegas (USA), December 2002.
- [C42] F. Tjärnström and A. Garulli, "A mixed probabilistic/bounded-error approach to parameter estimation in the presence of amplitude bounded white noise", *Proc. 41st IEEE Conference on Decision and Control*, Las Vegas (USA), December 2002.
- [C43] G. Chesi, A. Garulli, A. Tesi and A. Vicino, "Homogeneous polynomial Lyapunov functions for robust stability analysis of LFR systems", *Proc. of the 4th IFAC Symposium on Robust Control Design*, Milan, 25-27 Giugno 2003.
- [C44] A. Bemporad, A. Garulli, S. Paoletti and A. Vicino, "Set Membership Identification of Piecewise Affine Models", *Proc. 13th IFAC Symposium on System Identification*, Rotterdam, pp. 1826-1831, August 2003.
- [C45] M. Casini, A. Garulli and A. Vicino, "On optimal input design in conditional set membership identification", *Proc. 42nd IEEE Conference on Decision and Control*, Maui (USA), pp. 6497-6502, December 2003.
- [C46] G. Chesi, A. Garulli, A. Tesi and A. Vicino, "Robust stability of polytopic systems via polynomially parameter-dependent Lyapunov functions", *Proc. 42nd IEEE Conference on Decision and Control*, Maui (USA), pp. 4670-4675, December 2003.
- [C47] M. Casini, A. Garulli, D. Prattichizzo and A. Vicino, "Remote system identification in the Automatic Control Telelab environment" *Proc. 42nd IEEE Conference on Decision and Control*, Maui (USA), pp. 4956-4961, December 2003.
- [C48] A. Bemporad, A. Garulli, S. Paoletti and A. Vicino, "Data classification and parameter estimation for the identification of piecewise affine models", *Proc. 43rd IEEE Conference on Decision and Control*, Paradise Island (Bahamas), pp. 20-25, December 2004.
- [C49] N. Ceccarelli, M. Di Marco, A. Garulli and A. Giannitrapani, "A set theoretic approach to path planning for mobile robots", *Proc. 43rd IEEE Conference on Decision and Control*, Paradise Island (Bahamas), pp. 147-152, December 2004.
- [C50] G. Chesi, A. Garulli, A. Tesi and A. Vicino, "Parameter-dependent homogeneous Lyapunov functions for robust stability of linear time-varying systems", *Proc. 43rd IEEE Conference on Decision and Control*, Paradise Island (Bahamas), pp. 4095-4100, December 2004.

- [C51] M. Casini, A. Garulli and A. Vicino, “Error bounds for FIR models in conditional set-membership identification”, *Proc. 16th World IFAC Congress*, Praga, July 2005.
- [C52] G. Chesi, A. Garulli, A. Tesi and A. Vicino, “Polynomially parameter-dependent Lyapunov functions for robust \mathcal{H}_∞ performance analysis”, *Proc. 16th World IFAC Congress*, Praga, July 2005.
- [C53] A. Garulli, A. Giannitrapani, A. Rossi and A. Vicino, “Simultaneous localization and map building using linear features”, *Proc. 2nd European Conference on Mobile Robots*, pp. 44-49, Ancona (Italy), September 2005.
- [C54] A. Caiti, A. Garulli and D. Prattichizzo, “Set-membership AUV acoustic tracking in presence of space varying current disturbances”, *Proc. of the IARP Int. Work. on Underwater Robotics*, Genova (Italy), pp. 217-224, November 2005.
- [C55] N. Ceccarelli, M. Di Marco, A. Garulli and A. Giannitrapani, “Collective circular motion of multi-vehicle systems with sensory limitations”, *Proc. 44th IEEE Conference on Decision and Control and the European Control Conference 2005*, Seville (Spain), pp. 740-745, December 2005.
- [C56] A. Garulli, A. Giannitrapani, A. Rossi and A. Vicino, “Mobile robot SLAM for line-based environment representation”, *Proc. 44th IEEE Conference on Decision and Control and the European Control Conference 2005*, Seville (Spain), pp. 2041-2046, December 2005.
- [C57] N. Ceccarelli, M. Di Marco, A. Garulli and A. Giannitrapani, “Experimental analysis of collective circular motion for multi-vehicle systems”, *Proc. 8th International IFAC Symposium on Robot Control, SYROCO’06*, Bologna (Italy), September 2006.
- [C58] N. Ceccarelli, A. Garulli, A. Giannitrapani, M. Leomanni and F. Scortecci, “Spacecraft localization via angle measurements for autonomous navigation in deep space missions”, *Proc. 17th IFAC Symposium on Automatic Control in Aerospace*, Toulouse (France), June 2007.
- [C59] F. Morbidi, A. Garulli, D. Prattichizzo, C. Rizzo and S. Rossi, “A Kalman filter approach to remove TMS-induced artifacts from EEG recordings”, *Proc. of the European Control Conference 2007*, Kos (Greece), pp. 2201-2206, July 2007.
- [C60] M. Casini, A. Garulli and A. Vicino, “An efficient algorithm for the construction of ℓ_1 uncertainty model sets”, *Proc. of the European Control Conference 2007*, Kos (Greece), pp. 2721-2727, July 2007.

- [C61] A. Vicino and A. Garulli, “Convex relaxations for robust control problems”, *Proc. of the European Control Conference 2007*, Kos (Greece), pp. 5001-5002, July 2007.
- [C62] D. Benedettelli, N. Ceccarelli, A. Garulli and A. Giannitrapani, “Experimental validation of a decentralized control law for multi-vehicle collective motion”, *Proc. of the IEEE/RSJ Int. Conf. on Intelligent Robots and Systems, IROS 2007*, San Diego (USA), pp. 4170-4175, October 2007.
- [C63] E. Pepona, S. Paoletti, A. Garulli and P. Date, “An iterative procedure for piecewise affine identification of nonlinear interconnected systems”, *Proc. 46th IEEE Conference on Decision and Control*, New Orleans (USA), pp. 5098-5103, December 2007.
- [C64] S. Paoletti, J. Roll, A. Garulli and A. Vicino, “Input-output realization of piecewise affine state space models”, *Proc. 46th IEEE Conference on Decision and Control*, New Orleans (USA), pp. 3164-3169, December 2007.
- [C65] M. Casini, A. Garulli and A. Vicino, “Time complexity and input design in worst-case identification using binary sensors”, *Proc. 46th IEEE Conference on Decision and Control*, New Orleans (USA), pp. 5528-5533, December 2007.
- [C66] A. Fabbrini, D. Doretto, S. Braune, A. Garulli and P. Mercorelli, “Optimal trajectory generation for camless internal combustion engine valve control”, *Proc. 34th Annual Conference of the IEEE Industrial Electronics Society, IECON 2008*, Orlando (USA), pp. 303-308, November 2008.
- [C67] D. Doretto, A. Fabbrini, S. Braune, A. Garulli and P. Mercorelli, “An EKF-based observer for sensorless valve control in camless internal combustion engine”, *Proc. 34th Annual Conference of the IEEE Industrial Electronics Society, IECON 2008*, Orlando (USA), pp. 85-90, November 2008.
- [C68] M. Casini, A. Garulli and A. Vicino, “Optimal input design for identification of systems with quantized measurements”, *Proc. 47th IEEE Conference on Decision and Control*, Cancun (Mexico), pp. 5506-5512, December 2008.
- [C69] S. Paoletti, A. Garulli, J. Roll and A. Vicino, “A necessary and sufficient condition for input-output realization of switched affine state space models”, *Proc. 47th IEEE Conference on Decision and Control*, Cancun (Mexico), pp. 935-940, December 2008.
- [C70] A. Garulli and A. Giannitrapani, “A set-membership approach to consensus problems with bounded measurement errors”, *Proc. 47th IEEE Conference on Decision and Control*, Cancun (Mexico), pp. 2276-2281, December 2008.

- [C71] A. Garulli, A. Masi and A. Vicino, “Convex relaxations for quadratic distance problems”, *Proc. 47th IEEE Conference on Decision and Control*, Cancun (Mexico), pp. 5444-5449, December 2008.
- [C72] A. Garulli, A. Masi, S. Paoletti and E. Turkoglu, “Clearance of flight control laws via parameter-dependent Lyapunov functions”, *Proc. of the 6th IFAC Symposium on Robust Control Design*, Haifa (Israel), pp. 337-342, June 2009.
- [C73] A. Garulli, A. Masi and A. Vicino, “Relationships among different SOS-based relaxations for quadratic distance problems”, *Proc. of the 6th IFAC Symposium on Robust Control Design*, Haifa (Israel), pp. 66-71, June 2009.
- [C74] M. Casini, A. Garulli and A. Vicino, “Input design for worst-case system identification with uniformly quantized measurements”, *Proc. 15th IFAC Symposium on System Identification*, Saint-Malo (France), pp. 54-59, July 2009.
- [C75] S. Paoletti, A. Garulli, E. Pepona and P. Date, “Exploiting structure in piecewise affine identification of LFT systems”, *Proc. 15th IFAC Symposium on System Identification*, Saint-Malo (France), pp. 581-586, July 2009.
- [C76] D. Benedettelli, M. Casini, A. Garulli, A. Giannitrapani and A. Vicino, “A LEGO Mindstorms experimental setup for multi-agent systems”, *Proc. of the 3rd IEEE Multi-Conference on Systems and Control*, St. Petersburg (Russia), pp. 1230-1235, July 2009.
- [C77] M. Casini, A. Garulli, A. Giannitrapani, A. Vicino, “A Matlab-based remote lab for multi-robot experiments”, *Proc. of the 8th IFAC Symposium on Advances in Control Education*, Kumamoto (Japan), October 21-23, 2009.
- [C78] D. Benedettelli, A. Garulli and A. Giannitrapani, “Multi-robot SLAM using M-space feature representation”, *Proc. 49th IEEE Conference on Decision and Control*, Atlanta (USA), pp. 3826-3831, December 2010.
- [C79] A. Masi, R. Wallin, A. Garulli and A. Hansson, “Robust finite-frequency \mathcal{H}_2 analysis”, *Proc. 49th IEEE Conference on Decision and Control*, Atlanta (USA), pp. 6876-6881, December 2010.
- [C80] S. Khoshfetrat Pakazad, A. Hansson and A. Garulli, “On the calculation of the robust finite frequency \mathcal{H}_2 norm”, *Proc. 18th IFAC World Congress*, Milano (Italy), pp. 3360-3365, August 28 - September 2, 2011.

- [C81] M. Casini, A. Garulli, A. Giannitrapani and A. Vicino, “A LEGO Mindstorms multi-robot setup in the Automatic Control Telelab”, *Proc. 18th IFAC World Congress*, Milano (Italy), pp. 9812-9817, August 28 - September 2, 2011.
- [C82] A. Garulli, A. Masi and L. Zaccarian, “Piecewise polynomial Lyapunov functions for global asymptotic stability of saturated uncertain systems”, *Proc. 18th IFAC World Congress*, Milano (Italy), pp. 14470-14476, August 28 - September 2, 2011.
- [C83] A. Garulli, A. Giannitrapani, M. Leomanni and, F. Scortecci, “Autonomous station keeping for LEO missions with a hybrid continuous/impulsive electric propulsion system”, *Proc. of 32nd International Electric Propulsion Conference*, Wiesbaden (Germany), September 2011.
- [C84] F. Taccogna, P. Minelli, D. Pagano, G. Coduti, F. Scortecci and A. Garulli, “Three-dimensional plume simulation of multi-channel Hall effect thruster”, *Proc. of 32nd International Electric Propulsion Conference*, Wiesbaden (Germany), September 2011.
- [C85] M. Casini, A. Garulli and A. Vicino, “Set-membership identification of ARX models with quantized measurements”, *Proc. 50th IEEE Conference on Decision and Control and European Control Conference 2011*, Orlando (FL), pp. 2806-2811, December 2011.
- [C86] A. Garulli, A. Masi, G. Valmorbidia and L. Zaccarian, “Piecewise polynomial Lyapunov functions for stability and nonlinear \mathcal{L}_{2m} -gain computation of saturated uncertain systems”, *Proc. 50th IEEE Conference on Decision and Control and European Control Conference 2011*, Orlando (FL), pp. 308-313, December 2011.
- [C87] S. Paoletti, M. Casini, A. Giannitrapani, A. Facchini, A. Garulli and A. Vicino, “Load forecasting for active distribution networks”, *2nd IEEE PES International Conference and Exhibition on Innovative Smart Grid Technologies (ISGT Europe)*, Manchester (UK), pp. 1-6, December 2011.
- [C88] M. Casini, A. Garulli, A. Giannitrapani and A. Vicino, “A remote lab for multi-robot experiments with virtual obstacles”, *Proc. of the 9th IFAC Symposium Advances in Control Education*, Nizhny Novgorod (Russia), pp. 354-359, June 2012.
- [C89] M. Casini, A. Garulli and A. Vicino, “Bounding nonconvex feasible sets in set membership identification: OE and ARX models with quantized information”, *Proc. 16th IFAC Symposium on System Identification*, Brussels, pp. 1191-1196, July 2012.
- [C90] A. Garulli, S. Paoletti and A. Vicino, “A survey on switched and piecewise affine system identification”, *Proc. 16th IFAC Symposium on System Identification*, Brussels, pp. 344-355, July 2012.

- [C91] S. Paoletti, A. Garulli and A. Vicino, “Electric load forecasting in the presence of Active Demand”, *Proc. 51st IEEE Conference on Decision and Control*, Maui (HI), pp. 2395-2400, December 2012.
- [C92] M. Casini, A. Garulli, A. Giannitrapani and A. Vicino, “Remote pursuer-evader experiments with mobile robots in the Automatic Control Telelab”, *Prepr. 10th IFAC Symposium on Advances in Control Education*, Sheffield (UK), pp. 66-71, August 2013.
- [C93] M. Leomanni, A. Garulli, A. Giannitrapani and F. Scortecci, “Precise attitude control of all-electric GEO spacecraft using xenon microthrusters”, *Proc. of 33rd International Electric Propulsion Conference*, Washington D.C. (USA), October 2013.
- [C94] M. Leomanni, A. Garulli, A. Giannitrapani and F. Scortecci, “An MPC-based attitude control system for all-electric spacecraft with on/off actuators”, *Proc. 52nd IEEE Conference on Decision and Control*, Firenze (Italy), pp. 4853-4858, December 2013.
- [C95] M. Casini, A. Garulli and A. Vicino, “A constraint selection technique for recursive set membership identification”, *Prepr. 19th IFAC World Congress*, Cape Town (South Africa), pp. 1790-1795, August 2014.
- [C96] T. Bentaleb, A. Cacitti, S. De Franciscis and A. Garulli, “Multivariable control for regulating high pressure centrifugal compressor with variable speed and IGV”, *Proc. of the 2014 IEEE Multi-Conference on Systems and Control*, Antibes/Nice (France), pp. 486-491, October 2014.
- [C97] M. Casini, A. Garulli and A. Vicino, “A constraint selection technique for set membership estimation of time-varying parameters”, *Proc. 53rd IEEE Conference on Decision and Control*, Los Angeles (CA), pp. 1029-1034, December 2014.
- [C98] A. Garulli, A. Giannitrapani and M. Leomanni, “Minimum switching limit cycle oscillations for systems of coupled double integrators”, *Proc. 53rd IEEE Conference on Decision and Control*, Los Angeles (CA), pp. 4655-4660, December 2014.
- [C99] M. Leomanni, A. Garulli, A. Giannitrapani, P. Pergola, F. Petroni and F. Scortecci “SSCAM: Micro-satellite platform for Earth observation”, *Proc. 10th IAA Symposium on Small Satellites for Earth Observation*, Berlin, April 2015.
- [C100] A. Garulli, A. Giannitrapani and M. Valentini, “Analysis of threshold models for collective actions in social networks”, *Proc. European Control Conference 2015*, Linz (Austria), pp. 211-216, July 2015.

- [C101] T. Bentaleb, A. Cacitti, S. De Franciscis and A. Garulli, “Model predictive control for pressure regulation and surge prevention in centrifugal compressors”, *Proc. European Control Conference 2015*, Linz (Austria), pp. 3351-3356, July 2015.