Résumé of Giuseppe DE NICOLAO

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Prof. Giuseppe De Nicolao

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VITAE

Biosketch

Giuseppe De Nicolao, was born in Padova, Italy, on April 24, 1962. He is Full Professor at the University of Pavia, Italy, Department of Computer and System Science, since 2000. He graduated (cum laude) from the Polytechnic of Milano in 1986. His thesis won the annual Quazza Award for the best thesis in Automatic Control defended at the Politecnico di Milano. From 1987 to 1988 he was with the Biomathematics and Biostatistics Unit of the Institute of Pharmacological Researches "Mario Negri", Milano. In 1998 he was appointed a position as a researcher at the Center for System Theory in Milano of the Italian National Research Council. In 1991, he held a visiting fellowship at the Department of Systems Engineering of the Australian National University, Canberra (Australia). In 1992 he joined the Department of Computer and System Science of the University of Pavia as Associate Professor (Full Professor since 2000) of Model Identification and Data Analysis. He has been contributing to Control Theory and System Identification mostly in the areas of Filtering, Periodic Systems, Model Predictive Control, Bayesian Learning, Modelling and Identification of Biomedical Systems. On these subjects he has published more than 80 journal papers that include 18 papers appeared in Automatica and 19 papers appeared in the following Transactions of the IEEE: Automatic Control (10), Biomedical Engineering (3), Signal Processing (2), Neural Networks (1), Pattern Analysis and Machine Intelligence (1), Acoustics and Speech Processing (1), Vehicular Technology (1). He has been plenary lecturer at the 12th Workshop on Qualitative Reasoning, Cortona/ Italy (1997) and at the workshop on "Nonlinear model predictive control: Assessment and future directions for research", Ascona/Switzerland (1998). He is a Senior Member of the IEEE since 1997 and served the editorial board of the IEEE Transactions on Automatic Control from 1999 to 2001. He has been member of the International Program Committees of several international conferences including four editions of the IEEE Conference on Decision and Control. He has been involved in various projects funded by state agencies and has coordinated industrial research projects funded by Foxboro, Magneti Marelli, STMicroelectronics. and Pharmacia. He is coinventor of 2 international patents on methods for the analysys of pharmacokinetic/pharmacodynamic data, one of which concerns the identification of population models.

Current Position

Full Professor of Model Identification and Data Analysis

Education

'*Laurea'* degree in Electronic Engineering *magna cum laude*, from the Politechnic of Milano, October 1986.

Appointments

1987-88:	Visiting Scientist, Institute of Pharmacological Researches, "Mario Negri", Milano.
1988-92:	Research Scientist, Center for System Theory, Italian National Research Council (C.N.R.), Milano.
1991:	Visiting Fellow, Australian National University, Canberra, Australia.
1991-92:	Visiting Professor, University of Padova.
1992-2000:	Associate Professor, University of Pavia.
2000-today:	Full Professor, University of Pavia.

Teaching Experience

- Professor, “Model Identification and Data Analysis”, University of Pavia (1992/93-today).
- Professor, “Automatic Control”, University of Pavia (1994-1998).
- Professor, “Deconvolution: Methods, Algorithms, Case Studies”, University of Padova (1991/92).
- Lecturer in national schools for PhD students.
- Lecturer in Training Courses for Engineers "From Data to Models", "Adaptive Systems for Prediction and Control”, "Optimal Filtering Methods (Kalman Filter)", Polytechnic of Milano (1989-1991).
- Lecturer in the Master Course "Industrial Process Control", CEFRIEL, Milano (1991-1993).
- Lecturer and co-organizer, Training Course on "Parametric Identification of Static and Dynamic Models”, Magneti Marelli S.p.A., Bologna, June 1997.
- Training Courses “Statistics” and "Statistical Process Control", STMicroelectronics, Agrate (2001-today).
- Member of the Scientific and Organizing Committee and Lecturer, International Master Course on "Management of Complex Systems" , Istituto Universitario di Studi Superiori di Pavia (2003-today).
- Organizer of the PhD Course “Statistical Learning: Theory and Applications”, Istituto Universitario di Studi Superiori di Pavia, May 26-June 13, 2003; lecturers: T. Poggio, F. Girosi. A. Verri.
- Supervisor of the following PhD’s: G. Ferrari Trecate, F. Di Palma, M. Neve.

Research Activities

- *Filtering:* Convergence properties of the time-varying Riccati equation of optimal filtering, guaranteed-cost and H-infinity robust filters, convergence analysis of optimal and robust filters.
- *Periodic systems:* Necessary and sufficient conditions for the solvability of the discrete-time periodic Linear Quadratic Gaussian Problem, spectral factorization of cyclostationary processes, multirate sampled data systems.
- *Model Predictive Control:* Stability analysis of linear receding horizon control via fake Riccati equations, stabilizing nonlinear predictive control, H-infinity nonlinear predictive control.
- *Bayesian Learning:* Efficient computation of regularization networks, consistency properties of regularization networks, regularization networks for inverse problems.
- *Process diagnosis and data analysis in semiconductor manufacturing:* industrial research project on automatic diagnosis methods funded by STMicroelectronics (2003-today); supervisor of the PhD Thesis winning the 2006 Doctoral Thesis Award of the *IEEE Test Technology Technical Council*.
- *Estimation of hormone secretion by deconvolution:* Coinvestigator in the NIH Project "Input estimation of biological systems by deconvolution", 1997-99 (principal investigator: Prof. C. Cobelli, University of Padova); Co-chairman of the workshop "Mathematical Methods and Models in the Investigation of Hormonal Secretory Processes", 1997. Milano; more than 10 journal papers appeared in Automatica, IEEE Tr. on Biomedical Eng., Annals of Biomed. Eng., Clinical Endocrinolocy, Europ. J. of Endocrinology, Comp. Progr. & Meth. in Biomed. Eng..
- *Mathematical models of tumor growth inhibition:* projects on computational methods and models for the preclinical development of antitumor drugs funded by the Nerviano Labs of Pharmacia (more that 300,000 Euro since 1999); 2 international patents; 5 papers in qualified journals including Cancer Research, Journal of Pharmacokin. and Pharmacodyn., Math. Biosciences.

Research Collaborations

F. Allgöwer (University of Stüttgart)
R.R. Bitmead (University of California at San Diego)
C. Cobelli (University of Padova)
M. Gevers (Catholic University of Louvain)
A. Sartorio (Italian Auxologic Institute)
U. Shaked (Tel Aviv University)
J.D. Veldhuis (Mayo Clinic, Rochester)

Funded Research

- Coordinator of the Pavia Unit of the Project "Input Estimation of Biological Systems by Deconvolution", 1997-99, NIH grant #RR11095-02.
- Coordinator of the Pavia Unit of the PRIN Project “New methods and algorithms for identification and adaptive control of technological systems”, funded by the Ministry of University and Research (2004-2006).
- Scientific Coordinator of the following research projects funded by *Pharmacia Italia S.p.A.*:

  1999 “Identifiability and optimal design for nonlinear mixed models and simulation of clinical and preclinical studies”

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  2001 “Population nonlinear mixed models applied to pharmacokinetics and pharmacodynamics”;

  2001 “Pharmacokinetic and pharmacodynamic methods applied to antitumor drugs”;

  2002 “Population nonlinear mixed models for preclinical efficacy and toxicity studies”;

  2002 “Model development and data analysy for the evaluation of a new antitumor drug given in combination”;

  2003 “Development of tumour growth models for the evaluation of the efficacy of drugs in-vivo”;

  2003 “Application and evaluation of tumour growth models for the evaluation of the in-vivo efficacy of drugs”;

  2004 “Model development and data analysis for the evaluation of antitumor drugs.
- Scientific Coordinator of the following research projects funded by *Nerviano Medical Sciences S.r.l*:

  2005 “Population Pharmacokinetics”;

  2005 “Development of a user-friendly PK-PD simulator”.
- Scientific Coordinator of the following research projects funded by *STMicroelectronics*:

  2003 “Recognition of spatial patterns of EWS maps”;

  2005 “Process diagnosis by means of neural classification of EWS maps and lot history analysis”;

  2006 “Methods for Automatic Classification and Interactive Diagnosis (ACID”.
- Scientific Coordinator of the following research projects funded by *Magneti Marelli Holding S.p.A. Motorsport Department*:

  2002 “Algorithms for the analysis of ion currents for the development of a Flame Analyzer”;

  2004 “Vehicle parameter estimation from telemetry data”.
- Scientific Coordinator of the following research project funded by *Foxboro Italia S.p.A.*:

  1999 “Multivariable predicitve control and data reconciliation techniques applied to thermoelectric plants”.

Patents

- EPC European Patent “Method to evaluate the systemic exposure in toxicological and pharmacological studies”, 2001, filed by Pharmacia Italia S.p.A. (coinventor).
- PCT International Patent “Method for estimating or predicting the anti-tumor activity of a compound and for estimating or predicting the tumor growth in mammals”, 2003, filed by Pharmacia Italia S.p.A. (coinventor).

Awards and Honours

- Senior member of the *IEEE Control Systems Society*
- Quazza Prize for the best dissertation on Automatic Control defended at the Politecnico di Milano (1986).
- IEEE Best Poster award at the *IEEE Intelligent Vehicle Symposium IV'2002*, Versailles, France, June 2002.
- Supervisor of Federico Di Palma, whose PhD Thesis received the 2006 Award for the best doctoral thesis on semiconductor testing from the *IEEE Test Technology Technical Council*.

Plenary and Invited Lectures

- Opening Plenary Lecture, "Stability and robustness of nonlinear receding-horizon control", workshop *Nonlinear model predictive control: Assessment and future directions for research*, Ascona, Switzerland, June 3-5 1998.
- Tutorial Plenary Lecture, "System identification: Problems and perspectives", *12th Workshop on Qualitative Reasoning*, Cortona, June 3-6, 1997.
- Invited Lecture, "Nonparametric deconvolution in physiological systems: a stochastic approach", opening lecture of the Session *Deconvolution and Modeling of Kinetic Systems, IFAC Symposium on Modeling and Control of Biomedical Systems*, Galveston, Texas, USA, March 27-30, 1994.
- Invited Lecture, "Robustness and performance in adaptive filtering", workshop *Robustness in Identification and Control*, Siena, July 30-August 2, 1998. Among the participants: R.E. Kalman, L. Ljung, P.V. Kokotovic, J.C. Doyle, M. Morari, M.R. Gevers, V. Kucera, V. Kharitonov, J. Ackermann.
- Invited Lecturer, Panel Discussion, International Workshop on *Computers in Endocrinology* , Milano, May 7-10, 1990.
- Invited Lecture, "Estimation using deconvolution of hormone secretion and substrate production", *17th Annual School of the National Biomedical Engineering Group*, Bressanone, September 28-October 1, 1998.
- Invited Seminar, "Nonparametric identification of pharmacokinetic population models via Gaussian processes", March 10, 2006, *Joint Control/Engineering for the Life Sciences Seminar*, Department of Engineering, University of Cambridge, UK.

Journal and Conference Activity

- Associate Editor, *IEEE Transactions on Automatic Control* (1999-2002).
- Area Editor, *44th IEEE CDC-ECC*, December 2005, Siviglia, Spagna.
- IPC member, *IFAC Workshop on Periodic Control Systems (PSYCO 2004),* August-September 2004, Yokohama, Japan.
- IPC member, *43nd IEEE Conf. on Decision and Control*, December 2004, Atlantis, Paradise Island, Bahamas.
- IPC member, *42nd IEEE Conf. on Decision and Control*, December 2003, Mahui, Hawaii.
- IPC member, *40th IEEE Conf. on Decision and Control*, December 2001, Orlando, Florida.
- IPC member, *4th European Control Conference*, July 1997, Bruxelles, Belgium.
- Member of the Program Committee (1998, 2001, 2005), *BIOSYS: Sanità e Sistemi Medicali: Automazione ed Informatizzazione*, organized by ANIPLA (Associazione Nazionale Italiana per l'Automazione).
- Co-chairman, Workshop on *Mathematical Methods and Models in the Investigation of Hormonal Secretory Processes*, Istituto Auxologico Italiano, Milano, February 21, 1997.
- Member of the Organizing Committee, *Workshop on the Riccati Equation*, Como, June 1989, co-sponsored by IEEE-Control Systems Society, IFAC, and SIAM.

Journal Papers

[A1] S. Bittanti, P. Colaneri, G. De Nicolao, "Discrete–time linear periodic systems: A note on the reachability and controllability interval length", *Systems & Control Letters*, vol. 8, pp. 75–78, 1986.

[A2] S. Bittanti, P. Colaneri, G. De Nicolao, "The difference periodic Riccati equation for the periodic prediction problem", *IEEE Trans. on Automatic Control*, vol. AC-33, pp. 706-712, 1988.

[A3] V. Guardabasso, G. De Nicolao, M. Rocchetti, D. Rodbard, "Evaluation of pulse-detection algorithms by computer simulation of hormone secretion", *Am. J. Physiol.*, vol. 255 (Endocrinol.Metab. 18), pp. E775-E774, 1988.

[A4] G. De Nicolao, M. Rocchetti, "Mean plasma hormone concentration is controlled in a linear manner by secretory impulse frequency", *Am. J. Physiol.*, vol. 257 (Endocrinol.Metab.18), pp. E299, 1989.

[A5] S. Bittanti, P. Colaneri, G. De Nicolao, "A note on the maximal solution of the periodic Riccati equation", *IEEE Trans. on Automatic Control*, vol. AC-34, pp. 1316-1319, 1989.

[A6] S. Bittanti, P. Colaneri, G. De Nicolao, "An algebraic Riccati equation for the discrete-time periodic prediction problem", *Systems & Control Letters*, vol. 14, pp. 71-78, 1990.

[A7] G. De Nicolao, "On a fallacious conjecture about the stabilizability properties of solutions of the Riccati difference equation," *Systems & Control Letters*, vol. 14, pp. 409-410, 1990.

[A8] G. De Nicolao, V. Guardabasso, M. Rocchetti, "The relationship between rate of venous sampling and visible frequency of hormone pulses", *Computer Meth. Programs Biomed.*, vol. 33, pp. 145-157, 1990.

[A9] M. Rocchetti, G. De Nicolao, "CURT: A randomization test for statistical comparison between experimental curves", *Computer Meth. Programs Biomed.*, vol. 31, pp. 207-213, 1990.

[A10] A. Sartorio, A. Spada, M. Arosio, A. Conti, G. Faglia, G. De Nicolao, "Effects of consecutive doses of GHRH on GH secretion," *Clinical Endocrinology*, vol. 35, pp. 187-188, 1991.

[A11] G. De Nicolao, "On the time-varying Riccati difference equation of optimal filtering," *SIAM. J. Control Opt.,* vol. 30, pp. 1251-1269, 1992.

[A12 G. De Nicolao, M. Gevers, "Difference and differential Riccati equations: A note on the convergence to the strong solution," *IEEE Trans. on Automatic Control*, vol. AC-37 pp. 1055-1057, 1992.

[A13] S. Bittanti, P. Bolzern, G. De Nicolao, "Comments on 'Stabilizability and detectability of discrete-time time-varying systems," *IEEE Trans. on Automatic Control*, vol. AC-37 pp. 1274-1275, 1992.

[A14] G. De Nicolao, "Cyclomonotonicity and stabilizability properties of solutions of the difference periodic Riccati equation," *IEEE Trans. on Automatic Control*, vol. AC-37, pp.1405-1410, 1992.

[A15] G. De Nicolao, "On the convergence to the strong solution of periodic Riccati equations," *Int. J. Control*, vol. 56, pp. 87-97, 1992.

[A16] G. De Nicolao, "Differential periodic Riccati equations: A note on the existence of an infinite number of periodic strong solutions," *Int. J. Control*, vol. 56, pp. 985-990, 1992.

[A17] S. Bittanti, G. De Nicolao, "Spectral factorization of linear periodic systems with application to the optimal prediction of periodic ARMA models," *Automatica*, vol. 29, pp. 517-522, 1993.

[A18] G. De Nicolao, A. Locatelli, "On the utopian approach to the multiobjective LQ problem," *Optimal Control Appl. and Methods*, vol. 14, pp. 111-124, 1993.

[A19] G. De Nicolao, D. Liberati, "Linear and nonlinear techniques for the deconvolution of hormone time-series," *IEEE Trans. on Biomed. Eng.*, vol. BME-40, pp. 440-455, 1993.

[A20] G. De Nicolao, F. Lorito, S.Strada, "On 'Comparison and Extensions of Control Methods for Narrow-Band Disturbance Rejection'," *IEEE Trans. on Speech and Audio Processing*, vol. SAP-2, pp. 459-461, 1994.

[A21] P. Bolzern, P. Colaneri, G. De Nicolao, "On the computation of upper covariance bounds for perturbed linear systems," *IEEE Trans. on Automatic Control*, vol. AC-39, pp. 623-626, 1994.

[A22] S. Bittanti, G. De Nicolao, "Review of the book: 'The Autonomous Linear Quadratic Control Problem: Theory and Numerical Solutions'," *Automatica*, vol. 30, pp. 555-556, 1994.

[A23] P. Bolzern, P. Colaneri, G. De Nicolao, "Covariance bounds for discrete-time linear systems with parameter uncertainty," *Int. J. Control*, vol. 60, pp. 1307-1317, 1994.

[A24] G. De Nicolao, "Cyclomonotonicity, Riccati equations, and periodic receding horizon control," *Automatica*, vol. 30, pp. 1375-1388, 1994.

[A25] P. Colaneri, G. De Nicolao, "Multirate LQG control of continuous-time stochastic systems", *Automatica*, vol. 31, pp. 591-596, 1995.

[A26] P. Bolzern, P. Colaneri, G. De Nicolao, "Optimal design of robust predictors for linear discrete-time systems," *Sys. & Control Letters*, 1995, 26 (1995) 25-31.

[A27] G. De Nicolao, D. Liberati, A. Sartorio, "Deconvolution of infrequently sampled data for the estimation of growth hormone secretion," *IEEE Trans. on Biomed. Eng.*, vol. BME-42 (1995) 678-687.

[A28] G. De Nicolao, A. De Nicolao, "WENDEC: A deconvolution program for processing hormone time-series," *Computer Meth. Programs Biomed.*, 47 (1995) 237-252.

[A29] R. Bellazzi, C. Siviero, G. De Nicolao, M. Stefanelli, "Adaptive controllers for intelligent monitoring", *Artificial Intelligence in Medicine*, 7 (1995) 515-540.

[A30] G. De Nicolao, L. Magni, R. Scattolini, "On the robustness of receding-horizon control with terminal constraints," *IEEE Trans. on Automatic Control*, AC-41 (1996) 451-453.

[A31] P. Bolzern, P. Colaneri, G. De Nicolao, "Optimal robust filtering with time-varying parameter uncertainty," *Int. J. Control*, 63 (1996), 557-576.

[A32] G. De Nicolao, R. Scattolini, G. Sala, "An adaptive predictive regulator with input saturations," *Automatica* , 32 (1996) 597-601.

[A33] G. De Nicolao, R. Scattolini, C. Siviero "Modelling the volumetric efficiency of IC engines: Parametric, non-parametric and neural techniques," *Control Eng. Practice* , 4 (1996) 1405-1415.

[A34] G. De Nicolao, L. Magni, R. Scattolini, "Robust predictive control of systems with uncertain impulse response", *Automatica* , 32 (1996) 1475-1479.

[A35] G. De Nicolao, S. Strada, "On the stability of receding-horizon LQ control with zero-state terminal constraint", *IEEE Trans. on Automatic Control*, AC-42 (1997) 257-260.

[A36] P. Bolzern, P. Colaneri, G. De Nicolao, "H_∞ differential Riccati equations: convergence properties and finite escape phenomena," *IEEE Trans. on Automatic Control*, AC-42 (1997) 113-118.

[A37] P. Bolzern, P. Colaneri, G. De Nicolao, "Finite escapes and convergence properties of guaranteed-cost robust filters," *Automatica,* 33 (1997) 31-47.

[A38] G. De Nicolao, G. Sparacino, C. Cobelli "Nonparametric input estimation in physiological systems: Problems, methods, case studies," *Automatica,* 33 (1997) 851-870.

[A39] G. De Nicolao, S. Strada, "On the use of reachability gramians for the stabilization of linear periodic systems", *Automatica,* 33 (1997) 729-732.

[A40] A. Sartorio, G. De Nicolao, G. Pizzini, D. Liberati, "Nonparametric deconvolution provides an objective assessment of GH responsiveness to GH releasing stimuli in normal subjects," *Clin. Endocrinology*, 46 (1997) 387-400.

[A41] G. De Nicolao, L. Magni, R. Scattolini, "Stabilizing predictive control of nonlinear ARX models", *Automatica*, 33 (1997) 1691-1697.

[A42] R. Bellazzi, P. Magni, G. De Nicolao, "Dynamic probabilistic networks for modelling and identifying dynamics systems", *Intelligent Data Analysis Journal*, 1 (1997) 245-262.

[A43] G. De Nicolao, G. Ferrari Trecate "On the zeros of discrete-time linear periodic systems", *Circuits, Systems, Signal Processing,* 16 (1997) 703-718.

[A44] P. Bolzern, P. Colaneri, G. De Nicolao, "Transient and asymptotic analysis of discrete-time H_∞ filters," *Europ. J. Control,* 3 (1997) 317-324.

[A45] G. De Nicolao, L. Magni, R. Scattolini, "Stabilizing receding-horizon control of nonlinear time-varying systems", *IEEE Trans. on Automatic Control*, AC-43 (1998) 1030-1036.

[A46] G. De Nicolao, S. Strada, "Kalman filtering with mixed discrete-continuous observations", *Int. J. Control* , 70 (1998) 71-84.

[A47] G. De Nicolao, S. Pinzoni, G. Ferrari Trecate, "Zeros of continuous-time linear periodic systems", *Automatica,* 34 (1998) 1651-1655.

[A48] P. Magni, R. Bellazzi, G. De Nicolao, "Bayesian function learning using MCMC methods", *IEEE Trans. on Pattern Analysis and Machine Intelligence*, PAMI-20 (1998) 1319-1331.

[A49] G. De Nicolao, "Discussion on the paper 'Discrete time Riccati equations in open loop Nash and Stackleberg games' by G. Freiling, G. Jank, and H. Abou Kandil," *Europ. J. of Control*, 5 (1999) 67-69.

[A50] G. De Nicolao, G. Ferrari Trecate, "On the Wold decomposition of discrete-time cyclostationary processes", *IEEE Trans. on Signal Processing,* 47 (1999) 2041-2043.

[A51] G. De Nicolao, L. Magni, R. Scattolini, "Some issues in the design of predictive controllers," *Int. J. Applied Math. and Computer Sc. - Special issue on Predictive Methods for Adaptive Control,* 9 (1999) 9-24.

[A52] P. Bolzern, P. Colaneri, G. De Nicolao, "H_∞-robustness of adaptive filters against measurement noise and parameter drift," *Automatica,* 35 (1999), 1509-1520.

[A53] G. De Nicolao, C. Rossi, R. Scattolini, M. Suffritti "Identification and idle speed control of internal combustion engines," *Control Engineering Practice* , 7 (1999) 1061-1069.

[A54] G. De Nicolao, D. Liberati, J. Veldhuis, A. Sartorio "LH and FSH secretory responses to GnRH in normal individuals: a non-parametric deconvolution approach," *Europ. J. of Endocrinol.,* 141 (1999) 246-256.

[A55] G. De Nicolao, G. Ferrari Trecate, "Consistent identification of NARX models via regularization networks", *IEEE Trans. on Automatic Control, - Special issue on Neural Networks in control, identification and decision making*, AC-44 (1999) 2045-2049.

[A56] P. Bolzern, P. Colaneri, G. De Nicolao "Tradeoff between mean-square and worst-case performances in adaptive filtering," *Europ. J. of Control,* 6 (2000) 78-88.

[A57] G. De Nicolao, G. Ferrari Trecate, G. Sparacino, "Fast spline smoothing via spectral factorization concepts", *Automatica,* 36 (2000) 1733-1739.

[A58] R. Bellazzi, P. Magni, G. De Nicolao, "Bayesian structural analysis of blood glucose time series coming from diabetic patients home monitoring," *IEEE Trans. on Biomed. Eng.,* BME-47 (2000) 971-975.

[A59] M. Maroni, P. Bolzern, G. De Nicolao, U. Shaked, "Existence and convergence of solutions to the H_∞ sampled-data estimation problem," *Int. J. Control* (2000) 1382 - 1391.

[A60] A. Sartorio, A. Pizzocaro, D. Liberati, G. De Nicolao, J. Veldhuis, G. Faglia "Abnormal LH pulsatility in women with hyperprolactinaemic amenorrhea normalizes after bromocriptine treatment: deconvolution-based assessment," *Clinical Endocrinology* (2000) 52: 703-712.

[A61] G. De Nicolao, D. Liberati, A. Sartorio, "Stimulated secretion of pituitary hormones in normal humans: A novel direct assessment from blood concentrations," *Ann. Biomed. Eng.* 28 (2000) 1136-1145.

[A62] G. De Nicolao, G. Ferrari Trecate, "Regularization networks: Fast weight calculation via Kalman filtering", *IEEE Trans. on Neural Networks,* TNN-12 (2001) 228-235.

[A63] L. Magni, G. De Nicolao, L. Magnani, R. Scattolini, "A stabilizing model-based predictive control algorithm for nonlinear systems", *Automatica* 37 (2001) 1351-1362.

[A64] L. Magni, G. De Nicolao, R. Scattolini, "Output feedback and tracking of nonlinear systems with model predictive control", *Automatica* 37 (2001) 1601-1607.

[A65] G. Sparacino, G. Pillonetto, M. Capello, De Nicolao, C. Cobelli, "WINSTODEC: A stochastic deconvolution program for physiological and pharmacokinetic systems," *Computer Meth. Programs Biomed* 67 (2001) 67-77.

[A66] P. Bolzern, P. Colaneri, G. De Nicolao, U. Shaked, "Guaranteed H_∞ robustness bounds for Wiener filtering and prediction," *Int. J. Robust Nonlinear Control,* 12 (2002) 41-56.

[A67] A. Sartorio, G. De Nicolao, D. Liberati, "An improved computational method to assess pituitary responsiveness to secretagogue stimuli," *Europ. J. of Endocrinology* 147 (2002) 323-332.

[A68] P. Magni, R. Bellazzi, G. De Nicolao, I. Poggesi, M. Rocchetti, "Nonparametric AUC estimation in population studies with incomplete sampling: A Bayesian approach" *J. Pharmacokinetics and Pharmacodynamics,* 29 (2002) 445-471.

[A69] G. De Nicolao, G. Ferrari Trecate, "Regularization networks for inverse problems: A state-space approach", *Automatica,* 39 (2003) 669- 676.

[A70] Magni L., G. De Nicolao, R. Scattolini and F. Allgöwer, "Robust Model predictive Control of nonlinear discrete-time systems," *International Journal of Robust and Nonlinear Control,* 13 (2003) 229-246.

[A71] M. Germani, P. Magni, G. De Nicolao, I. Poggesi, A. Marsiglio, D. Ballinari, M. Rocchetti, “In vitro cell growth pharmacodynamic studies: a new nonparametric approach to determining the relative importance of drug concentration and treatment time,” *Cancer Chemother. Pharmacol.,* 52 (2003) 507-513.

[A72] M. Simeoni, P. Magni, C. Cammia, G. De Nicolao, V. Croci, E. Pesenti, M. Germani, I. Poggesi, M. Rocchetti, “Predictive pharmacokinetic-pharmacodynamic modeling of tumor growth kinetics in xenograft models after administrations of anticancer agents,” *Cancer Research,* 64 (2004) 1094-1101.

[A73] P. Bolzern, P. Colaneri, G. De Nicolao, "On discrete-time H_∞ fixed-lag smoothing,” *IEEE Trans. on Signal Processing,* SP-52 (2004) 132-141.

[A74] M. Diehl, L. Magni, G. De Nicolao, "Efficient NMPC of unstable periodic systems using approximate infinite horizon closed loop control,” *Annual Reviews in Control,* 28 (2004) 37-45.

[A75] Magni L., G. De Nicolao and R. Scattolini, “On the stabilization of nonlinear discrete-time systems with output feedback,” *International Journal of Robust and Nonlinear Control*, 14 (2004) 1379-1391.

[A76] Rocchetti, M., I. Poggesi, M. Germani, F. Fiorentini, C. Pellizzoni, P. Zugnoni, E. Pesenti, M. Simeoni, G. De Nicolao, “ A PK-PD model for predicting tumor growth inhibition in mice: a useful tool in oncology drug development,” *Basic & Clinical Pharmacology & Toxicology*, 96 (2005) 265-268.

[A77] F. Di Palma, G. De Nicolao, G. Miraglia, E. Pasquinetti, F. Piccinini, “Unsupervised spatial pattern classification of electrical-wafer-sorting maps in semiconductor manufacturing”, *Pattern Recognition Letters*, 26 (2005) 1857-1865.

[A78] P. Magni, M. Simeoni, I. Poggesi, M. Rocchetti, G. De Nicolao, “A mathematical model to study the effects of drugs administration on tumor growth dynamics”, *Mathematical Biosciences*, 200 (2006) 127-151.

[A79] P. Bolzern, P. Colaneri, G. De Nicolao, “On almost sure stability of continuous-time Markov jump linear systems”, *Automatica*, 42 (2006) 983-988.

[A80] G. De Nicolao, A. Ferrara, L. Giacomini, “On board sensor-based collision risk assessment to improve pedestrians safety”, *IEEE Trans. on Vehicular Technol.*, to appear.

[A81] M. Neve, G. De Nicolao, L. Marchesi, “Nonparametric identification of population models via Gaussian processes”, *Automatica,* to appear.

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Chapters in books

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