

Curriculum Vitae - Dr. David Naso (Ph.D)

GENERAL INFORMATION

Surname: Naso
Name: David
Place and date of birth: Salerno, Italy, 29/04/1967
Address: Dipartimento di Ingegneria Elettrica e dell'Informazione (DEI)
Via Re David, 200 - 70125 Bari, Italy
E-mail: naso@poliba.it
Telephone (office) (+39) 080 5963 649
Fax (office) (+39) 080 5963 410
Mobile (+39) 329 3174 776

CURRENT POSITION

Since January, 19th, 1999, he is Senior Lecturer (ricercatore confermato) in Control and Automation Engineering (Italian University code "ING-INF/04, *Automatica*"), enrolled at the Department of Electrical and Information Engineering.

SUMMARY OF PROFESSIONAL ACTIVITIES

He has been regularly giving courses on *Automatic Control* and *Systems Theory* since 1999, first as assistant of other professors, and since 2002 as professor holding the course.

Co-author of 144 papers, among which 41 appear on international journals, 5 book chapters, 96 international conference papers, and 2 national conference papers. Many of his recent papers are coauthored by international teams, including Frank L. Lewis, Robert Babuska, Hartmut Janocha and Stefan Seelecke.

His publications have the following overall citation indices: on *Scopus*, h-index 16 with 715 citations; on *Google Scholar*, h-index 19 with 1212 overall citations.

He has been Guest Professor at the Department of Mechatronics, Saarland University, Saarbruecken, Germany, in summer 2013, Invited lecturer at the Erasmus University, Rotterdam, the Netherlands, in 2004, and *Distinguished Lecturer* of the Automation and Robotics Research Institute, University of Texas at Arlington, Arlington, Texas, USA, in 2010 and 2013.

He has been scientific coordinator of several international and national research projects, whose overall budget is 1,7 Millions of Euro, and of four research contracts funded by companies whose overall budget is about 250.000 Euro.

He has intensively participated to research projects funded by Italian Ministry for research and university, national or local institutions, and companies.

He is one of the founders of "Energy Factory Bari", an integrated laboratory for research in aerospace and energy with joint public-private participation of Avio Aero S.p.A. and Politecnico di Bari, based on a ten-years agreement signed by the two partners on 03/07/2010. To date, the laboratory has attracted funding for more than 3 Millions of Euro, and enrolls more than 30 engineers. Dr. Naso is the coordinator of one of the "Control Systems" division of the laboratory.

Area Editor for the topic of Intelligent control of the journal "*Fuzzy, Sets and Systems*" edited by Elsevier, during the years 2007-2012.

Elected member of the Executive Committee (Consiglio di Amministrazione) of Politecnico di Bari for the academic years 2009-2012 (as representative of assistant professors), and for the academic years 2012-2015 (as representative of all professors).

Member of several committees of Politecnico di Bari for steering and management activities.

EDUCATIONAL BACKGROUND

1994 – First Degree (Laurea) *summa cum laude* (highest honors) in *Electronic Engineering*, scientific area, Politecnico di Bari, Title of dissertation: “*Fuzzy Logic and Control Systems: Stability of Fuzzy Controllers*” (in Italian), advisor prof. Bruno Maione.

1994 - Examination for qualification as professional engineer, Polytechnic of Bari, rating (140/140).

1995-1998 - Ph.D Student in Electrical Engineering, Polytechnic of Bari. Title of dissertation: “*Intelligent Techniques for Production Systems Control*” (in Italian), advisor prof. Bruno Maione, April 1998.

1997 (April to August) - Visiting Scholar at the Operation Research Institute, Technical University of Aachen, advisor prof. Hans Jurgen Zimmermann.

Relevant post-graduation courses attended

- “*Fuzzy Logic and Soft-Computing*”, October 18-21, 1994, Milan, Italy.
- “*Algebraic Approach to Control System Design*”, Prof. V. Kucera, Dept. of Electronics and Information, Polytechnic of Milan, Italy, October 18-19, 1995.
- “*Soft Computing and Its Applications*”, NATO ASI International School, August 21-31, 1996, Anthalya, Turkey.
- “*Neuro-Controllers and Fuzzy Control: Current Status and Future Prospects*”, prof. M. Vidyasagar, December 3rd, 1996, Singapore.
- “*2nd KL Leuven Tutorial on Holonic Manufacturing*”, Leuven, Belgium, September 1997.
- “*International Summer School on Fuzzy Control: Advances in Methodology and Applications*”,
 - June 16-20, 1998 (1st Year), University of Ferrara, Ferrara, Italy,
 - April 20-24, 1999 (2nd Year), University of Delft, The Netherlands.
- “*Identification and Control of Uncertain Systems*”, November 8-9, 2002, University of Siena, Siena, Italy.

PROFESSIONAL ACTIVITY

A. Teaching activity at the Politecnico di Bari

1) Courses taught for direct assignment from the 1st Faculty of Engineering of Politecnico di Bari

- *"Fundamentals of Control Systems I"* (6 ECTS Credits) Three-year *Laurea* (Bachelor of Science, B.Sc.) degree in Electronic Engineering (years 2002/03, 2003/04, 2005/06, 2006/07, 2007/08, 2013/14). Three-year *Laurea* degree (B.Sc.) in Automation Engineering (year 2004/05).
- *"Fundamentals of Control Systems II"* (6 ECTS Credits) Three-year *Laurea* degree (B.Sc.) in Electronic Engineering (years 2002/03, 2003/04, 2005/06, 2006/07, 2007/08, 2008/09, 2009/10), Three-year *Laurea* degree (B.Sc.) in Automation Engineering (year 2004/05).
- *"Identification and Intelligent Control"* (6 ECTS Credits) Two-year *Laurea Specialistica* (Master of Science, M.Sc.) degree in Information Engineering and Two-year *Laurea Specialistica* (M.Sc.) degree in Automation Engineering (years 2005/06, 2006/07, 2007/08, 2008/09, 2009/10).
- *"Identification and Intelligent Control"* (6 ECTS Credits) Two-year *Laurea Magistrale* (Master of Science, M.Sc.) degree in Automation Engineering (years 2010/11, 2011/12, 2012/13, 2013/14).
- *"Distributed Control of Production Systems "* (3 ECTS Credits), Two-year *Laurea Magistrale* (M.Sc.) degree in Information Engineering (years 2004/05, 2005/06, 2006/07, 2007/08, 2008/09, 2009/10).
- *"Control System I"* (9 ECTS Credits), Five-year *Laurea* Degree in Electronics Engineering (year 2003/04), Five-year *Laurea* Degree in Information Engineering (year 2003/04).
- *"Digital Control"* (9 ECTS Credits), Five-year *Laurea* Degree in Electronic Engineering, (year 2004/05), Five-year *Laurea* Degree in Information Engineering, (year 2004/05).

For all the courses Dr. Naso has provided the students with additional material (slides, software code) which are made available online at <http://dee.poliba.it/dee-web/nasoweb/naso.htm>.

2) Lectures held as assistant of other professors.

- *"Control System I"* (9 ECTS Credits), Five-year *Laurea* Degree in Mechanical Engineering (years 1999/00, 2000/01, 2001/02, about 40 hours each year).
- *"System Theory"* (9 ECTS Credits), Five-year *Laurea* Degrees in Electronic, Electrical and Information Engineering (years 1999/00, 2000/01, 2001/02, 2002/03, about 20 hours each year).
- *"System Theory"* (5 ECTS Credits), Five-year *Laurea* Degree in Management Engineering (years 1999/00, 2000/01, 2001/02, about 10 hours each year).
- *"Digital Control"* (9 ECTS Credits), Five-year *Laurea* Degree in Electronic and Information Engineering (years 2000/01, 2001/02, 2002/03, about 20 hours each year).

3) Results of the Student Evaluation Reports collected by "Osservatorio della Didattica del Politecnico di Bari" (Office for the monitoring of the quality of teaching activities)

The following tables summarize the students evaluation reports for the courses held by Dr. Naso. For the sake of brevity, the tables report the aggregated results for the courses held for more than one year (the full collection of the evaluation reports for all the courses is available online at the following URL: <http://dee.poliba.it/dee-web/nasoweb/osservatorio-NASO.zip>). The data collected by the Office shows a remarkable percentile amount (generally more than 90%) of positive evaluations.

Moreover, considering the average number of students for each course, it can be noted that the non-positive evaluations are generally due to a very small number of students (generally one or two) in each class.

	Definitively No	More No than Yes	No More Yes than	Definitively Yes
Fundamentals of Control Systems I - 6 Credits: The table shows the average of the percentile amounts of answers over the period from A.Ys. 2002-03 to 2007-08. Average number of students for each year =48,8.				
Is the lecturer actually available to give clarifications and explanations?	2.7%	4.1%	35.8%	57.4%
Does the lecturer stimulate the interest for the subject?	4.1%	4.5%	48.9%	42.5%
Does the lecturer explain the subject in a clear way?	4.9%	3.2%	38.3%	53.6%

	Definitively No	More No than Yes	No More Yes than	Definitively Yes
Fundamentals of Control systems II - 6 Credits: : The table shows the average of the percentile amounts of answers over the period from A.Ys. 2002-03 to 2009-10. Average number of students for each year =37,6.				
Is the lecturer actually available to give clarifications and explanations?	0.4%	1.9%	36.6%	61.2%
Does the lecturer stimulate the interest for the subject?	1.6%	4.1%	40.4%	53.9%
Does the lecturer explain the subject in a clear way?	1.1%	1.6%	37.3%	60.0%

	Definitively No	More No than Yes	No More Yes than	Definitively Yes
Distributed control of production systems - 3 credits: The table shows the average of the percentile amounts of answers over the period from A.Ys. 2004-05 to 2009-10. Average number of students for each year =13,5.				
Is the lecturer actually available to give clarifications and explanations?	0.0%	5.2%	44.7%	50.1%
Does the lecturer stimulate the interest for the subject?	4.2%	22.4%	48.6%	24.8%
Does the lecturer explain the subject in a clear way?	3.1%	19.4%	40.4%	37.1%

	Definitively No	More No than Yes	No More Yes than	Definitively Yes
Identification and Intelligent control - 6 Credits: The table shows the average of the percentile amounts of answers over the period from A.Ys. 2005-06 to 2012-13. Average number of students for each year =19,3.				
Is the lecturer actually available to give clarifications and explanations?	0.4%	3.5%	26.2%	69.9%
Does the lecturer stimulate the interest for the subject?	3.1%	3.3%	46.8%	46.7%
Does the lecturer explain the subject in a clear way?	3.9%	8.1%	45.9%	42.1%

3) Activity as student advisor

- He has been advisor or co-advisor of 140 *Laurea* (5 years course) or *Master* (2 year course) theses, in Electronic, Electrical, Information or Automation Engineering, among which 10 are based on work performed by the students in laboratories of foreign universities. Moreover, he has been advisor for over 40 traineeships of students in national companies.
- He has been co-advisor of three Ph.D. students in Information Engineering, two Ph.D. students in Electrical Engineering, and two Ph.D. students of the Interpolytechnic (Turin,

Milan, Bari) Ph.D. school. He is currently advisor of one Ph.D. student of the Interpolytechnic Ph.D. school, and co-advisor of one Ph.D student in Electrical and Information Engineering.

B. Teaching activities in other Universities and Research centers

1) Invited lectures delivered in foreign Universities:

- October, 13th, 2004, *Erasmus University Rotterdam*, The Netherlands, Invited lecture: “*Just-in-time production and delivery in supply chain: a hybrid evolutionary approach*”.
- June, 22nd, 2011, *Automation & Robotics Research Institute, The University of Texas at Arlington*, USA, “ARRI Distinguished Lecture”: “*A matrix-based modeling and control framework for distributed discrete event systems*”.
- April, 24th 2013, *University of Texas at Arlington Research Institute (UTARI)*, “Distinguished Lecturer Series of UTARI Control Systems Group”: “*Decentralized Discrete-Event Control of Robot Networks*”.
- April, 25th 2013, *University of Texas at Arlington*, Invited Lecture for class EE 5321 Optimal Control: “*Control of innovative smart materials*”.

2) Courses and seminars held in other teaching centers

- Master course of Centro Studi Economia Applicata all’Ingegneria (CSEI), Bari, course in “Environmental Engineering”, Oct.’94 – Feb. ‘95. Seminar topics: “Systems theory and fuzzy systems” (10 hours).
- Politecnico di Bari, Course of “Automatic Control II” degree in Electronics Engineering, March, 18th 1996. Topic: “*Fuzzy logic for control engineering*”, 3 hours.
- Master course of Centro Studi Economia applicata all’Ingegneria (CSEI), Bari, course in “Environmental Engineering”, Oct.’96 – Feb. ‘97. Topics: “*System Theory, Discrete event systems, multi-criteria decision making*”, 20 hours.
- Master course of Centro Studi Economia applicata all’Ingegneria (CSEI), Bari, course in “Environmental Engineering”, Oct.’97 – Feb. ‘98. Topics: “*System Theory, Discrete event systems, multi-criteria and fuzzy decision making*”, 20 hours.
- Università di Lecce, Course of “System Theory” for the degree in Information Engineering, Nov.97-Dec.97. Topics: “*Linear systems, Laplace and Zeta transformations*”, 8 hours.
- High school ITIS Jannuzzi, Andria (BA), Course of "Automated assembly systems", Dec.1999-Apr.2000. Topic: “*Models and methods for discrete production systems, design of supervisory controllers*”, 6 hours.
- Highly Qualified Training (Corsi di Alta Formazione), Centro Laser, Valenzano (BA). Sept.-Dec. 2000. Topics: “*Advanced design of control systems using Matlab and Labview*”, 20 hours.
- Highly Qualified Training (Corsi di Alta Formazione) for highly specialized engineers in the field of mechatronics, Centro Ricerche Fiat, Valenzano (BA), Dec. 2003-March 2004. Topics: “*Fundamentals of Automatic control, Closed loop control design, digital control, fuzzy control*”, 56 hours.
- Specialization training for high-school teachers (Scuola Interateneo di Specializzazione per la Formazione degli Insegnanti della Scuola Secondaria), A.Y. 2005/2006. Course: “*Teaching automatic control*” (ins. n. 259, indirizzo “Area tecnologica”), 30 hours.
- Specialization training for high-school teachers (Scuola Interateneo di Specializzazione per la Formazione degli Insegnanti della Scuola Secondaria), A.Y. 2006/2007. Course: “*Teaching automatic control*” (ins. n. 259, indirizzo “Area tecnologica”), 30 hours.

- Specialization training for high-school teachers (Scuola Interateneo di Specializzazione per la Formazione degli Insegnanti della Scuola Secondaria), A.Y. 2006/2007. Course: “*Teaching automatic control*” (Corsi speciali abilitanti ins. 187), 30 hours.
- Master course of Politecnico di Bari in “Technological innovation in mechatronics”, A.Y. 2006/2007, course of “*Digital control*”, (10 hours).
- Specialization training for high-school teachers (Scuola Interateneo di Specializzazione per la Formazione degli Insegnanti della Scuola Secondaria), A.Y. 2007/2008. Course: “*Teaching automatic control*” (ins. n. 264, indirizzo “Area tecnologica”), 30 hours.
- Specialization training for high-school teachers (Scuola Interateneo di Specializzazione per la Formazione degli Insegnanti della Scuola Secondaria), A.Y. 2008/2009. Course: “*Teaching automatic control*” (ins. n. 264, indirizzo “Area tecnologica”), 30 hours.
- Training program of the project PON 01_02499, “Decision support systems for emergencies in marine environment”, Course “Training of professional engineers for research and development of decision support systems for emergency management”, A.Y. 2011-12, course of “Identification and model based control”, 54 hours.
- Training program of the project PON “MASSIME – Mechatronic innovative safety systems (wired and wireless) for railway, aerospace and robotic applications: May-June 2014, “Identification and control systems”, 40 hours.
- Training program of the project PON INNOVHEAD “Innovative technologies for reduced emissions, consumption, and operational costs for heavy duty engines”, June-July 2014, course “MATLAB, SIMULINK and Control System Toolbox”, 40 hours.
- Special Qualification Paths for High-School Teachers (Percorsi Abilitanti Speciali, classi di concorso A34 ed A035), A.A. 2013-14, course “Teaching automation”, 15 hours.

C. Research Activity

The research activity is focused on the following topics.

1) *Motion control systems with unconventional actuators based on smart materials*

This activity concerns the research on motion control and vibration damping using devices based on electrically or magnetically active materials (also referred to as *smart materials*). The research on this subject is based on a collaboration with the teams of professors Hartmut Janocha and Stefan Seelecke of the Dept. of Mechatronics, University of Saarland, Saarbruecken, Germany, and focuses on the control of devices based on smart materials of recent development, such as Magnetic Shape Memory Alloys (MSMA) and Electro-Active Polymers (EAPs). These materials have extremely competitive characteristics (elongation, weight, costs) with respect to other smart materials of consolidated use, but they also exhibit strongly nonlinear behaviors, often characterized by hysteretic and time-varying phenomena. The research activity of Dr. Naso concentrates on the development of mathematical models and their consequent use for the design of control systems capable to compensate effectively the undesired characteristics of these materials. The most recent results on this subject include the development of innovative solutions based on parametric models and adaptive control algorithms to compensate the strongly time-varying hysteresis of MSMA [31.r], [74.c], [76.c], [78.c], the development of design rules for linear controllers with performance guarantees for hysteretic systems based on *Linear Matrix Inequalities* approaches [35.r], [81.c], [83.c], the development of accurate mathematical models for the design of control systems for active polymeric membranes [40.r], [41.r], [91.c], [93.c], and the development of methods to pre-compensate the distortion of force produced by the nonlinearities of the mechanical structure providing motion amplification [27.r], [60.c], [64.c], [66.c], [75.c].

2) *Control of high-performance electrical machines*

This research activity deals with the development of advanced design and optimization methods for electrical drives with high performance requirements. The activity of Dr. Naso started with experiments of direct optimization of the parameters of control systems (with linear [8.r] and non-linear [1.l], [2.l], [4.r] structure) by means of search algorithms with measure of the objective function performed experimentally. To extend the applicability of these techniques also to systems with reduced computational resources, the team coordinated by Dr. Naso has developed “compact” versions of stochastic search algorithms which are able to emulate in an effective way the behavior of global search heuristic methods on low cost industrial microcontroller platforms [20.r], [47.c], [50.c], [63.c]. Dr. Naso has also developed adaptive control schemes (direct [14.r] and indirect [21.r], [44.c] forms) based on Lyapunov stability analysis tools. In particular, the attention has been focused on linear-in-the-parameter approximators with higher interpretability (Takagi-Sugeno fuzzy models) [14.r], and composite adaptation laws combining tracking and prediction error [21.r]. More recent efforts on this research area focus on the precise motion control of tubular linear motors. In these systems it is indispensable to effectively compensate friction and other uncertain phenomena related to electro-magnetic causes which become particularly dominating in application requiring micro-metric motion trajectories. To achieve this goal, the team of Dr. Naso has developed and experimentally validated approaches based on sliding mode with gain-scheduling based on the tracking error behavior [22.r], [59.c], on neural network approximators with composite adaptation laws [25.r],[62.c], and on an effective combination of gain-scheduled PID laws (referred to as NPID in related literature) with adaptive cancellation of the non-linearities of the positioning systems [28.r], [65.c]. Among the ongoing research work, the design of control systems for synchronous reluctance machine operating at very high speed (over 50 000 rpm) for aeronautical applications [95.c] plays an important role in the context of more-electrical aircraft and hybrid aeronautical propulsion research area, which are also the topics of funded projects coordinated by Dr. Naso.

3) *Multi-agent systems, distributed decision algorithm and “consensus”*

The recent advances in information and communication technologies have significantly influenced the evolution of control architectures for large-scale systems (manufacturing systems, warehouses, wireless/mobile sensor networks), generating a shift from traditional centralized and hierarchical schemes to distributed networks of low-cost, versatile sensor/actuator units governed by autonomous controllers (agents). Applications of these researches range from robotic networks to surveillance systems, from manufacturing systems and warehouses to energy production and distribution. The research activity of Dr. Naso in this area focuses on resource allocation methods based on consensus algorithms, with attention to two main directions. The first direction regards the extension of standard consensus algorithms for the search of an optimal or sub-optimal solution in classes of resource allocation problems with constraints on resource capacity. The preliminary results on this aspect are collected in the reference [34.r], which considers a robotic network as illustrative case study. The subsequent activity has been dedicated to the extension of methodologies and results typically achieved in the context of mobile robotics and automatic control to other relevant application contexts, such as the production and distribution of electrical energy. Reference [37.r] proposes a solution for the energy economical dispatch problem in one of the most complete and realistic formulations, with constraints on the production of each center and transmission line losses, based on an innovative distributed algorithm that, in turn, is based on two consensus stages between production nodes. The second research direction regards the use of *market-based* decision rules and max-consensus interaction strategies to develop new distributed decision algorithms. These

ideas have been applied to task allocations in the context of multi-robot systems in the mentioned reference [34.r] and in [84.c], and to the energy economic dispatch problem with non-convex cost functions [36.r], [86.c].

4) *Modeling and control of discrete event systems*

The activities of Dr. Naso on this subject start from a modelling approach referred in technical literature as *Discrete Event System Specification* (DEVS), which is effectively extended to the case of decentralized, multi-agent systems in the references [7.r] and [9.r]. Particularly innovative is the approach described in [5.r], in which the agent decision rules are adapted to the operating condition of the manufacturing system using a heuristic optimization algorithm. Subsequently, Dr. Naso has concentrated his attention to the “Matrix-based” modelling approach, developed in cooperation with the team of prof. F. L. Lewis, University of Texas at Arlington, TX, USA. This approach is based on the description of the discrete-event dynamics by means of a set of matrix equations in Boolean logic, which offers a remarkable degree of modularity and is particularly suitable to develop extremely detailed models and at the same time to guide the design of the control strategy. Among the outcomes, the research on this subject has led to the modelling and the development of the control system for a large warehouse for baggage storage and transportation in a large international airport (Singapore) [19.r], [49.c] and to the extension of the formalism to the case of decentralized systems without central supervisory mechanisms [39.r], [82.c], again obtained using logical consensus tools, and applied to robotic networks.

5) *Scheduling and dispatching of flexible production systems*

The automation of production activities in manufacturing systems involves a variety of planning, decision and optimization problems over different time horizons. This research line consists of a set of partially interrelated studies dedicated to the development of effective meta-heuristic optimization algorithms for activity scheduling, rescheduling and dispatching. In the framework of dispatching problems, Dr. Naso has contributed to develop a number of multi-criteria algorithms combining heuristic decision rules with combinatorial “look-ahead” algorithms to overcome the inherent myopia of the conventional strategies generally adopted in this context. Reference [10.r] condenses the most significant results of this activity developing an innovative heuristics for the control of a fleet of automated guided systems in a flexible manufacturing system. With regards to *scheduling* problems, Dr. Naso has contributed to develop effective search meta-heuristics combining stochastic search tools with effective constructive heuristics capable to quickly refine the known solutions. This approach has been applied to logistic and production problems of prohibitive complexity, such as the production and distribution of ready-mixed concrete by a network of producers operating in the Netherlands [17.r], also tackling the effect of road traffic by means of fast rescheduling tools [18.r], [5.l], and the production of furniture [12.r],[15.r].

6) *Diagnostics and control of industrial processes*

This research activity deals with the development and prototyping of intelligent sensors for monitoring, fault diagnosis and control of industrial processes. Within this framework, the recent research studies are mainly focused on innovative algorithms for real-time processing of data provided by different types of sensors. Among the main products of this activity, in the framework of non-destructive weld evaluations, Dr. Naso has contributed to develop with the colleagues of *Centro Laser*, Bari, an industrial prototype of online monitoring system based on the intelligent processing of spectral data obtained from the plasma surrounding the welding arc [3.r], [11.r]. Moreover, in the framework of a collaboration with *Mermec*, a company based in Monopoli (BA), Dr. Naso has contributed to the development of a nonlinear, dynamic filter for the detection and removal of spike noise in laser-based automated railway monitoring system [13.r], [22.c]. This filter is currently used in monitoring vehicles operating in the London

subway system, as well as in many other railway networks in different countries (the complete list of countries is in Section F of this CV).

D. Scientific cooperation with foreign universities

Since 2010, Dr. Naso is promoting an intense collaboration activity with the Department of Mechatronics of Saarland University, Saarbruecken, Germany, on the topic of innovative motion and force generation systems based on new smart materials. In addition to the frequent short visiting stays for research purposes, during summer 2013 (August and September) Dr. Naso has been invited as guest professor at the Multifunctional Materials and Systems Laboratory of the University of Saarbruecken directed by prof. Stefan Seelecke. During the years 2010-2014, Dr. Naso has participated as cooperating scientist to the following funded research projects:

- German Research Foundation (DFG), Priority Programme (Schwerpunkt-Programm) DFG 1239 “Change of microstructure and shape of solid materials by external magnetic fields”, Project B9: Magnetic Shape-memory alloys as active materials for vibration damping, scientific coordinator prof. Hartmut Janocha, University of Saarland, Saarbrücken, Germany, Funding periods 2 (09/2008 - 08/2010) and 3 (09/2010 - 08/2012).
- German Research Foundation (DFG) - Transfer Project - Development of a Magnetic Shape Memory Based Mechatronic System, scientific coordinator prof. Hartmut Janocha, University of Saarland, Saarbrücken, Germany - 24 months (2012-2013).
- Multifunctional Material and System Laboratory, Saarland University, Research Contract coordinated by prof. Stefan Seelecke, funding company and project name omitted due to nondisclosure agreement, topic: “feedforward and feedback control of electro-active polymers” (2013-2014).

Moreover, Dr. Naso has collaborated or is collaborating with the following universities, coauthoring papers with the teams led by the colleagues listed below.

- *University of Texas at Arlington*, Robotics and Automation Research Institute, Texas, USA, prof. Frank L. Lewis (modeling and control of large scale material handling systems, sensor networks, robotic networks, decentralized decision-making and consensus [19.r], [36.r], [37.r], [39.r], [49.c], [51.c], [58.c], [71.c], [82.c]).
- *Technical University of Delft*, Delft, Olanda, prof. Robert Babuska (adaptive fuzzy control [21.r], [33.c], [40.c], [41.c], [44.c]).
- *Singapore Institute of Manufacturing Technology*, Dr. Jing Bing Zhang (large scale automated material handling systems, modeling and control of baggage handling systems in large airports [19.r], [49.c], [51.c]).
- *Erasmus University Rotterdam*, Rotterdam, Olanda, prof. Uzay Kaymak, prof. Rommert Dekker (combinatorial optimization, heuristics, supply chain automation [17.r], [36.c], [54.c], [57.c]).
- *Technical University of Lisbon*, Lisbona, Portogallo, prof. Joao Sousa (combinatorial optimization, heuristics [43.c]).

E. Activity in research projects funded by Italian ministries or other public and private institutions

1) As Scientific Project Coordinator

Dr. Naso has coordinated or is coordinating as project leader several national and international research project whose overall budgeted is 1.7 Millions of Euros. The complete list of projects coordinated by Dr. Naso is as follows.

Project: “PON 2013-2015 (Titolo III - art. 13), “Aerospace Technological District of Apulia Region”. Project title: “*More Electrical Aircraft: Hybrid Energy Management*” (MEA HEM, cod. PON03_PE_00067_8), 2014-2016. Main Partners: AVIO, Politecnico di Bari, Istituto di Tecnologie Avanzate per l’Energia CNR, Università del Salento. The project deals with the development of new hybrid propulsion systems for unmanned aerial vehicles (UAVs) and general aviation which achieve optimal performances and efficiency by means of increased use of electrical machines. Dr. Naso is the scientific coordinator for Politecnico di Bari (budget of the coordinated unit 1 122 000 Euros).

Project: National Technology Clusters: Aerospace Cluster. Title of the project: “*Greening the Propulsion*” (cod. CTN_01_00236_494934), 2013-2015. Main Partners: Avio S.p.A. (leader), Secondo Mona S.p.A , BLUE Engineering S.r.l., BSim S.r.l. , EnginSoft S.p.A., Petroceramics S.p.A., P&G Soluzioni S.r.l., Progesa S.r.l. , HIT09 S.r.l. , Politecnico di Bari, Politecnico di Milano, Politecnico di Torino, Universities of Salento, Genova, Roma “La Sapienza”. The project focuses on the development of new technologies for the increase of the use of electrical energy (in line with the *more electrical aircraft* paradigm) in UAVs and general aviation. The team coordinated by Dr. Naso is in charge of the development of new electrical machines and innovative control systems suitable to highly efficient energy conversion and storage in airplanes. Dr. Naso is the coordinator of the unit of Politecnico di Bari (budget of the research unit 322 000 Euros).

Project: PON 2007-2013. Project Title: INNOVHEAD “Innovative technologies for reduced emissions, consumption, and operational costs for heavy duty engines” 2013-2015. Main partners: Apulian Mechatronic District MEDIS, Centro Ricerche Fiat. a project of the Mechatronic Districts of Apulia. Objective: Developing a mechatronic camless valve control system for heavy-duty internal combustion engines, also exploring the possibilities offered by smart materials and unconventional actuators. Dr. Naso serves as coordinator of the research unit of his Department (budget of the research unit 204 695 Euros).

Project: PON 2007-2013. Project title: EURO 6 “Electronic control, injection systems, combustion control, innovative sensors and process technologies for low emission diesel engines”, a project of the Mechatronic Districts of Apulia (2012-2014). Main partners: Apulian Mechatronic District MEDIS, Centro Ricerche Fiat. The projects aims at improving the performance of automotive industries by means of new technologies at both process and product level. Dr. Naso coordinates the team focusing on nonlinear modeling, prediction and control of injection systems (budget of the unit 87 000 Euros).

International Vigoni Project, Ateneo Italo-Tedesco, Deutscher Akademischer Austausch Dienst (DAAD) Bilateral Italy-Germany cooperation (Laboratory of Process Automation (LPA), Saarland University, Saarbrücken - Laboratory of Automation and Robotics, DEE, Politecnico di Bari). Project title: “New control techniques for unconventional actuators” (2010-2011). The project focuses on the development of new motion and force actuators based on smart materials and nonlinear control. Dr. Naso and prof. Janocha have shared the role of coordinator of the research team (overall grant 12 000 Euros).

Moreover, Dr. Naso is or has been the coordinator of the following small projects granted by the Politecnico di Bari:

- *Fondi di ricerca di Ateneo 2014. Project:* Identification and control of new motion and force actuators based on smart materials.
- *MURST (Italian Ministry for University and Research) Projects “Ex 60%” “Computational Intelligence for the Control of Complex Systems” (2003-2004).*

- *Grants for young researchers* “Adaptive control systems based on multi-agent networks” (1999-2000).
- *Grants for young researchers* “ARGA: Genetic Algorithms with adaptive reconfiguration” (2000-2001).

2) As a Project Member

National operational Plan (P.O.N.) projects.

- PON 2000-2006. LISAR (Inter-disciplinary scientific laboratory for automation and robotics). Main objective: Extending and improving the laboratory equipment for teaching and research activities on automation and robotics.
- PON 2007-2013 “PRInCE - Innovative energy conversion processes”. Main objective: Improving the laboratories involved in energy conversion, focusing also on IT, automation and control problems.
- PON 2007-2013. “Ambition Power”. Main objective: Developing technologies and power modules for high-performing energy conversion systems for sustainable mobility, industrial automation, aerospace, and renewable energy. Main project partners: St-Microelectronics.
- PON 2007-2013. MALET. Main objective: Development and validation of new technologies for engines for Unmanned Aerial Vehicles (UAV) for missions at high altitudes. Main project partners: Aerospace Technological District of Apulia, CIRA, Università del Salento, Politecnico di Bari
- PON 2007-2013. AMIDERHA Advanced mini-invasive systems for diagnosis and radiotherapy. Main objective: developing new technologies for medical systems for radiotherapy and diagnosis. Main project partners: Masmec SpA, Itel Srl, Università di Bari, Politecnico di Bari.
- PON Ricerca e Competitività 2007-2013, Project Call: Smart Cities and Communities and Social Innovation. “FUTUR CITY ENERGY WEB - the energy network for the city of the future”. Main objective: developing innovative systems for energy flow management in urban areas. Main project partners: Enel Spa.
- PON 2007-2013 Ricerca e competitività, Project “Marine Energy Lab” Main objective: off-shore wind generation systems based on technologies derived from aeronautical applications. Main project partners: Università di Reggio Calabria, AVIO.
- PON 2007-2013 Ricerca e competitività, Progetto “PLATINO - Platform For Innovative Services In Future Internet”. Main objective: dealing with control and resource allocation problems in modern communication systems. Main project partners: Telecom Italia (coordinator), Politecnico di Bari, Consorzio CINI, Consorzio CRAT.

Projects of the Research and University Ministry (PRIN)

- Progetto PRIN (ex 40%) “Universal small wind-turbines (grid-connected, stand-alone, microgrid)” (2009).
- Progetto PRIN (ex 40%) “FAMOUS: Fluid Analytical Models Of autonomous Systems” (2006).
- Progetto PRIN (ex 40%) “Bio-inspired strategies for control of motion systems” (2003)
- Progetto PRIN (ex 40%) “Control of autonomous agent systems” (1999)

- Progetto PRIN (ex 40%) “Self-coordination in autonomous agent systems” (1997-1998)
- Progetto PRIN (ex 40%) “Integrated management of autonomous production agents” (1996-1997).
- Progetto PRIN (ex 40%) “Programming and controlling flexible production systems” (1993-1995).

Apulia Region projects

- Apulian Regional Government, “Accordo di Programma Quadro Ricerca” (2010-2011), Project title: Innovative models of mechatronic systems.
- Apulian Strategical Projects (2007). Project title: “ICT as a support for logistic services: a model of an organized market”.
- Apulian Strategical Projects (2006), Project title: “Telecommunication and wireless sensor networks for the management of emergency situation”.
- Regional support to investments in industrial research (Misura 3.13) (2006). Project: “SISMA: Robotic systems for micro-assembly operations”.

Other funding sources

- National Research Council Projects (1996). “Development of an integrated mechatronic design platform for advanced manufacturing systems”.
- Fondazione Caripuglia, Bari, (Caripuglia Bank Foundation) (2010-2011). “Design and characterization of innovative motion actuators based on electro-active materials”.

F. Cooperation and innovation transfer involving industries

Dr. Naso is one of the founders of "Energy Factory Bari", an integrated laboratory for research in aerospace and energy with joint public-private participation of Avio S.p.A. and Politecnico di Bari, based on a ten-years agreement signed by the partners on 03/07/2010. To date, the laboratory covers a 600m² space, has attracted more than 3 Millions of Euros in public and private research funding, and enrolls more than 30 engineers. The laboratory is organized in 5 divisions, one of which is dedicated to control systems and is coordinated by Dr. Naso. Beside the main collaboration with AVIO, the activity of the laboratory involves an intense collaboration with many companies operating in the aerospace and energy conversion industry, such as GE Aviation, GE Oil and Gas, Unison Research, Alenia, Ansaldo Caldaie, Saipem.

Dr. Naso has also coordinated or is coordinating several research and technology transfer consulting activities financed by industries or research centers (the overall budget of these activities is 250 000 Euros). The complete list of consulting activities is as follows.

1) As Scientific coordinator of the consulting contract

- 2014, Funding company: Consorzio C.A.R.S.O. Centro di Addestramento alla Ricerca Scientifica Oncologica. Topic of the consulting activity: models and data mining algorithms for the analysis and classification of genetic and pharmacological data of olive plants (14 000 Euros).

- 2014, Funding company: AVIO Aero S.p.A. Topic of the consulting activity: Development of control systems for electrical machines in aerospace applications (joint coordination with the colleague Dr. Francesco Cupertino, 105 000 Euros).
- 2012, Funding company: AVIO S.p.A. Topic of the consulting activity: Development of control systems for electrical machines in aerospace applications (joint coordination with the colleague Dr. Francesco Cupertino, 100 000 Euros).
- 2011-2012, Funding company: Adriatica Industriale, S.p.A. Topic: development and testing of a laser steel cutting machine with high positioning precision (30 000 Euros).

2) *Contribution as member of the consulting team*

- 2012, Funding company: Acquedotto Pugliese SpA. Topic: Development of efficient distributed monitoring and control systems for water distribution plants of Acquedotto Pugliese SpA.
- 2010-2011, Funding company: AVIO SpA. Topic: Developing permanent electrical machines and control systems for very high rotational speed regimes for aerospace applications.
- 2011, Funding Company: AVIO SpA. Topic: Improving the hardware and software equipment of the laboratory Energy Factory Bari.
- 2009-2010, Funding Company: Avantgarde s.r.l. Topic: Development of a system for online inspection and defect detection of railway geometry.
- 2009-2010, Funding Company: TANDOI Fratelli SpA. Topic: Design and realization of a control system for automation and remote monitoring of a pasta distribution machine.
- 2004-2005, Funding company: Pfizer Italia SpA. Topic: Task sequencing and scheduling algorithms for the automation of production and packaging of pharmaceutical products.
- 2004-2005, Funding company: Centrolaser SpA. Topic: Development of a feedback control system based on real-time processing of spectroscopical data for online monitoring of laser welding processes.
- 2003-2004, Funding company: MASMEC SpA. Topic: Analysis and development of parametric identification methods for control and diagnosis problems in industrial material handling systems.

He has also participated to a scientific collaboration with the company MERMEC SpA. focused on the development of dynamic filters based on fuzzy logic for the removal of impulsive noise from signals describing geometrical data of railways collected by specific monitoring vehicles. The filtering algorithm has been described in [12.r] and is now used in monitoring vehicles currently operating in the Subway system of London, as well as on the railway or subway networks of Italy, England, Spain, Switzerland, Norway, Turkey, Syria, India, China, Taiwan, Japan, Korea, Brazil, USA and Australia.

G. Organizational and chairman activity

Dr. Naso served as member of the organizing committees or chair for the following conferences:

- Member of the Organization Committee of the “European Symposium on Intelligent Techniques”, Bari, March 1997.

- Co-Organizer of the Session “Soft Computing for Distributed Optimization”, 2004 IEEE System, Man and Cybernetics Conference, The Hague, Netherlands, October 2004.
- Session Chairman “Adaptive neuro-fuzzy control”, 5 July 2005, 16th IFAC World Congress, Prague.
- Session Chairman “Networked Robotic System”, 9 July 2008, 17th IFAC World Congress, Seoul, Korea.
- Member of the organization committee, 2nd IFAC Workshop on Dependable Control of Discrete Systems, Bari, Italy, June 2009.
- Chair of “Control Systems and Applications Committee” and of “Signal Processing & Computational Intelligence Committee”, IEEE International Symposium on Industrial Electronics, Bari, Italy, July 2010.
- Organizer of the special session “Advances in Control of Mechatronic Systems”, IEEE International Symposium on Industrial Electronics, Bari, Italy, July 2010.
- Co-chairman of session “Hysteresis”, 27 June 2012, IEEE American Control Conference (ACC), Montréal, Canada.

F. Editorial activity and membership to scientific committees

1) Contribution to journals or organizations

- He has been *Area Editor* for the topic of *Intelligent control* of the journal *Fuzzy Sets and Systems*, edited by Elsevier, during the years 2007-2012.
- Member of the *Technical Committee “TC3.2 Cognition and Control”*, *International Federation of Automatic Control (IFAC)* (2004- present).
- Member of the *Technical Committee “Distributed Intelligent Systems” IEEE System, Man, and Cybernetics Society* (2004- present).
- He has been invited to write an editorial for the Italian journal “Automazione e Strumentazione” entitled “*Control of smart materials: the new frontieers of mechatronics*”, scheduled to appear on October 2014 issue (in Italian).
- He serves as reviewer for many journals related to his scientific interests.

2) Contributions to Editorial Boards of international conferences

- Member of the Technical Program Committee and Associate Editor of the conference *IEEE International Symposium on Intelligent Control (ISIC) – IEEE Multi-Conference on Systems and Control, (MSC) 2014*, October 8-10, 2014, Antibes/Nice, France.
- Chair and Associate Editor of the “Control Systems and Applications Committee” and of the “Signal Processing & Computational Intelligence Committee” of conference *IEEE International Symposium on Industrial Electronics*, Bari, July 4-7, 2010.

3) *Contribution as expert evaluator of international projects.*

He has been scientific evaluator for the following international research projects based on EU Grants:

- EU Cyprus Research Promotion Foundation RPF: (2 projects, in 2009 and 2011)
- EU Programme inter Carnot (France)-Fraunhofer (Germany) PICF (1 project in 2011).

4) *Participation to international program committees.*

He has been a member of the following program committees of international conferences:

- 2004 IEEE International Conference on Cybernetics & Intelligent Systems (IEEE CIS 2004), December 1-3, 2004, Singapore.
- 2006 IEEE System, Man, and Cybernetics Workshop on Adaptive and Learning Systems (IEEE SMCals06), July 24-26, 2006 Utah State University in Logan, Utah, U.S.A..
- 2006 IEEE International Conferences on Cybernetics & Intelligent Systems(IEEE CIS 2006), June 7-9, 2006, Bangkok, Thailand.
- 2007 IEEE Congress on Evolutionary Computation, September 25-28, 2007, Singapore.
- 2007 IEEE Three-Rivers Workshop on Soft Computing in Industrial Applications (SMCia/07), Passau, Germany, August 1-3, 2007.
- 2007 CODS International Conference on Complex Open Distributed Systems, Chengdu, China, July 22-24, 2007.
- 2007 IFAC Workshop on Advanced Fuzzy and Neural Control, Valenciennes, France, October, 29-30, 2007.
- IEEE SMCia/08 Soft Computing in Industrial Applications, Muroran, Japan , June 25-27, 2008.
- IEEE SMC 2008 International Conference on System, Man, and Cybernetics, Singapore, October 12-15, 2008.
- IFAC International Conference on Intelligent Control Systems and Signal Processing, Istanbul, Turkey, September 21-23, 2009.
- ICINCO 2011, “8th International Conference on Informatics in Control, Automation and Robotics”, Noorwijkerhout, The Netherlands, July 28-31, 2011.
- ICIRA 2011, 4th International Conference on Intelligent Robotics and Applications, Aachen, Germany, December 6-9, 2011.
- IEEE System, Man, and Cybernetics Conference,., October 13-16, Manchester, UK, 2013.
- 2014 IEEE International Conference on Systems, Man, and Cybernetics (SMC 2014), San Diego, California, USA, Oct. 5-8, 2014.

I. University steering and management activities

1) *Activity as member of the executive committee*

Since October 2009, he is member of the Executive Committee (Consiglio di Amministrazione) of Politecnico di Bari. For the academic years 2009-2012 he sits in the committee as elected representative of assistant professors, and for the academic years

2012-2015 he has been nominated as representative of all professors. In addition to the direct contribution to the executive committee, he is member of a number of support committees for management and steering of his university. In particular, he gives regularly contribution to the following committees.

- *Strategic Committee* of Politecnico di Bari (since A.Y. 2013-2014), for the definition of strategic actions for his university and the elaboration of the relative official plan (a fundamental document requested by Ministry of University).
- *Resource allocation committee* (since A.Y. 2012-2013), for the utilization of the resources of the university for career promotion and new enrollment of teaching and administration personnel.
- *Spin-off committee* (since A.Y. 2009-2010), in charge of defining the rules for starting a new spin-off company of Politecnico di Bari and evaluating the new start-up proposals.
- *External participation committee* (since A.Y. 2009-2010), management and steering of initiatives in companies and consortia with shares of the Politecnico di Bari.
- *Spaces committee* (since A.Y. 2009-2010), for the assignment and management of spaces and buildings of the Politecnico di Bari.
- *Committee for “Fondi Legge 390/91”* of Politecnico di Bari (since A.Y. 2009-2010), for the management of special resources devoted to the right of achieving university education and special student activities.
- *Committee for Taxes and Exoneration* (since A.Y. 2009-2010), handling special situations of students related to health or financial inconveniences.

2) *Contribution to external companies or institutions*

- Since 2013, he is a member of the executive committee of the consortium “Meridionale Innovazione Trasporti S.c.a.r.l”, financed by Italian Ministry of Research (call 1854/2006) and dealing with innovation in transport systems.
- During years 2013-2014 he has been a member of the executive committee of “Polyconsulting S.r.l.”, a spin-off company of Politecnico di Bari.
- He was the coordinator for Politecnico di Bari, and a member of the Technical and Scientific Committee of the course organized by a consortium of high-schools, local companies and Politecnico in the framework of “Istruzione e formazione tecnica superiore (IFTS)”. Title of the project: *Tecnico Superiore per La Conduzione e Manutenzione di Impianti* – call BA/01/2012 of Provincia di Bari, anno 2013.
- He has been *associated member* of the National Research Council center *Istituto di Studi sui Sistemi Intelligenti per l'Automazione* (ISSIA) di Bari in years 2007/2008.

3) *Participation to Evaluation Committees*

- Member of the committee for the final Ph.D candidates examination in the Ph.D School of Engineering of the Department of Mechatronics, University of Saarland, Saarbruecken, Germany, September 24th, 2013.

- Member of the evaluation committee for a tenured position of assistant professor in automatic control (italian code ING-INF/04 *Automatica*, D.R. N. 663 del 14.10.2004) at Università degli studi “*MAGNA GRÆCIA*” of Catanzaro, Italy.
- Member of the evaluation committee for *Qualification as Professional Engineer* of graduated candidates, Politecnico di Bari, A.Y. 2005-06.
- Member of the evaluation committee for *Qualification as Professional Engineer* of graduated candidates, Politecnico di Bari, A.Y. 2011-12.

4) *Other activities*

- Head (technical supervisor) of the two “Digital Control” and “Automation and Robotics” Laboratories, Dept. of Electrical and Information Engineering, Politecnico di Bari. The laboratories are equipped with laboratory scale processes, various mobile robots and industrial manipulators for both teaching and research purposes, and advanced acquisition/control boards for rapid prototyping of control systems.
- Member of Advisory Board (Collegio dei Docenti) of the Ph.D School in Electrotechnical engineering (A.Ys. 2003-04 to 2011-12).
- Member of Advisory Board (Collegio dei Docenti) of the Ph.D School in Information Engineering (since A.Y. 2003-04 to 2011-12).
- Member of Advisory Board (Collegio dei Docenti) of the Ph.D School in Electrical and Information Engineering (A.Ys. 2012-13 and 2013-14).
- Secretary of the committee for teaching activities of the degree in Automation Engineering (A.Y. 2006-07).
- Member of the committee for teaching activities of the degree in Electronic Engineering (A.A. 2007-08).
- Member of the committee for Student Training Activities (Commissione Pratiche Studenti) (A.Ys. 2006-07, 2007-08).

L. Recognitions

- He has obtained the National Scientific Qualification (Art.16 of the law 30 December 2010, n.240) as Associate Professor in the area of automatic control (Italian code: settore concorsuale 09/G1 – Automatica), with unanimous “*extremely positive*” evaluation of the five members of the evaluation committee.
- On November, 16th, 2012 Dr. Naso has received the “*Sigillo del Politecnico di Bari*”, awarded for “the amount and quality of the activity, and for the extremely commendable and disinterested commitment, as a member of the Executive Committee during the academic years 2009-2012”.
- In 2014 he has been nominated *Senior Member* of IEEE.
- Since 2005, his biography is listed in “*Who is who in the world*”.
- Since 2014 his biography is listed in the volume “2000 Outstanding Intellectuals of the 21st Century” edited by the International Biographical Centre, Cambridge, England.

- In 2014 he has been included among the “IBC Top 100 Educators 2014” of the International Biographical Centre, Cambridge, England, and received “the Cambridge certificate for outstanding educational achievement” from the same institution.
- The following three publications

[14.r] V. Giordano, **D. Naso**, and B. Turchiano, “Combining genetic algorithms and Lyapunov-based adaptation for online design of fuzzy controllers,” *IEEE Transactions on Systems, Man, and Cybernetics, Part B: Cybernetics*, vol. 36, no. 5, pp. 1118-1127, Oct. 2006. (Full Paper)

[17.r] **D. Naso**, M. Surico, B. Turchiano, and U. Kaymak, “Genetic algorithms for supply chain scheduling: a case study on ready mixed concrete,” *European Journal of Operational Research*, vol. 177, no. 3, pp. 2069-2099, Mar. 2007.

[20.r] E. Mininno, F. Cupertino, and **D. Naso**, “Real-valued compact genetic algorithms for embedded microcontroller optimization,” *IEEE Transactions on Evolutionary Computation*, vol. 12, no. 2, pp. 203-219, Apr. 2008. (Full Paper)

which were selected by Dr. Naso for the Program of Evaluation of the Quality of the University System (Valutazione della Qualità del Sistema Universitario e della Ricerca - VQR 2004-2010) have been evaluated as “excellent”.

- The following two papers

[8.r] F. Cupertino, E. Mininno, **D. Naso**, B. Turchiano, and L. Salvatore, “On-line genetic design of anti-windup unstructured controllers for electric drives with variable load,” *IEEE Transactions on Evolutionary Computation*, vol. 8, no. 4, pp. 347-364, Aug. 2004. (Full Paper)

[10.r] **D. Naso** and B. Turchiano, “Multicriteria Meta-Heuristics for AGV Dispatching Control Based on Computational Intelligence,” *IEEE Transactions on System, Man, and Cybernetics, Part B: Cybernetics*, vol. 35, no. 2, pp. 208-226, Apr. 2005. (Full Paper)

which were selected by other coauthors for the Program of Evaluation of the Quality of the University System (Valutazione della Qualità del Sistema Universitario e della Ricerca - VQR 2004-2010) have been evaluated as “excellent”.

- The paper

[6.r] G. Maione and **D. Naso**, “A Genetic Approach for Adaptive Multi-Agent Control in Heterarchical Manufacturing Systems,” *IEEE Transactions on Systems, Man, and Cybernetics, Part A: Special Issue on Collective Intelligence in Multi-Agent Systems*, vol. 33, n. 5, pp. 573-588, Sept. 2003.

selected by his Department as one of the paper for the triennial quality of research assessment (Comitato di Indirizzo per la Valutazione della Ricerca – CIVR 2001-2003) is listed among the “excellent products” of Politecnico di Bari for 2001-2003.

- The paper

[9.r] G. Maione and **D. Naso**, “Modeling Adaptive Multi-Agent Manufacturing Control with discrete event system formalism,” *International Journal of System Science*, vol. 35, no. 10, pp. 591-614, 2004.

has been cited by *Society of Manufacturing Engineers* in the “Emerging Technologies Monitor”, Electronic Newsletter, Winter 2005.

- The paper

[34.c] G. Maione and **D. Naso**, “Using a discrete-event system formalism for the multi-agent control of manufacturing systems,” *First International Conference on Informatics in Control, Automation and Robotics*, ICINCO 2004, Setubal, Portugal, 2004, vol.1, pp. 135-142.

was one of the *best papers* of the 1st International Conference on Informatics in Control, Automation and Robotics (ICINCO'04), Setubal, Portugal, August 25-28 2004.

Dr. David Naso - List of Publications

Publication Summary

41 international journal papers,
5 book chapters,
96 international conference papers,
2 national conference papers
2 theses.

Citation indexes

on Scopus:

h-index 16, h-c 11(2014), n. of citations:715.

<http://www.scopus.com/authid/detail.url?authorId=6602866170>

on Google Scholar:

h-index 19, n. of citations: 1212.

<http://scholar.google.it/citations?user=OhPOgM4AAAAJ&hl=it>

Peer reviewed journal papers

- [1.r] M. P. Fanti, B. Maione, **D. Naso**, and B. Turchiano, "Genetic multi-criteria approach to flexible line scheduling," *International Journal of Approximate Reasoning*, vol. 19, no. 1-2, pp. 5-21, Jul.-Aug. 1998.
- [2.r] B. Maione and **D. Naso**, "Evolutionary adaptation of dispatching agents in heterarchical manufacturing systems," *International Journal of Production Research*, vol. 39, no. 7, pp. 1481-1503, Nov. 2001.
- [3.r] D. De Blasiis, P. Sforza, V. Lombardo, **D. Naso**, P. Pantaleo, B. Turchiano, and L. Pezzati, "Electro-optical sensors integrated in arc welding workstation for process monitoring by means of fuzzy logic controller," *Welding in the World*, vol. 45, no.11-12, pp. 9-17, 2001.
- [4.r] F. Cupertino, V. Giordano, **D. Naso**, B. Turchiano, and L. Salvatore, "On-line genetic design of fuzzy controllers for DC drives with variable load," *Electronic Letters*, vol. 39, no. 5, pp. 479-480, Mar. 2003.
- [5.r] G. Maione and **D. Naso**, "A soft computing approach for task contracting in multi-agent manufacturing control," *Computers in Industry*, vol. 52, no. 3, pp. 199-219, Dec. 2003.
- [6.r] G. Maione and **D. Naso**, "A genetic approach for adaptive multi-agent control in heterarchical manufacturing systems", *IEEE Transactions on Systems, Man, and Cybernetics, Part A: Systems and Humans*, vol. 33, no. 5, pp. 573-588, Sep. 2003. (Full Paper)
- [7.r] **D. Naso** and B. Turchiano, "A coordination strategy for distributed multi-agent manufacturing systems," *International Journal of Production Research*, vol. 42, no. 12, pp.2497-2520, Jun. 2004.
- [8.r] F. Cupertino, E. Mininno, **D. Naso**, B. Turchiano, and L. Salvatore, "On-line genetic design of anti-windup unstructured controllers for electric drives with variable load," *IEEE Transactions on Evolutionary Computation*, vol. 8, no. 4, pp. 347-364, Aug. 2004. (Full Paper)
- [9.r] G. Maione and **D. Naso**, "Modeling adaptive multi-agent control with discrete event system formalism," *International Journal of System Science*, vol. 35, no.10, pp. 591-614, Aug. 2004.
(article mentioned by Society of Manufacturing Engineers in the "Emerging Technologies Monitor", Winter 2005).
- [10.r] **D. Naso** and B. Turchiano, "Multicriteria meta-heuristics for AGV dispatching control based on computational intelligence," *IEEE Transactions on System, Man, and Cybernetics, Part B: Cybernetics*, vol. 35, no.2, pp. 208-226, Apr. 2005. (Full Paper)

- [11.r] **D. Naso**, B. Turchiano, and P. Pantaleo, "A fuzzy-logic based optical sensor for on-line weld defect-detection," *IEEE Transactions on Industrial Informatics*, vol. 1, no. 4, pp. 259-273, Nov. 2005. (Full Paper)
- [12.r] **D. Naso**, B. Turchiano, and C. Meloni, "Single and multi-objective evolutionary algorithms for the coordination of serial manufacturing operations," *Journal of Intelligent Manufacturing*, vol. 17, no. 2, pp. 249-268, Apr. 2006.
- [13.r] **D. Naso**, A. Scalera, G. Aurisicchio, and B. Turchiano, "Removing spike noise from railway geometry measures with a fuzzy filter," *IEEE Transactions on Systems, Man, and Cybernetics, Part C: Applications and Reviews*, vol. 36, no. 4, pp. 485-494, Jul. 2006. (Invited Full Paper)
- [14.r] V. Giordano, **D. Naso**, and B. Turchiano, "Combining genetic algorithms and Lyapunov-based adaptation for online design of fuzzy controllers," *IEEE Transactions on Systems, Man, and Cybernetics, Part B: Cybernetics*, vol. 36, no. 5, pp. 1118-1127, Oct. 2006. (Full Paper)
- [15.r] C. Meloni, **D. Naso**, and B. Turchiano, "Setup coordination between two stages of a production system: a multi-objective evolutionary approach," *Annals of Operations Research*, vol. 147, no. 1, pp. 175-198, Oct. 2006.
- [16.r] F. Cupertino, V. Giordano, **D. Naso**, and L. Delfine, "Fuzzy control of a mobile robot using a Matlab-based rapid prototyping system," *IEEE Robotics and Automation Magazine*, vol. 13, no. 4, pp. 74-81, Dec. 2006. (Full Paper)
- [17.r] **D. Naso**, M. Surico, B. Turchiano, and U. Kaymak, "Genetic algorithms for supply chain scheduling: a case study on ready mixed concrete," *European Journal of Operational Research*, vol. 177, no. 3, pp. 2069-2099, Mar. 2007.
- [18.r] **D. Naso**, M. Surico, and B. Turchiano, "Reactive scheduling of a distributed network for the supply of perishable products", *IEEE Transactions on Automation Science and Engineering*, vol. 4, no. 3, pp. 407-423, Jul. 2007. (Full Paper)
- [19.r] V. Giordano, J. B. Zhang, **D. Naso**, and F. L. Lewis, "Integrated supervisory and operational control of a warehouse with a matrix-based approach," *IEEE Transactions on Automation Science and Engineering*, vol. 5, no. 1, pp. 53-70, Jan. 2008. (Full Paper)
- [20.r] E. Mininno, F. Cupertino, and **D. Naso**, "Real-valued compact genetic algorithms for embedded microcontroller optimization," *IEEE Transactions on Evolutionary Computation*, vol. 12, no. 2, pp. 203-219, Apr. 2008. (Full Paper)
- [21.r] D. Bellomo, **D. Naso**, and R. Babuska, "Adaptive fuzzy control of a non-linear servo-drive: theory and experimental results", *IFAC Engineering Applications of Artificial Intelligence*, vol.21, no. 6, pp. 846- 857, Sep. 2008.
- [22.r] F. Cupertino, **D. Naso**, E. Mininno, and B. Turchiano, "Sliding mode control with double boundary layer for robust compensation of payload mass and friction in linear motors," *IEEE Transactions on Industry Applications*, vol. 45, no. 5, pp. 1688-1696, Sept.-Oct. 2009. (Full Paper)
- [23.r] D. Di Paola, **D. Naso**, B. Turchiano, G. Cicirelli, and A. Distante, "Matrix-based discrete event control for surveillance mobile robotics," *Journal of Intelligent and Robotic Systems*, vol. 56, no. 5, pp. 513-541, Dec. 2009.
- [24.r] D. Di Paola, **D. Naso**, A. Milella, G. Cicirelli, and A. Distante, "Multi-sensor surveillance of indoor environments by an autonomous mobile robot," *International Journal of Intelligent Systems Technologies and Applications*, vol. 8, no. 1-4, pp. 18-35, Jan. 2010
- [25.r] **D. Naso**, F. Cupertino, and B. Turchiano, "Precise position control of tubular linear motors with neural networks and composite learning," *Control Engineering Practice*, vol. 18, no. 5, pp. 515-522, May 2010.

- [26.r] E. Mininno, F. Neri, F. Cupertino, and D. Naso, "Compact differential evolution," *IEEE Transactions on Evolutionary Computation*, vol. 15, no. 1, pp. 32-54, Feb. 2011. (Full Paper)
- [27.r] E. Grasso, C. May, H. Janocha, and **D. Naso**, "Generating periodic forces with the pendulum actuator," *Journal of Vibration and Control*, Special Issue on "Experiments in Dynamics and Control", vol. 18, no. 1, pp. 3-16, Jan. 2012.
- [28.r] **D. Naso**, F. Cupertino, and B. Turchiano, "NPID and adaptive approximation control of motion systems with friction", *IEEE Transactions on Control System Technology*, vol. 20, no. 1, pp. 214-222, Jan. 2012 (Brief Paper).
- [29.r] L. Riccardi, **D. Naso**, B. Turchiano, and H. Janocha, "A precise positioning actuator based on feedback-controlled magnetic shape memory alloys," *Mechatronics*, vol. 22, pp. 568-576, Mar. 2012. (Full Paper)
- [30.r] B. Holz, L. Riccardi, H. Janocha, and **D. Naso**, "MSM actuators: design rules and control strategies," *Advanced Engineering Materials*, vol. 14, no. 8, pp. 668-681, Aug. 2012.
- [31.r] L. Riccardi L, **D. Naso**, B. Turchiano, and H. Janocha, "Adaptive control of positioning systems with hysteresis based on magnetic shape memory alloys," *IEEE Transactions on Control Systems Technology*, vol. 21, no. 6, pp. 2011-2023, Nov. 2013. (Full Paper)
- [32.r] T. Di Noia, V.C. Ostuni, F. Pesce, G. Binetti, **D. Naso**, F.P. Schena, and E. Di Sciascio, "An end stage renal disease predictor based on an artificial neural networks ensemble," *Expert Systems with Applications*, vol. 40, no. 11, pp. 4438-4445, Sep. 2013. (Full Paper)
- [33.r] E. Grasso, N. Totaro, H. Janocha, and **D. Naso**, "Piezoelectric self sensing actuators for high voltage excitation", *Smart Materials and Structures*, vol. 22, no. 6, pp. 1-13, Jun. 2013. (Full Paper)
- [34.r] G. Binetti, **D. Naso**, and B. Turchiano, "Decentralized task allocation for surveillance systems with critical tasks," *Robotics and Autonomous Systems*, vol. 61, no. 12, pp. 1653-1664, Dec. 2013. (Full Paper)
- [35.r] L. Riccardi, **D. Naso**, B. Turchiano, and H. Janocha, "Design of linear feedback controllers for dynamic systems with hysteresis," *IEEE Transactions on Control Systems Technology*, vol. 22, no. 4, pp. 1268-1280, Jul. 2014. (Full Paper)
- [36.r] G. Binetti, A. Davoudi, **D. Naso**, B. Turchiano, and F. L. Lewis, "A distributed auction-based algorithm for the non-convex economic dispatch problem," *IEEE Transactions on Industrial Informatics*, vol. 10, no. 2, pp. 1124-1132, May 2014. (Full Paper)
- [37.r] G. Binetti, A. Davoudi, F. L. Lewis, **D. Naso**, and B. Turchiano, "Distributed consensus-based economic dispatch with transmission losses," *IEEE Transactions on Power Systems*, vol. 29, no. 4, pp. 1711-1720, July 2014. (Full Paper)
- [38.r] M. Hodgins, G. Rizzello, **D. Naso**, A. York, and S. Seelecke, "An electro-mechanically coupled model for the dynamic behavior of a dielectric electro-active polymer actuator," *Smart Materials and Structures*, (Accepted on June 5th, 2014, Full Paper).
- [39.r] A. Gasparri, D. Di Paola, **D. Naso**, and F. L. Lewis, "Decentralized dynamic task planning for heterogeneous robotic networks," *Autonomous Robots* (Accepted on June 9th, 2014, published on line July, 5th, 2014, DOI: 10.1007/s10514-014-9395-y, Full Paper).
- [40.r] G. Rizzello, **D. Naso**, A. York, and S. Seelecke, "Modeling, identification and control of a dielectric electro-active polymer positioning system," *IEEE Transactions on Control Systems Technology*, (Accepted July 6th, 2014, Published online July 29th, 2014, DOI: 10.1109/TCST.2014.2338356, Full Paper).
- [41.r] G. Rizzello, M. Hodgins, **D. Naso**, A. York, and S. Seelecke, "A nonlinear electro-mechanical model for an annular dielectric elastomer actuator with a biasing mass," *ASME Journal of Vibration and Acoustics*, Accepted on August, 16th, 2014, Full Paper).

Journal papers with no peer review

- [1.rsp] F. Cupertino, V. Giordano, **D. Naso**, L. Salvatore, and B. Turchiano, “Experimenting fuzzy control strategies for mobile robots on a rapid prototyping system,” *WSEAS Transactions on Systems*, vol. 3, no. 2, pp. 973-978, Apr. 2004.

International book chapters

- [1.1] M. Dotoli, B. Maione, and **D. Naso**, “Evolutionary techniques for tuning fuzzy sliding mode controllers”, in “*Advances in Fuzzy Systems and Intelligent Technologies*”, Shaker Publishing, Maastricht, 2000, ISBN 90-423-0105-8, pp. 254-264.
- [2.1] M. Dotoli, B. Maione, **D. Naso**, “Fuzzy Sliding Mode Controllers Synthesis Through Genetic Optimization”, in “*Advances in Computational Intelligence and Learning, Methods and Applications*”, Zimmermann H-J., Tselentis G., van Someren M., Dounias G. eds., Kluwer Academic Publishers, February 2002, ISBN 0-7923-7645-5, pp. 331-341.
- [3.1] M. Dotoli, P. Lino, B. Maione, **D. Naso**, B. Turchiano, “Genetic Optimization of Fuzzy Sliding Mode Controllers: an Experimental Study”, in “*Soft Computing Applications*”, A. Bonarini, F. Masulli, G. Pasi, eds., Physica Verlag, 2003, ISBN 3-7908-1544-6, pp.193-205.
- [4.1] G. Maione, **D. Naso**, “Using A Discrete-Event System Formalism for the Multi-Agent Control of Manufacturing Systems”, in “*Informatics in Control, Automation and Robotics*”, J. Braz, H. Araújo, A. Vieira, B. Encarnação, eds., Springer-Kluwer, Dordrecht, Netherlands, 2006, ISBN 10 1-4020-4136-5(HB) pp. 125-132.
- [5.1] **D. Naso**, M. Surico, and B. Turchiano, “Scheduling Production and Distribution of Rapidly Perishable Materials with Hybrid GA's”, in “*Evolutionary Scheduling*”, [series *Studies in Computational Intelligence* vol.49, K.C. Tan, K. Dahal and P. Cowling, eds., ISSN 1860-949X (Print) 1860-9503 (Online), ISBN 978-3-540-48582-7], Springer-Verlag, 2007, pp. 465-483, DOI 10.1007/978-3-540-48584-1.

International conference papers^[A]

- [1.c]* M. P. Fanti, B. Maione, **D. Naso**, and B. Turchiano, “Evolutionary control of flexible production systems,” *Fourth International Conference on Control, Automation, Robotics and Vision, ICARCV'96*, Singapore, 1996, pp. 7-11.
- [2.c]* M. P. Fanti, B. Maione, **D. Naso**, and B. Turchiano, “A genetic multi-criteria approach to job shop scheduling”, *First International Workshop on Approximate Reasoning in Scheduling, ARS'97*, Zurich, Switzerland, 1997, pp. 46-52.
- [3.c]* M. P. Fanti, **D. Naso**, and B. Turchiano, “Fuzzy logic approach to FMS scheduling”, *European Symposium on Intelligent Techniques, ESIT'97*, Bari, 1997, pp.116-120.
- [4.c]* **D. Naso** and B. Turchiano, “A fuzzy multi-criteria algorithm for dynamic routing in FMS,” *IEEE International Conference on Systems, Man, and Cybernetics, SMC'98*, San Diego, California, USA, 1998, pp. 457-462.

^[1] Papers marked by * indicate conferences attended by Dr. Naso for paper presentation.

- [5.c]* B. Maione and **D. Naso**, "Multi-agent routing control in heterarchical manufacturing systems," *ICSC Symposium on Intelligent Industrial Automation*, IIA'99, Genoa, Italy, 1999. (CDROM proceedings, pages not numbered)
- [6.c]* B. Maione and **D. Naso**, "Evolutionary learning agents for shop floor control," *IEEE Conference on Emerging Technologies in Factory Automation*, ETFA'99, Barcelona, Spain, 1999, pp. 893-899.
- [7.c]* B. Maione and **D. Naso**, "Multi-Agent adaptive dispatching for heterarchical manufacturing systems," *IFAC Workshop on Multi-Agent Systems in Production*, MAS'99, Vienna, Austria, 1999, pp. 13-18.
- [8.c]* M. Dotoli, G. Maione, **D. Naso**, and B. Turchiano, "Genetic identification of dynamical systems with static nonlinearities", *IEEE Mountain Workshop on Soft Computing in Industrial Applications*, SMCia/01, Blacksburg, Virginia, USA, 2001, pp. 65-70.
- [9.c]* G. Maione and **D. Naso**, "Modeling evolutionary supervisors for multi-agent manufacturing control with discrete event formalism," *IEEE Mountain Workshop on Soft Computing in Industrial Applications*, SMCia/01, Blacksburg, Virginia, USA, 2001, pp. 99-104.
- [10.c] D. de Blasiis, P. Sforza, V. Lombardo, **D. Naso**, P. Pantaleo, B. Turchiano, and L. Pezzati, "Electro-optical sensors integrated in arc welding workstation for process monitoring by means of fuzzy logic controller," *Annual Meeting of International Institute of Welding*, Ljubljana, Slovenia, 2001. (CDROM proceedings, pages not numbered)
- [11.c] G. Maione and **D. Naso**, "A discrete event formalism to model adaptive multi-agent systems," *IFAC Workshop on Manufacturing, Modeling, Management and Control*, MIM 2001, Prague, Czech Republic, 2001, pp. 98-104.
- [12.c] B. Maione, **D. Naso**, and B. Turchiano, "GARA: a genetic algorithm with resolution adaptation for solving system identification problems," *European Control Conference*, ECC 2007, Porto, Portugal, 2001, pp. 3570-3575. (CDROM proceedings)
- [13.c] D. de Blasiis, P. Sforza, V. Lombardo, **D. Naso**, P. Pantaleo, B. Turchiano, and L. Pezzati, "Integration of electro-optical sensors in arc welding workstation for process monitoring," *2nd International Conference on advanced Measurement Techniques and Sensory Systems for Automotive Applications*, Ancona, Italy, 2001. (CDROM proceedings, pages not numbered)
- [14.c]* **D. Naso** and G. Maione, "Recent developments in the application of computational intelligence to multi-agent manufacturing control", *10th IEEE International Conference on Fuzzy Systems*, Melbourne, Australia, 2001, pp. 990-994.
- [15.c]* M. Dotoli, B. Maione, **D. Naso**, and B. Turchiano, "Fuzzy sliding mode control for inverted pendulum swing-up with restricted travel," *10th IEEE International Conference on Fuzzy Systems*, Melbourne, Australia, 2001, pp. 753-756.
- [16.c] M. Dotoli, P. Lino, B. Maione, **D. Naso**, and B. Turchiano, "Genetic optimization of fuzzy sliding mode controllers: an experimental study," *4th Italian Workshop on Fuzzy Logic*, WILF 2001, Milan, Italy, 2001. (pages not numbered)
- [17.c]* F. Cupertino, **D. Naso**, B. Turchiano, and L. Salvatore, "Design of cascaded controllers for DC drives using evolutionary algorithms", *IEEE World Congress on Computational Intelligence*, Honolulu, Hawaii, 2002, pp. 1255-1260. (CDROM proceedings)
- [18.c] F. Cupertino, E. Mininno, **D. Naso**, B. Turchiano, and L. Salvatore, "On-line genetic optimization of unstructured controllers for electric drives," *IEEE International Symposium on Industrial Electronics*, L'Aquila, Italy, 2002, pp. 347-352.
- [19.c] G. Maione and **D. Naso**, "Adaptation of multi-agent manufacturing control by means of genetic algorithms and discrete event simulation," *IEEE International Conference on Systems, Man, and Cybernetics*, Hammamet, Tunisia, 2002, vol.4, pp. 529-534.

- [20.c] D. Bellomo, **D. Naso**, and B. Turchiano, "Improving genetic algorithms: an approach based on multi-elitism and lamarckian mutation," *IEEE International Conference on Systems, Man, and Cybernetics*, Hammamet, Tunisia, 2002, vol.4, pp. 89-94.
- [21.c] M. Dotoli, P. Lino, B. Maione, **D. Naso**, and B. Turchiano, "A tutorial on genetic optimization of fuzzy sliding mode controllers: swinging up an inverted pendulum with restricted travel," 2nd *European Symposium on Intelligent Technologies, Hybrid Systems and their implementation on Smart Adaptive Systems*, EUNITE 2002, Albufeira, Portugal, 2002. (CDROM proceedings)
- [22.c] G. Aurisicchio, **D. Naso**, A. Scalera, and B. Turchiano, "A fuzzy logic based filter for spike-noise detection in railways monitoring systems," *2003 IEEE International Workshop on Soft Computing in Industrial Applications*, Binghamton, New York, USA, 2003, pp. 85-89.
- [23.c]* **D. Naso** and B. Turchiano, "Adaptive fuzzy control of non-linear servo-drives," *European Symposium on Intelligent Technologies, Hybrid Systems and their implementation on Smart Adaptive Systems*, EUNITE 2003, Oulu, Finland, 2003, pp. 175-180.
- [24.c] F. Cupertino, V. Giordano, **D. Naso**, L. Salvatore, and B. Turchiano, "Genetic design of decentralized controllers for 5 DOF robotic manipulator," *IEEE International Symposium on Computational Intelligence in Robotics and Automation*, CIRA'03, Kobe, Japan, 2003, vol. 2, pp. 509-514.
- [25.c] F. Cupertino, V. Giordano, **D. Naso**, L. Salvatore, and B. Turchiano, "Optimization of fuzzy controllers for industrial manipulators via genetic algorithms," *29th Annual Conference of the IEEE Industrial Electronics Society*, IECON 03, Roanoke, Virginia, USA, 2003, vol. 1, pp. 460-465.
- [26.c] G. Maione and **D. Naso**, "Multi-agent fuzzy control of operation dispatching in flexible manufacturing environments," *9th IEEE International Conference on Emerging Technologies and Factory Automation*, ETFA2003, Lisbon, Portugal, 2003, vol. 2, pp. 755-760.
- [27.c] **D. Naso**, B. Turchiano, and P. Pantaleo, "Monitoring gas metal arc welding in real-time: a fuzzy logic approach," *9th IEEE International Conference on Emerging Technologies and Factory Automation*, ETFA2003, Lisbon, Portugal, 2003, vol. 2, pp. 769-784.
- [28.c] G. Maione and **D. Naso**, "New control policies preventing deadlock in automated manufacturing systems," *9th IEEE International Conference on Emerging Technologies and Factory Automation*, ETFA 2003, Lisbon, Portugal, 2003, vol. 2, pp. 81-86.
- [29.c] G. Maione and **D. Naso**, "A discrete-event system model for multi-agent control of automated manufacturing systems," *2003 IEEE International Conference on Systems, Man and Cybernetics*, Washington, D.C., USA, 2003, vol. 2, pp. 1723-1728.
- [30.c]* **D. Naso** and B. Turchiano, "An improved projection algorithm for direct adaptive fuzzy control," *2003 IEEE International Conference on Systems, Man and Cybernetics*, Washington, D.C., USA, 2003, vol. 3, pp. 2126-2131.
- [31.c]* C. Meloni, **D. Naso**, and B. Turchiano, "Multi-objective genetic algorithms for a class of sequencing problems in manufacturing environments", *2003 IEEE International Conference on Systems, Man & Cybernetics*, Washington, D.C., USA, 2003, vol. 1, pp. 8-13.
- [32.c] F. Cupertino, E. Mininno, D. Naso, B. Turchiano, and L. Salvatore, "On-line multi-objective optimization of controllers for electric drives", *2004 IEEE International Symposium on Industrial Electronics*, Ajaccio, France, 2004, vol. 2, pp. 1435-1439.
- [33.c] D. Bellomo, **D. Naso**, and R. Babuska, "Parameter convergence in adaptive fuzzy control," *First International Conference on Informatics in Control, Automation and Robotics*, ICINCO 2004, Setubal, Portugal, 2004, vol. 1, pp. 84-91.
- [34.c] G. Maione and **D. Naso**, "Using a discrete-event system formalism for the multi-agent control of manufacturing systems", *First International Conference on Informatics in Control, Automation and*

Robotics, ICINCO 2004, Setubal, Portugal, 2004, vol. 1, pp. 135-142. (**Note: this paper has been selected as one of the best papers of the conference**)

- [35.c] C. Bonserio, A. M. Losacco, **D. Naso**, F. Tedeschi, and B. Turchiano, "Controlling laser cleaning of artworks with LIBS-based feedback," *3rd International Conference on Laser Induced Plasma Spectroscopy and Applications*, LIBS 2004, Malaga, Spain, 2004.
- [36.c]* **D. Naso**, M. Surico, B. Turchiano, and U. Kaymak, "Just-in-time production and delivery in supply chains: a hybrid evolutionary approach," *2004 IEEE International Conference on Systems, Man & Cybernetics*, The Hague, Netherlands, 2004, pp. 1933-1937.
- [37.c]* F. Cupertino, V. Giordano, E. Mininno, **D. Naso**, and B. Turchiano, "A neural visual servoing in uncalibrated environments for robotic manipulators," *2004 IEEE International Conference on Systems, Man & Cybernetics*, The Hague, Netherlands, 2004, pp. 5362-5367.
- [38.c]* F. Cupertino, V. Giordano, **D. Naso**, and B. Turchiano, "A hybrid approach to adaptive fuzzy control based on genetic algorithms," *2004 IEEE International Conference on Systems, Man & Cybernetics*, The Hague, Netherlands, 2004, pp. 3687-3612.
- [39.c]* G. Maione and **D. Naso**, "Discrete-event modeling of heterarchical manufacturing control systems," *2004 IEEE International Conference on Systems, Man & Cybernetics*, The Hague, Netherlands, 2004, pp. 1783-1788.
- [40.c] D. Bellomo, **D. Naso**, R. Babuška, "Evaluation of adaptive fuzzy controllers: a real-world experiment," *IEEE Conference on Fuzzy Systems, FuzzIEEE 2005*, Reno, Nevada, USA, 2005, pp. 1074-1079.
- [41.c]* D. Bellomo, **D. Naso**, B. Turchiano, and R. Babuška, "Composite adaptive fuzzy control," *16th IFAC World Congress*, Prague, Czech Republic, 2005. (CDROM proceedings, pages not numbered)
- [42.c]* **D. Naso** and M. Surico, "Multi-objective evolutionary scheduling of distributed supply networks," *16th IFAC World Congress*, Prague, Czech Republic, 2005. (CDROM proceedings, pages not numbered)
- [43.c] C. A. Silva, J. M. Faria, P. Abrantes, J. M. C. Sousa, M. Surico, and **D. Naso**, "Concrete delivery using a combination of GA and ACO," *44th IEEE Conference on Decision and Control and European Control Conference, CDC-ECC'05*, 2005, pp. 7633-7638.
- [44.c] D. Bellomo, R. Babuška, and **D. Naso**, "Adaptive fuzzy control for speed-reference tracking in non-linear servo drives," *14th IFAC Symposium on System Identification*, Newcastle, Australia, 2006, pp. 1091-1096.
- [45.c] J. M. Faria, C. A. Silva, J. M. C. Sousa, and **D. Naso**, "Optimization of production–distribution systems: a study on the concrete delivery problem," *III European Conference on Computational Mechanics, Solids, Structures and Coupled Problems in Engineering, ECCM 2006*, Lisbon, Portugal, 2006, pp. 1-20.
- [46.c] D. Naso, M. Cavallo, A. Scalera, B. Turchiano, and G. Aurisicchio, "Impulsive noise in railway automated monitoring: a recursive filtering approach," *14th Mediterranean Conference on Control and Automation, MED'06*, Ancona, Italy, 2006, pp. 1-5.
- [47.c] F. Cupertino, E. Mininno, and **D. Naso**, "Elitist compact genetic algorithms for induction motor drive self-tuning control," *IEEE World Congress on Computational Intelligence*, Vancouver, Canada, 2006, pp. 3057-3063.
- [48.c] F. Cupertino, E. Mininno, **D. Naso**, and B. Turchiano, "An experimental implementation of SPSA algorithms for induction motor adaptive control," *2006 IEEE Mountain Workshop on Adaptive and Learning Systems, SMCals/06*, Logan, Utah, USA, 2006, pp. 66-71.

- [49.c] V. Giordano, J. B. Zhang, **D. Naso**, F. L. Lewis, A. Carbotti, and N. T. Jye, "A matrix-based framework for combined supervisory and operational control of an industrial warehouse," *IEEE Conference on Industrial Informatics*, INDIN 2006, Singapore, 2006, pp. 201-206.
- [50.c] F. Cupertino, E. Mininno, E. Lino, and **D. Naso**, "Optimization of position control of induction motors using compact genetic algorithms," *32nd Annual Conference of the IEEE Industrial Electronics Society*, IECON 2006, Paris, France, 2006, pp. 55-60.
- [51.c]* V. Giordano, J. B. Zhang, **D. Naso**, M. M. Wong, F. L. Lewis, and A. Carbotti, "Matrix-based discrete event control of automated material handling systems," *45th IEEE Conference on Decision and Control*, San Diego, California, USA, 2006, pp. 6074-6079.
- [52.c]* F. Cupertino, E. Mininno, and **D. Naso**, "A comparative analysis of SPSA algorithms for induction motor adaptive control," *IEEE International Electrical Machines and Drives Conference*, IEMDC 2007, Antalya, Turkey, 2007, pp. 1701-1706.
- [53.c]* F. Cupertino, E. Mininno, and **D. Naso**, "Compact genetic algorithms for the optimization of induction motor cascaded control," *IEEE International Electrical Machines and Drives Conference*, IEMDC 2007, Antalya, Turkey, 2007, pp. 82-87.
- [54.c] M. Surico, U. Kaymak, D. Naso, R. Dekker, "A bi-objective evolutionary approach to robust scheduling," *2007 IEEE International Conference on Fuzzy Systems*, FuzzIEEE 2007, London, UK, 2007, pp. 1-6.
- [55.c] F. Cupertino, E. Mininno, and **D. Naso**, "A comparison of SPSA and compact genetic algorithms for the optimization of induction motor position control," *12th European Conference on Power Electronics and Applications*, EPE 2007, Aalborg, Denmark, 2007, pp. 1-10.
- [56.c] F. Cupertino, E. Mininno, **D. Naso**, L. Salvatore and B. Turchiano, "Compact GAs for neural network online training in tubular linear motor control," *2007 IEEE Congress on Evolutionary Computation*, CEC'07, Singapore, 2007, pp. 1542-1547
- [57.c] T. van Tongeren, U. Kaymak, **D. Naso**, and E. van Asperen, "Q-learning in a competitive supply chain", *2007 IEEE Conference on Systems, Man, and Cybernetics*, SMC'07, Montreal, Canada, 2007, pp. 1211-1216.
- [58.c]* V. Schiraldi, V. Giordano, **D. Naso**, B. Turchiano, and F. L. Lewis, "Matrix-based scheduling and control of a mobile sensor network," *17th IFAC World Congress*, Seoul, Korea, 2008, pp. 10415-10420.
- [59.c] F. Cupertino, **D. Naso**, E. Mininno, and B. Turchiano, "Sliding mode control with double boundary layer for robust compensation of payload mass and friction in linear motors", *IEEE Industry Applications Society Annual Meeting*, IAS'08, Edmonton, Canada, 2008, pp. 1-8.
- [60.c] C. May, H. Janocha, E. Grasso, and **D. Naso**, "Ein Pendelaktor mit breitem Anwendungspotential," *VDE-Kongress 2008*, Munich, Germany, 2008. (in German)
- [61.c] D. Di Paola, **D. Naso**, A. Milella, G. Cicirelli, and A. Distanto, "Multi-sensor surveillance of indoor environments by an autonomous mobile robot," *15th International Conference on Mechatronics and Machine Vision in Practice*, M2VIP 2008, Auckland, New Zealand, 2008, pp. 23-28.
- [62.c]* **D. Naso**, F. Cupertino, and B. Turchiano, "Adaptive control with composite learning for tubular linear motors with micro-metric tolerances," *American Control Conference*, ACC'09, St. Louis, Missouri, USA, 2009, pp. 2952-2957.
- [63.c]* F. Cupertino, **D. Naso**, and B. Turchiano, "Precision motion control of tubular linear motors with neural networks and compact genetic algorithms," *2009 ASME/IEEE International Conference on Mechatronic and Embedded Systems and Applications*, MESA09, San Diego, California, USA, 2009, pp. 143-149.

- [64.c]* C. May, H. Janocha, E. Grasso, and **D. Naso**, "A pendulum actuator and its force generation capabilities," *2009 ASME/IEEE International Conference on Mechatronic and Embedded Systems and Applications*, MESA09, San Diego, California, USA, 2009, pp. 1769-1775.
- [65.c] **D. Naso**, F. Cupertino, D. Patrino, and B. Turchiano, "Micrometric control of a mechatronic linear servo system with NPID and adaptive approximation," *American Control Conference*, ACC 2010, Baltimore, Maryland, USA, 2010, pp. 2212-2217.
- [66.c] L. Riccardi, C. May, **D. Naso**, H. Janocha, and B. Turchiano, "Modelling, identification and control of a force generator for vibration attenuation," *IEEE International Symposium on Industrial Electronics*, Bari, Italy, 2010, pp. 3251-3256.
- [67.c] D. Di Paola, **D. Naso**, and B. Turchiano, "A heuristic approach to task assignment and control for robotic networks," *IEEE International Symposium on Industrial Electronics*, Bari, Italy, 2010, pp. 1784-1790.
- [68.c] L. Riccardi, **D. Naso**, G. Ciaccia, and H. Janocha, "Control of unconventional actuators - a case study: MSM actuator for position control," *Actuator 2010, 12th International Conference on New Actuators*, Bremen, Germany, 2010, pp. 754-757.
- [69.c]* L. Riccardi, G. Ciaccia, **D. Naso**, H. Janocha, and B. Turchiano, "Position control for a magnetic shape memory actuator," *5th IFAC Symposium on Mechatronic Systems*, Cambridge, Massachusetts, USA, 2010, pp. 478-485.
- [70.c]* F. Cupertino and **D. Naso**, "An experimental comparison of adaptive and robust control methods for precise positioning with tubular linear motors," *36th Annual Conference of the IEEE Industrial Electronics Society*, IECON 2010, Phoenix, Arizona, USA, 2010, pp.71-76.
- [71.c] A. Gasparri, D. Di Paola, G. Ulivi, **D. Naso**, and F. L. Lewis, "Decentralized task sequencing and multiple mission control for heterogeneous robotic networks," *2011 IEEE International Conference on Robotics and Automation*, ICRA 2011, Shanghai, Cina, 2011, pp. 4467-4473.
- [72.c] L. Riccardi, B. Holz, **D. Naso**, H. Janocha, M. Laufenberg, and E. Pagounis, "A simulation model for a MSM push-push actuator," *3rd International Conference on Ferromagnetic Shape Memory Alloys*, ICFMSMA 2011, Dresda, Germany, 2011.
- [73.c]* D. Di Paola, **D. Naso**, and B. Turchiano, "Consensus-based robust decentralized task assignment for heterogeneous robot networks," *2011 American Control Conference*, ACC 2011, San Francisco, California, USA, 2011, pp. 4711-4716.
- [74.c]* L. Riccardi, **D. Naso**, B. Turchiano, and H. Janocha, "Robust adaptive control of a magnetic shape memory actuator," *2011 American Control Conference*, ACC 2011, San Francisco, California, USA, 2011, pp. 5400-5405.
- [75.c] E. Grasso, C. May, H. Janocha, and **D. Naso**, "Reducing force harmonics from a pendulum actuator," *Smart Structures and Materials (V Eccomas Thematic Conference)*, Saarbrücken, Germany, 2011.
- [76.c] L. Riccardi, **D. Naso**, B. Turchiano, and H. Janocha, "Adaptive modified Prandtl-Ishlinskii model for compensation of hysteretic nonlinearities in magnetic shape memory actuators," *37th Annual Conference of the IEEE Industrial Electronics Society*, IECON 2011, Melbourne, Australia, 2011, pp. 15-20.
- [77.c]* A. Gasparri, D. Di Paola, A. Giua, G. Ulivi, and **D. Naso**, "Consensus-based decentralized supervision of petri nets," *IEEE Conference on Decision and Control and European Control Conference*, CDC-ECC 2011, Orlando, Florida, USA, 2011, pp. 1128-1135.
- [78.c]* L. Riccardi, **D. Naso**, B. Turchiano, and H. Janocha, "Adaptive approximation-based control of hysteretic unconventional actuators," *IEEE Conference on Decision and Control and European Control Conference*, CDC-ECC 2011, Orlando, Florida, USA, 2011, pp. 958-963.

- [79.c] L. Riccardi, M. Rosmarino, and **D. Naso**, "Position control with a magnetic shape memory (MSM) push-push actuator," *Actuator 12, International Conference and Exhibition on New Actuators and Drive Systems*, Bremen, Germany, 2012.
- [80.c] E. Grasso, N. Totaro, H. Janocha, and **D. Naso**, "Large signal piezoelectric self sensing technique for vibration control," *Actuator 12, International Conference and Exhibition on New Actuators and Drive Systems*, Bremen, Germany, 2012.
- [81.c]* L. Riccardi, **D. Naso**, B. Turchiano, H. Janocha, and D. K. Palagachev, "On PID control of dynamic systems with hysteresis using a Prandtl-Ishlinskii model," *2012 American Control Conference, ACC 2012*, Montreal, Canada, 2012, pp. 1670-1675.
- [82.c]* A. Gasparri, D. Di Paola, **D. Naso**, and F. L. Lewis, "Decentralized discrete-event modeling and control of task execution for robotic networks," *51st IEEE Conference on Decision and Control, CDC 2012*, Maui, Hawaii, 2012, pp. 7346-7351.
- [83.c]* L. Riccardi, **D. Naso**, B. Turchiano, H. Janocha, and K. Schlueter, "PID control of linear systems with an input hysteresis described by Prandtl-Ishlinskii models," *51st IEEE Conference on Decision and Control, CDC 2012*, Maui, Hawaii, 2012, pp. 5158-5163.
- [84.c] G. Binetti, **D. Naso**, and B. Turchiano, "Decentralized task allocation for heterogeneous agent systems with constraints on agent capacity and critical tasks," *IEEE International Conference on Robotics and Biomimetics, ROBIO 2012*, Guangzhou, Cina, 2012, pp. 1627-1632.
- [85.c] G. Rizzello, **D. Naso**, A. York, and S. Seelecke, "A nonlinear electro-mechanical model for an annular dielectric elastomer actuator with a biasing mass," *Mechatronik 2013*, Aachen, 2013.
- [86.c]* G. Binetti, M. I. Abouheaf, F. L. Lewis, **D. Naso**, A. Davoudi, and B. Turchiano, "Distributed solution for the economic dispatch problem," *21st Mediterranean Conference on Control and Automation, MED'13*, Chania, Greece, 2013, pp. 243-250.
- [87.c] G. Binetti, **D. Naso**, and B. Turchiano, "A decentralized allocation algorithm for distributed supply chains with critical tasks", *2013 IFAC Conference on Manufacturing Modelling, Management, and Control, MIM'13*, Saint Petersburg, Russia, 2013, pp. 192-197.
- [88.c] G. Rizzello, **D. Naso**, A. York, and S. Seelecke, "Modeling, experimental identification and position control of an annular dielectric elastomer actuator biased with a mass," *6th ECCOMAS Thematic Conference on Smart Structures and Materials, SMART 2013*, Turin, Italy, 2013, pp. 1-19.
- [89.c] G. Rizzello, **D. Naso**, A. York, and S. Seelecke, "Modeling and position control of an electromechanical actuator based on a mass-spring-biased EAP system," *18th IEEE International Conference on Emerging Technologies and Factory Automation, ETFA 2013*, 2013, Cagliari, Italy, pp. 1-8.
- [90.c]* L. Riccardi, **D. Naso**, B. Turchiano, and H. Janocha, "LMI-based design of linear controllers for a magnetic shape memory push-push actuator," *52nd IEEE Conference on Decision and Control, CDC 2013*, Florence, Italy, 2013, pp. 6634-66.9.
- [91.c] G. Rizzello, M. Hodgins, A. York, **D. Naso**, and S. Seelecke, "Modeling a bi-stable actuator system based on a dielectric electroactive polymer circular membrane," *Actuator 2014, International Conference and Exhibition on New Actuators and Drive Systems*, Bremen, Germany, 2014.
- [92.c] G. Binetti, **D. Naso**, B. Turchiano, A. Davoudi, and F. L. Lewis, "Consensus-based approach for the economic dispatch problem," *19th IFAC World Congress*, Cape Town, South Africa, 2014, pp. 3140-3145.
- [93.c] G. Rizzello, **D. Naso**, A. York, and S. Seelecke, "Model-based PID control of a dielectric electro-active polymer positioning system," *19th IFAC World Congress*, Cape Town, South Africa, 2014, pp. 10926-10933.

- [94.c] G. Rizzello, M. Hodgins, **D. Naso**, A. York, and S. Seelecke, "Dynamic electromechanical modeling of a spring-biased dielectric electroactive polymer actuator system," *ASME 2014 Conference on Smart Materials, Adaptive Structures and Intelligent Systems*, SMASIS 2014, Newport, Rhode Island, USA, 2014, pp. 1-10.
- [95.c] A. Altomare, A. Guagnano, F. Cupertino, and **D. Naso**, "Discrete-time control of high speed salient machines," *IEEE Energy Conversion Congress and Expo*, Pittsburgh, PA, USA, 2014.
- [96.c] L. Riccardi, G. Rizzello, **D. Naso**, E. Grasso, S. Seelecke, and H. Janocha, "Modeling and control of innovative smart materials and actuators: a tutorial", *IEEE Multi-Conference on Systems and Control: International Symposium on Intelligent Control*, MSC 2014, Antibes/Nice, France, 2014, pp. 1-12.

National Conference Papers

- [1.cn] D. de Blasiis, P. Sforza, V. Lombardo, **D. Naso**, P. Pantaleo, B. Turchiano, and L. Pezzati, "Sensore elettro-ottico integrato in stazioni di saldatura ad arco per il monitoraggio del processo a mezzo di un supervisore fuzzy," *Giornate Nazionali di Saldatura*, Milan, Italy, 2001. (CDROM proceedings, pages not numbered)
- [2.cn] C. Bonserio, A. M. Losacco, **D. Naso**, F. Tedeschi, and B. Turchiano, "Uno studio sul controllo spettroscopico della pulitura laser di un'opera d'arte," *IX Convegno della Associazione Italiana Intelligenza Artificiale*, 2004, Perugia, Italy. (CDROM proceedings, pages not numbered)

Laurea Thesis

- [1.t] "Fuzzy Logic and Control Systems: the stability of fuzzy control", Politecnico di Bari, July 1994 (in Italian).

Ph.D. Thesis

- [2.t] "Intelligent Techniques for Production Systems Control" Politecnico di Bari, April 1998 (in Italian).