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Vito Trianni

Personal Details

Nationality: Italian
Date of Birth: September 11th, 1976
Place of Birth: Casarano (LE) - ITALY
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Education and Research Experience

from 01/10/2010: **Researcher** at IRIDIA, Université Libre de Bruxelles, Bruxelles, Belgium

01/06/2007–30/09/2010: **Researcher** at the Institute of Cognitive Sciences and Technologies (ISTC-CNR), National Research Council, Rome, Italy

01/04/2005–31/05/2007: **Postdoc research fellow** at the Institute of Cognitive Sciences and Technologies (ISTC-CNR), National Research Council, Rome, Italy, under the supervision of Dr. S. Nolfi

01/10/2002–26/06/2006: **Ph.D. student** at the Applied Sciences Faculty, Université Libre de Bruxelles, Bruxelles, Belgium, under the supervision of Prof. M. Dorigo

01/10/2001–30/09/2002: **Research fellow** at IRIDIA, Université Libre de Bruxelles, Bruxelles, Belgium, within the *Marie Curie Early Stage Research Training* programme. Research theme: "Metamorphic Robotic Systems"

01/03/2001–30/09/2002: **Ph.D. student** in Computer Science Engineering at the Politecnico di Milano, Milan, Italy — Minor research theme and thesis on "Assembly-level Software Power Estimation". Work performed under the supervision of Ing. Carlo Brandolese and Prof. D. Sciuto — Major research theme started at the Laboratory of Artificial Intelligence and Robotics (AIRLab), under the supervision of Prof. A. Bonarini

15/09/2000–06/07/2001: **Master student** in Information Technology at CEFRIEL, Milan, Italy. Work performed at the Electronic Automation Area under the supervision of Prof. W. Fornaciari, Prof. F. Salice e Prof. D. Sciuto

05/01/1999–10/07/1999: **Student of the *Programme International*** at the École Polytechnique, Palaiseau, Paris, Majeure d'Informatique, stage d'option scientifique (thesis) at the Centre de Mathématiques Appliquées (CMAP) under the supervision of Prof. M. Schoenauer

15/09/1994–17/10/2000: **Student** at the Faculty of Computer Science Engineering, Politecnico di Milano, Milan, Italy. Thesis performed at the Laboratory of Artificial Intelligence and Robotics (AIRLab), under the supervision of Prof. A. Bonarini

other studies:
"Discrete Mathematics", Politecnico di Milano, (24h), 2001-2002
"Dynamic agencies", Politecnico di Milano (24h), 2001-2002
"Models and Logic in Computer Science", Politecnico di Milano (24h), 2001-2002
"Stochastic models for discrete systems, Politecnico di Milano (24h), 2001-2002
"Electronic Design Automation", CEFRIEL (40h), 2000-2001
"Advanced Transmission Systems", CEFRIEL (40h), 2000-2001
"Middleware & Security", CEFRIEL (40h), 2000-2001

Academic Qualifications

26/06/2006:	**Ph.D.** in Applied Sciences obtained at IRIDIA, Faculty of Applied Sciences, Université Libre de Bruxelles, Bruxelles, Belgium. Supervisor: Prof. Marco Dorigo. Thesis title: "On the Evolution of Self-Organising Behaviours in a Swarm of Autonomous Robots". Awarded with the "European Doctorate" label
02/07/2003:	**Diplôme d'Études Approfondies (DEA)** in Applied Sciences - Université Libre de Bruxelles, Bruxelles, Belgium. Thesis title: "Evolution of Coordinated Motion Behaviors in a Group of Self-Assembled Robots"
06/07/2001:	**Master Diploma** in Information Technology obtained at CEFRIEL, Milan, Italy, within the Electronic Design Automation area. Thesis title: "Assembly-level Software Power Estimation: a Methodology for Dynamic Effects Analysis". Mark: 100/100 cum Laude
17/10/2000:	**Laurea** in Computer Science Engineering obtained at the Politecnico di Milano, Milan, Italy. Thesis title: "Cooperazione e Comunicazione: Apprendimento di Comportamenti Cooperativi in Sistemi Multi-Agente" (in Italian). Mark: 100/100 cum Laude
10/07/1999:	**Diploma** of the Programme International obtained at the École Polytechnique, Palaiseau, Paris, France. Thesis title: "Robotique Évolutionnaire: Apprentissage d'un Contrôleur Neuronal pour le Khepera" (in French). Mark: Très Honorable

Teaching experience

15/03/2011–07/04/2011:	**Lecturer** within the course "New research trends in AI", Master II of Polytechnic, Universiteé Libre de Bruxelles
01/11/2009–30/01/2010:	**Tutor** of *Giuseppe Morlino*, Ph.D. student in Computer Science, Università di Roma "La Sapienza", within the project "Exploring the foundations of Swarm Cognition" financed by the Institute of Cognitive Sciences and Technologies (ISTC-CNR)
From 01/10/2006:	**Tutor** of *Valerio Sperati* within the PhD in Cognitive Psychology, Università di Roma "La Sapienza"
23/06/2008:	**Seminar** "A Dynamical Systems Approach to Behavioural Analysis" (4h) at the ISTC-CNR
01/09/2004–11/11/2008:	**Tutor** of *Christos Ampatzis* within the Ph.D. in Applied Sciences. Thesis title: "On the evolution of autonomous time-based decision-making and communication in collective robotics", Université Libre de Bruxelles
01/10/2004–01/03/2005:	**Lectures** on "Evolutionary Robotics" (12h) for the Ph.D. students in Applied Sciences at IRIDIA, Universitè Libre de Bruxelles
01/10/2004–01/03/2005:	**Lectures** on "Object-Oriented, parallel programming of multi-robot simulators" (12h) for the Ph.D. students in Applied Sciences at IRIDIA, Universitè Libre de Bruxelles
01/04/2005–31/09/2005:	**Tutor** of *Philippe Duchesne* within the DEA (Diplôme d'Études Approfondies) in Cognitive Sciences. Thesis title: "Évolution d'un comportement de synchronisation par des agents collaboratifs" (in French), Université Libre de Bruxelles
01/12/2004–31/05/2005:	**Tutor** of *David Tran Dinh Dũng* within the Master in Applied Sciences. Thesis title: "Simulation 3D d'un groupe de robots" (in French), Université Libre de Bruxelles
07/01/2004–30/09/2004:	**Tutor** of *Stefano Lanza* within the "Laurea" degree in Computer Science Engineering. Thesis title: "Active Vision in a Collective Robotics Domain", Politecnico di Milano
01/09/2001 – 31/10/2001:	**Lectures** in "C++ Programming", XIV Master in Information Technology, CEFRIEL
01/09/2001 – 20/12/2001:	**Lectures** in "Cultura Tecnologica del Progetto - Informatica" (Fundamentals in Computer Science), Industrial Design Faculty, Politecnico di Milano - Bovisa
Sept 1999 – July 2000:	**Tutoring** in Statistics and Computer Science at SPEU - Servizi Preparazione Esami Universitari, Milan, Italy

Talks, Keynotes and Tutorials

2010	**Seminar**: "Evolution, Self-Organisation and Swarm Robotics". ISTC-CNR, Rome, Italy, September 13th
-	**Talk**: "Re-Engineering Evolution: A Study In Self-Organising Synchronisation". *Artificial Life XII, Twelfth International Conference on the Synthesis and Simulation of Living Systems*. Odense, Denmark, August 21st
-	**Invited Talk**: "Evolution, Self-Organisation and Swarm Robotics". Dipartimento di Informatica e Sistemistica, Universitá di Roma "La Sapienza", Rome, Italy, May 27th
2009	**Talk**: "Swarm Cognition and Artificial Life". *The 10th European Conference on Artificial Life (ECAL'09)*. Budapest, Hungary, September 16h, 2009
-	**Keynote**: "Swarm Cognition and Artificial Life". *The Swarm Cognition Workshop, 31th International Meeting of the Cognitive Science Society (CogSci'09)*. Amsterdam, The Netherlands, July 29th, 2009
2008	**Keynote**: "Self-Organisation in Natural and Artificial Systems". *La Notte Bianca della Ricerca*. Istituto Superiore di Sanità, Rome, Italy, November 13th, 2008.
-	**Talk**: "Self-Organising Sync in a Robotic Swarm". *The 11th International Conference on Artificial Life (ALife XI)*. Winchester, UK, 5–8 August 2008
-	**Talk**: "Self-Organising Sync in a Robotic Swarm". *The 1st International Workshop on Non-Linear Dynamics and Synchronization (INDS-08)*. Klagenfurt, Austria, 18–19 July 2008
-	**Invited Talk**: "Self-Organising Sync in a Robotic Swarm. A Dynamical Systems View". *Embodied Cognition Symposium*. Maastricht, The Netherlands, June 25th, 2008
2007	**Invited Talk**: "Embodied Agent-Based Modelling". *From Data to Models Workshop*. ISTC-CNR, Rome, Italy, 11–12 October 2007
-	**Talk**: "From Solitary to Collective Behaviours: Decision Making and Cooperation". *The 9th European Conference on Artificial Life (ECAL 2007)*. Lisbon, Portugal, 10–14 September 2007
-	**Talk**: "Evolutionary Robotics for Self-Organising Behaviours". *Workshop Italiano di Vita Artificiale e Computazione Evolutiva (WIVACE-07)*. Sampieri (Ragusa), 5–7 September 2007
-	**Talk**: "Minimal communication strategies for self-organising synchronisation behaviours". *The 1st IEEE Symposium on Artificial Life*, Honolulu, Hawaii, 1–5 April 2007
2006	**Tutorial**: "On the Evolution of Self-Organising Behaviours in a Swarm of Autonomous Robots". *Ph.D. public defence tutorial and live robotic demonstration*. Univesité Libre de Bruxelles, Bruxelles, Belgium, June 26th, 2006
2004	**Talk**: "Evolution of direct communication for a swarm-bot performing hole avoidance". *The 4th International Workshop Ant Colony Optimization and Swarm Intelligence (ANTS 2004)*, Bruxelles, Belgium, 5–8 September 2004
-	**Talk**: "The SWARM-BOTS project". *The 1st International Workshop on Swarm Robotics, Simulation of Adaptive Behaviour Conference*, Santa Monica, CA, USA, July 17th, 2004
-	**Talk**: "Evolving functional self-assembling in a swarm of autonomous robots". *The 8th International Conference on Simulation of Adaptive Behaviour Conference (SAB-04)*, Santa Monica, CA, USA, 13–17 July 2004
-	**Talk**: "Hole avoidance: Experiments in coordinated motion on rough terrain". *The 8th International Conference on intelligence Autonomous Systems (IAS-8)*, Amsterdam, The Netherlands, 10–13 March 2005. Best Paper Award
2003	**Talk**: "Evolving aggregation behaviors in a swarm of robots". *The 7th European Conference on Artificial Life (ECAL 2003)*, Dortmund, Germany, 14–17 September 2003

Editorial and Organisational Activities

2010	*Guest Editor* of the Special Issue on Swarm Cognition for the journal Swarm Intelligence (volume 5, number 1, 2011), together with Dr. Elio Tuci and Prof. Kevin Passino.
01/10/2006–30/09/2010	**Principal scientific investigator**, responsible for the scientific and organisational activities of the ISTC-CNR within the IST-FET project "Swarmanoid"
20/06/2009–30/01/2010	**Principal investigator** within the ISTC founded project "Exploring the foundations of Swarm Cognition"
2009	**Workshop chair and organisation** - The Swarm Cognition Workshop, within the Annual Meeting of the Cognitive Science Society (CogSci 2009), June 29th, 2009, Amsterdam, The Netherlands
-	**Editor** for *Paladyn. Journal of Behavioral Robotics* published by Versita. Editor-in-chief: Raja Chatila, LAAS-CNRS, Toulouse Cedex, France
-	**Expert Referee** for the Belgian National Research Funds (*FNRS - Fonds National de la Recherche Scientifique*)
-	**Expert Referee** for the French National Research Agency (*ANR - Agence Nationale de la Recherche*).
	Reviewer for numerous international journals: IEEE Transactions on Systems, Man, and Cybernetics - B IEEE Transactions on Evolutionary Computation Swarm Intelligence Connection Science Autonomous Robots Cognitive Systems Research Robotics and Autonomous Systems Neural Computing & Applications IEEE Transactions of Neural Networks IEEE/ASME Transactions on Mechatronics Adaptive Behaviour Intelligent Service Robotics Scholarpedia

Committees

2011	**Program Committee Member** — European Conference on Artificial Life (ECAL'11), Paris, France, August 8–12, 2011
-	**Program Committee Member** — IEEE/RSJ International Conference on Intelligent Robots and Systems Conference (IROS'11), September 25–30, 2011 San Francisco, California
-	**Program Committee Member** — Genetic and Evolutionary Computation Conference (GECCO 2011), Dublin, Ireland, July 12–16, 2011
-	**Program Committee Member** — 4th Conference on Artificial General Intelligence (AGI-11), Mountain View, CA, August 3–6, 2011
-	**Program Committee Member** — 12th Conference Towards Autonomous Robotic Systems (TAROS 2011), Sheffield, UK, August 31–September 2, 2011
-	**Review Committee Member** — Special Issue on Complex Networks, Artificial Life Journal. Guest Editors: Dr. Mikhail Prokopenko and Dr. Carlos Gershenson
-	**Program Committee Member** — Genetic and Evolutionary Computation Conference (GECCO 2011), Dublin, Ireland, July 12–16 2011
-	**Program Committee Member** — IEEE Congress on Evolutionary Computation (IEEE CEC 2011), New Orleans, LA, June 5–8 2011

2010	**Program Committee Member** — 10th International Symposium on Distributed Autonomous Robotics Systems (DARS 2010), Lausanne, Switzerland, 1–3 November 2010
-	**Program Committee Member** — The International Conference on Evolutionary Computation (ICEC 2010), Valencia, Spain, 24–26 October 2010
-	**Program Committee Member** — Artificial Life XII, Twelfth International Conference on the Synthesis and Simulation of Living Systems (ALife XII), Odense, Denmark, 21 Agosto 2010
-	**Program Committee Member** — Seventh International Conference on Swarm Intelligence (ANTS 2010), Brussels, Belgium, 8–10 September 2010
-	**Program Committee Member** — 2010 IEEE World Congress on Conputational Intelligence (WCCI 2010) - IEEE Conference on Evolutionary Computation (IEEE CEC 2010), Barcelona, Spain, 18–23 July 2010
-	**Program Committee Member** — The Annual Meeting of the Cognitive Science Society (COGSCI 2010), Portland, Oregon, 11–14 August 2010
2009	**Program Committee Member** — the 9th International Conference on Autonomous Agents and Multiagent Systems (AAMAS-2010), 10–14 May 2010, Toronto, Canada
-	**Program Committee Member** — the ASME/IFToMM International Conference on Reconfigurable Mechanisms and Robots (ReMAR 2009) Kings College, 22–24 June 2009, London, UK
-	**Program Committee Member** — the IEEE Congress on Evolutionary Computation (CEC-2009), Special Session on Evolutionary Robotics, 18–21 May 2009, Trondheim, Norway
2008	**Program Committee Member** — the Sixth International Conference on Ant Colony Optimisation and Swarm Intelligence, (ANTS-2008), 22–24 September 2008, Brussels, Belgium
-	**Program Committee Member** — the Tenth International Conference On Simulation Of Adaptive Behavior (SAB-2008), 8–12 July 2008, Osaka, Japan
2007	**Program Committee Member** — the 2007 Genetic and Evolutionary Computation Conference (GECCO-2007), Ant Colony Optimization, Swarm Intelligence, and Artificial Immune Systems Track, 7–11 July 2007, London, England
2006	**Program Committee Member** — the Ninth International Conference on Simulation of Adaptive Behavior (SAB-2006), 25–29 September 2006, Rome, Italy
2005	**Program Committee Member** — the Tenth Online World Conference on Soft Computing n Industrial Applications (WSC-10), September 19th–October 7th, 2005

International Research Projects

SWARMANOID

"Swarmanoid: Towards Humanoid Robotic Swarms", STREP project founded by the Future and Emerging Technologies programme of the Information Society Technologies of the European Commission (IST-FET project, grant IST-022888)
Task: responsible of the scientific and organisational activities of the ISTC-CNR. Member of the scientific board. Coordinator of the activities of Workpackage 5 "Communication"
Description: The project aims at designing and prototyping an innovative distributed robotic system, composed of a swarm of heterogeneous robots able of coordination and cooperation
Years: 2006–2010
Project funding: 2.73M€(UE: 2.5M€).

ECAgents **Embodied and Communicating Agents**, IP research project founded by the Future and Emerging Technologies programme of the Information Society Technologies of the European Commission (IST-FET project, grant 001940)
Task: member of the scientific board (18 months)
Description: The project proposes visionary and high risk research targeted at providing better understanding of the role of communication in collections of embodied and situated agents using the methodological and theoretical tools of complex systems science and computer science.
Years: 2004–2008
Project founding: 7.12M€(UE: 4,3M€)

SWARM-BOTS **Swarms of self-assembling artefacts**, STREP project founded by the Future and Emerging Technologies programme of the Information Society Technologies of the European Commission (IST-FET project, grant IST-2000-31010)
Task: member of the scientific board (42 months). Responsible of the organisational activities at IRIDIA within the Workpackage 4 "Control"
Description: The SWARM-BOTS project is about the design and implementation of self-organising and self-assembling artefacts called swarm-bots. The approach is inspired by recent studies in swarm intelligence, that is, by studies of the self-organising and self-assembling capabilities shown by social insects and other animal societies.
Years: 2001–2005
Project founding: 2.17M€(UE: 1M€)

POET **Power Optimisation for Embedded SysTems**, research project founded by the Future and Emerging Technologies programme of the Information Society Technologies of the European Commission (IST-FET project, grant IST-2000-30125)
Task: technical consultant at CEFRIEL (9 months)
Description: The main objective of the POET project is to develop a new design methodology and tool suite for power estimation and optimisation in heterogeneous embedded SoC designs.
Years: 2001–2004
Project founding: 6.12M€(UE: 3.55M€)

Awards, Prizes and Fellowships

26/10/2010: **Best Student Paper Award** obtained for an paper in collaboration with Giuseppe Morlino and Elio Tuci, presented at the International Conference on Evolutionary Computation (ICEC 2010), Valencia, Spain, 24–26 October 2010

20/06/2009: **Founding for innovative projects** obtained from ISTC-CNR, Rome, Italy, within the internal call "Idee Nuove"

12/03/2004: **Best Paper Award** obtained at the 8th International Conference on Intelligent Autonomous Systems (IAS-8), Amsterdam, The Netherlands

01/10/2001–30/09/2002: **Fellowship** obtained within the *Marie Curie Early Stage Research Training* programme, at IRIDIA, Université Libre de Bruxelles, Belgium

016/09/2000–05/07/2001: **Fellowship** for the XIII Master in Information Technology obtained at CEFRIEL, Milan, Italy. (12900€ founded by Italtel)

01/01/1999–14/07/1999: **Fellowship** from the Erasmus Program of the European Community, in order to take part to the Programme International of the École Polytechnique, Palaiseau, Paris, France

Computer Skills and Competencies

CI. 1 Excellent knowledge of several programming languages (C/C++, JAVA, PHP)

CI. 2	Excellent knowledge of parallel programming libraries (PVM, MPI)
CI. 3	Excellent knowledge of libraries for rigid-body dynamics simulation (Vortex, ODE)
CI. 4	Good knowledge of modelling languages, database modelling and SQL query languages. Extensive use of the MySQL database management system for web applications
CI. 5	Excellent programming skills obtained developing various software packages, including multi-robot systems simulators (2D, 3D and hybrids), parallel evolutionary algorithms, dynamic web interfaces

Languages

Mother tongue: Italian

Other languages:

	Writing skills	**Reading skills**	**Verbal skills**
English	Excellent	Excellent	Excellent
French	Good	Excellent	Excellent

Publications

Books

B. 1 V. Trianni. *Evolutionary Swarm Robotics. Evolving Self-Organising Behaviours in Groups of Autonomous Robots*, volume 108 of *Studies in Computational Intelligence*. Springer Verlag, Berlin, Germany, 2008

International Journals

IJ. 1 V. Trianni and S. Nolfi. Engineering the evolution of self-organizing behaviors in swarm robotics: A case study. *Artificial Life*, 17(3):in press, 2011

IJ. 2 V. Sperati, V. Trianni, and S. Nolfi. Self-organised path formation in a swarm of robots. *Swarm Intelligence*, 5(2):97–119, 2011

IJ. 3 V. Trianni, E. Tuci, K. M. Passino, and J. A. R. Marshall. Swarm cognition: an interdisciplinary approach to the study of self-organising biological collectives. *Swarm Intelligence*, 5(1):3–18, 2011

IJ. 4 V. Trianni, E. Tuci, and K. M. Passino. Special issue on Swarm Cognition. *Swarm Intelligence*, 5(1):1–2, 2011

IJ. 5 V. Trianni and S. Nolfi. Self-organising sync in a robotic swarm. A dynamical system view. *IEEE Transactions on Evolutionary Computation*, 13(4):722–741, 2009 **ISI**

IJ. 6 C. Ampatzis, E. Tuci, V. Trianni, A. L. Christensen, and M. Dorigo. Evolving self-assembly in autonomous homogeneous robots: Experiments with two physical robots. *Artificial Life*, 15(4):465–484, 2009 **ISI**

IJ. 7 V. Sperati, V. Trianni, and S. Nolfi. Evolving coordinated group behaviours through maximization of mean mutual information. *Swarm Intelligence*, 2(2–4):73–95, 2008

IJ. 8 C. Ampatzis, E. Tuci, V. Trianni, and M. Dorigo. Evolution of signaling in a multi-robot system: Categorization and communication. *Adaptive Behaviour*, 16(1):5–26, 2008 **ISI**

IJ. 9 G. Baldassarre, V. Trianni, M. Bonani, F. Mondada, M. Dorigo, and S. Nolfi. Self-organised coordinated motion in groups of physically connected robots. *IEEE Transactions on Systems, Man and Cybernetics - Part B: Cybernetics*, 37(1):224–239, 2007 **ISI**

IJ. 10 V. Trianni and M. Dorigo. Self-organisation and communication in groups of simulated and physical robots. *Biological Cybernetics*, 95:213–231, 2006 **ISI**

IJ. 11 E. Tuci, R. Groß, V. Trianni, F. Mondada, M. Bonani, and M. Dorigo. Cooperation through self-assembling in multi-robot systems. *ACM Transactions on Autonomous and Adaptive Systems*, 1(2):115–150, 2006 **ISI**

IJ. 12 V. Trianni, S. Nolfi, and M. Dorigo. Cooperative hole avoidance in a *swarm-bot*. *Robotics and Autonomous Systems*, 54(2):97–103, 2006 **ISI**

IJ. 13 E. Tuci, V. Trianni, and M. Dorigo. 'Feeling' the flow of time through sensorymotor co-ordination. *Connection Science*, 16(4):301–324, 2004 **ISI**

IJ. 14 M. Dorigo, V. Trianni, E. Şahin, R. Groß, T. H. Labella, G. Baldassarre, S. Nolfi, J.-L. Deneubourg, F. Mondada, D. Floreano, and L. M. Gambardella. Evolving self-organizing behaviors for a swarm-bot. *Autonomous Robots*, 17(2–3):223–245, 2004 **ISI**

IJ. 15 A. Bonarini and V. Trianni. Learning fuzzy classifier systems for multi-agent coordination. *Information Science*, 136:215–239, 2001 **ISI**

Book Chapters

BC. 1 V. Trianni and S. Nolfi. Evolving collective control, cooperation and distributed cognition. In S. Kernbach, editor, *Handbook of Collective Robotics*. Pan Stanford Publishing, Singapore, 2011. To appear

BC. 2 V. Trianni, E. Tuci, C. Ampatzis, and M. Dorigo. Evolutionary swarm robotics: a theoretical and methodological itinerary from individual neuro-controllers to collective behaviours. In P. A. Vargas, E. Di Paolo, I. Harvey, and P. Husbands, editors, *The Horizons of Evolutionary Robotics*. MIT Press, Cambridge, MA, 2011. To appear

BC. 3 C. Ampatzis, E. Tuci, V. Trianni, and M. Dorigo. Evolution of signaling in a multi-robot system: Categorization and communication. In S. Nolfi and M. Mirolli, editors, *Evolution of Communication and Language in Embodied Agents*, pages 161–178. Springer Verlag, Berlin, Germany, 2010

BC. 4 V. Trianni, S. Nolfi, and M. Dorigo. Evolution, self-organisation and swarm robotics. In C. Blum and D. Merkle, editors, *Swarm Intelligence. Introduction and Applications*, Natural Computing Series, pages 163–192. Springer Verlag, Berlin, Germany, 2008 **ISI**

BC. 5 M. Dorigo, E. Tuci, V. Trianni, R. Groß, S. Nouyan, C. Ampatzis, T. H. Labella, R O'Grady, M. Bonani, and F. Mondada. SWARM-BOT: Design and implementation of colonies of self-assembling robots. In Gary Y. Yen and David B. Fogel, editors, *Computational Intelligence: Principles and Practice*, pages 103–135. IEEE Computational Intelligence Society, New York, NY, 2006

Peer-reviewed Conference Proceedings

CP. 1 G. Morlino, V. Trianni, and E. Tuci. Collective perception in a swarm of autonomous robots. In J. Filipe and J. Kacprzyk, editors, *Proceedings of the International Conference on Evolutionary Computation (ICEC 2010)*, pages 51–59, Valencia, Spain, 2010. SciTePress, Science and Technology Publications, INSTICC, Setubal, Portugal

CP. 2 V. Trianni and S. Nolfi. Re-engineering evolution: A study in self-organising synchronisation. In H. Fellermann, M. Dorr, M. Hanczyc, L. Ladegaard Laursen, S. Maurer, D. Merkle, P.-A. Monnard, K. Stoy, and S. Rasmussen, editors, *Artificial Life XII: Proceedings of the Twelfth International Conference on the Simulation and Synthesis of Living Systems*, pages 561–568. MIT Press, Cambridge, MA, 2010

CP. 3 V. Sperati, V. Trianni, and S. Nolfi. Evolution of self-organised path formation in a swarm of robots. In M. Dorigo, M. Birattari, G.A. Di Caro, R. Doursat, A.P. Engelbrecht, D. Floreano, L.M. Gambardella, R. Gross, E. cSahin, Th. St"utzle, and H. Sayama, editors, *Proceedings of the 7th International Conference on Swarm Intelligence (ANTS 2010)*, volume 6234 of *Lecture Notes in Computer Science*, pages 155–166. Springer Verlag, Berlin, Germany, 2010

CP. 4 V. Trianni and E. Tuci. Swarm Cognition and Artificial Life. In *Advances in Artificial Life. Proceedings of the 10th European Conference on Artificial Life (ECAL 2009)*, 2009

CP. 5 C. Ampatzis, F. Santos, V. Trianni, and E. Tuci. To grip or not to grip? Evolving role allocation and internal conflict in autonomous robots. In *Advances in Artificial Life. Proceedings of the 10th European Conference on Artificial Life (ECAL 2009)*, 2009

CP. 6 V. Trianni and S. Nolfi. Self-organising synchronisation in a robotic swarm (abstract). In S. Bullock, J. Noble, R. Watson, and M. A. Bedau, editors, *Artificial Life XI: Proceedings of the Eleventh International Conference on the Simulation and Synthesis of Living Systems*, page 810. MIT Press, Cambridge, MA, 2008

CP. 7 E. Tuci, C. Ampatzis, V. Trianni, A. Christensen, and M. Dorigo. Self-assembly in physical autonomous robots: the evolutionary robotics approach. In S. Bullock, J. Noble, R. Watson, and M. A. Bedau, editors, *Artificial Life XI: Proceedings of the Eleventh International Conference on the Simulation and Synthesis of Living Systems*, pages 616–623. MIT Press, Cambridge, MA, 2008

CP. 8 V. Trianni and S. Nolfi. Self-organising sync in a robotic swarm. In K. Kyamakya, editor, *Proceedings of the First International Workshop on Non-Linear Dynamics and Synchronization, (INDS08)*, pages 104–111. Shaker Verlag, Aachen, Germany, 2008

CP. 9 V. Trianni, C. Ampatzis, A. L. Christensen, E. Tuci, M. Dorigo, and S. Nolfi. From solitary to collective behaviours: Decision making and cooperation. In F. Almeida e Costa et al., editor, *Advances in Artificial Life. Proceedings of the 9th European Conference on Artificial Life (ECAL 2007)*, volume 4648 of *Lecture Notes in Artificial Intelligence*, pages 575–584. Springer Verlag, Berlin, Germany, 2007

CP. 10 V. Trianni and S. Nolfi. Minimal communication strategies for self-organising synchronisation behaviours. In *Proceedings of the 2007 IEEE Symposium on Artificial Life (WCCI-ALife 2007)*, pages 199–206. IEEE Press, Piscataway, NJ, 2007

CP. 11 C. Ampatzis, E. Tuci, V. Trianni, and M. Dorigo. Evolution of signalling in a group of robots controlled by dynamic neural networks. In E. Şahin and W. M. Spears, editors, *Swarm Robotics, Second International Workshop, SAB 2006, Rome, Italy, September 30-October 1, 2006, Revised Selected Papers*, volume 4433 of *Lecture Notes in Computer Science*, pages 173–188. Springer Verlag, Berlin, Germany, 2007

CP. 12 V. Trianni and M. Dorigo. Emergent collective decisions in a swarm of robots. In P. Arabshahi and A. Martinoli, editors, *Proceedings of the 2005 IEEE International Symposium on Swarm Intelligence (SIS 2005)*, pages 241–248. IEEE Press, Piscataway, NJ, 2005

CP. 13 C. Ampatzis, E. Tuci, V. Trianni, and M. Dorigo. Evolving communicating agents that integrate information over time: a real robot experiment. In E.-G. Talbi, P. Liardet, P. Collet, E. Lutton, and M. Schoenauer, editors, *Proceedings of the Seventh International Conference on Artificial Evolution, (EA 2005)*, 2005

CP. 14 M. Dorigo, E. Tuci, R. Groß, V. Trianni, T. H. Labella, S. Nouyan, C. Ampatzis, J.-L. Deneubourg, G. Baldassarre, S. Nolfi, F. Mondada, D. Floreano, and L. M. Gambardella. The SWARM-BOTS project. In E. Şahin and W. M. Spears, editors, *Swarm Robotics – SAB 2004 International Workshop, Santa Monica, CA, USA, July 17, 2004, Revised Selected Papers*, volume 3342 of *Lecture Notes in Computer Science*, pages 31–44. Springer Verlag, Berlin, Germany, 2005 **ISI**

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