Daniele Loiacono

Name	Daniele Loiacono
Date of birth	September 20, 1980
Citizenship	Italian
Address	Via Cassinari 22 20138, Milano
Email	daniele.loiacono@polimi.it
Web page	http://home.deib.polimi.it/loiacono/

Highlights (2013-present)

- **Guest Editor** of *Genetic Programming and Evolvable Machines* (Springer) in 2014
- **Tutorial** *Computational Intelligence in Games* given at GECCO 2013
- **Competitions Chair** of GECCO 2013
- **Track Chair** of GECCO 2016 and GECCO 2017
- Member of the **Games Technical Committee** (GTC) of the **Computational Intelligence Society** (IEEE-CIS) since 2017
- 60 peer-reviewed publications [since 2013: 12 publications, including 4 journal articles and one contribution to international books]
- h-index=21 and 1360+ citations [since 2013: h-index=16 and 740+ citations] (source: Google Scholar)

Position and Education

Record of Employment

Dec. 2011 – present

Assistant professor at the Department of Electronics and Information of the Politecnico di Milano.

Mar. 2008 – Nov. 2011

Postdoc researcher at the Department of Electronics and Information of the Politecnico di Milano.

Mar. 2005 – Feb. 2008

Ph.D. student in Information Technology at Politecnico di Milano.

Education

- Ph.D. in Information Technology at Politecnico di Milano. 2008.
  (Title: *Rule-Based Evolutionary Systems for Generalized Reinforcement Learning*, Advisor: *P.L. Lanzi*, Reviewer: *L. Bull*)
- M.Sc. in Computer Science and Engineering. Dec. 2004. Grade: 100/100 cum laude.
  (Thesis title: *Evolving Rules with XCSF: Analysis of Generalization and Performance*, Advisor *P.L. Lanzi*)
- Scientific high school diploma from L.S.S. Einstein. 1999. Grade: 98/100.

Awards

AW.1. Best Paper Candidate "Interactive evolution for the procedural generation of tracks in a high-end racing game." [IC.11] *Proceedings of the 13th annual conference on Genetic and evolutionary computation (GECCO '11), pages 395–402, New York, NY, USA, 2011.*

AW.2. Best Paper Candidate "Overtaking Opponents with Blocking Strategies Using Fuzzy Logic." [IC.14] *Proceedings of the 2010 IEEE Conference on Computational Intelligence and Games (CIG'10)*, pages 123–130, Copenhagen, Denmark, 2010.

AW.3. Winner of the competition "Evolving Trading Rules" at the ACM Genetic and Evolutionary Computation Conference (GECCO), 2007

AW.4. Best Paper Award "Classifier prediction based on tile coding", [IC.32] *GECCO '06: Proceedings of the 8th annual Conference on Genetic and Evolutionary Computation*, pages 1497–1504, New York, NY, USA, 2006. ACM Press.

AW.5. Award for the best M.Sc. thesis in the Artificial Intelligence field. Italian Association for Artificial Intelligence (AIXIA), 2005.

Teaching activity

2016-2017

Fondamenti di Informatica (*Lecturer*) - Electronic Engineering - Undergraduate level.

Informatica B (*Lecturer*) - Mechanical and Energy Engineering - Undergraduate level.

Videogame Design and Programming (*Teaching assistant*) - Computer Science and Engineering - Graduate level.

2015-2016

Fondamenti di Informatica (*Lecturer*) - Electronic Engineering - Undergraduate level.

Informatica B (*Lecturer*) - Mechanical and Energy Engineering - Undergraduate level.

Videogame Design and Programming (*Teaching assistant*) - Computer Science and Engineering - Graduate level.

2014-2015

Informatica B (*Lecturer*) - Mechanical and Energy Engineering - Undergraduate level.

Videogame Design and Programming (*Teaching assistant*) - Computer Science and Engineering - Graduate level.

2013-2014

Informatica B (*Lecturer*) - Mechanical and Energy Engineering - Undergraduate level.

Videogame Design and Programming (*Teaching assistant*) - Computer Science and Engineering - Graduate level.

2012-2013

Informatica B (*Lecturer*) - Mechanical and Energy Engineering - Undergraduate level.

Videogame Design and Programming (*Teaching assistant*) - Computer Science and Engineering - Graduate level.

Algoritmi e Calcolo Parallelo (*Teaching assistant*) - Mathematical Engineering - Graduate level.

Data Mining and Text Mining (*Teaching assistant*) - Computer Science and Engineering - Graduate level.

2011-2012

Informatica B (*Lecturer*) - Mechanical and Energy Engineering - Undergraduate level.

Videogame Design and Programming (*Teaching assistant*) - Computer Science and Engineering - Graduate level.

Algoritmi e Calcolo Parallelo (*Teaching assistant*) - Mathematical Engineering - Graduate level.

2010-2011

Informatica B (*Lecturer*) - Mechanical and Energy Engineering - Undergraduate level.

Videogame Design and Programming (*Teaching assistant*) - Computer Science and Engineering - Graduate level.

Algoritmi e Calcolo Parallelo (*Teaching assistant*) - Mathematical Engineering - Graduate level.

Data Mining and Text Mining (*Teaching assistant*) - Computer Science and Engineering - Graduate level.

2009-2010

Informatica B (*Lecturer*) - Mechanical and Energy Engineering - Undergraduate level.

Data Mining and Text Mining (*Teaching assistant*) - Computer Science and Engineering - Graduate level.

Informatica B [C.I.] (*Teaching assistant*) - Mathematical Engineering - Undergraduate level.

2008-2009

Informatica B (*Lecturer*) - Mechanical and Energy Engineering - Undergraduate level.

Data Mining and Text Mining (*Teaching assistant*) - Computer Science and Engineering - Graduate level.

Algoritmi e Strutture Dati (*Teaching assistant*) - Mathematical Engineering - Undergraduate level.

Algoritmi e Strutture Dati (*Lab supervisor*) - Mathematical Engineering - Undergraduate level.

2007-2008

Data Mining and Text Mining (*Teaching assistant*) - Computer Science and Engineering - Graduate level.

Informatica 3 (*Teaching assistant*) - Computer Science and Engineering - Undergraduate level.

Informatica 2 (*Lab supervisor*) - Computer Science and Engineering - Undergraduate level.

Informatica B (*Lab supervisor*) - Mechanical and Energy Engineering - Undergraduate level.

2006-2007

Informatica 3 (*Teaching assistant*) - Computer Science and Engineering - Undergraduate level.

2005-2006

Informatica 2 (*Teaching assistant*) - Telecommunications Engineering - Undergraduate level.

Informatica 2 (*Lab supervisor*) - Telecommunications Engineering - Undergraduate level.

Informatica B (*Lab supervisor*) - Mechanical and Energy Engineering - Undergraduate level.

2004-2005

Informatica 3 (*Teaching assistant*) - Computer Science and Engineering - Undergraduate level.

Professional Activities

National and International Research Projects

Daniele Loiacono contributed actively in the following research projects:

- *Promuovi Italia*, research agreement between Politecnico di Milano and ministero dello sviluppo economico (local project leader: prof. P.L. Lanzi)
- *Drivaware*, research agreement between Politecnico di Milano and RDE Company s.r.l. (local project leader: prof. P.L. Lanzi)
- *hArtes*, European Project (local project leader: prof. D. Sciuto)

Editorial Boards

Daniele Loiacono has been guest editor of the following special issues:

- Special issue on "Advances in Learning Classifier Systems". *Evolutionary Intelligence, 5(2), June 2012*.
- Special issue on "GECCO 2013 Competitions". *Genetic Programming and Evolvable Machines, 15(4), December 2014*.

CONFERENCE ORGANIZATION

- "Digital Entertainment Technologies and Arts (DETA)" **Track Chair** for ACM Genetic and Evolutionary Computation Conference (GECCO), 2017.
- "Digital Entertainment Technologies and Arts (DETA)" **Track Chair** for ACM Genetic and Evolutionary Computation Conference (GECCO), 2016.
- **Competitions Chair** for the ACM Genetic and Evolutionary Computation Conference (GECCO), 2013.
- **Competitions Chair** for the ACM Genetic and Evolutionary Computation Conference (GECCO), 2012.
- **Chair** of the International Workshop on Learning Classifier Systems (IWLCS), 2012
- **Chair** of the International Workshop on Learning Classifier Systems (IWLCS), 2011
- **Local Chair** for the IEEE Conference on Computational Intelligence and Games (CIG), 2009.

ORGANIZATION COMMITTEES

- Organizer of the special session on "Car Racing Games" at the IEEE Conference on Computational Intelligence and Games (CIG), 2010.
- Organizer of the special session on "Computational Intelligence and Games" at the IEEE Congress on Evolutionary Computation (CEC), 2009.
- Organizer of the "Visualising Evolution Competition" at the ACM Genetic and Evolutionary Computation Conference (GECCO), 2012.
- Organizer of the "EvoRobocode Competition" at the ACM Genetic and Evolutionary Computation Conference (GECCO), 2012–2013
- Organizer of the "GPUs for Genetic and Evolutionary Computation Competition" at the ACM Genetic and Evolutionary Computation Conference (GECCO), 2013
- Organizer of the "Simulated Car Racing Competition" at the ACM Genetic and Evolutionary Computation Conference (GECCO), 2009–2013 & 2015
- Organizer of the "Simulated Car Racing Competition" at the IEEE Congress on Evolutionary Computation (CEC), 2008–2010
- Organizer of the "Simulated Car Racing Competition" at the IEEE Conference on Computational Intelligence and Games (CIG), 2008–2012
- Organizer of the "Simulated Car Racing Competition" at EvoStar (Evo*), 2011–2012
- Organizer of the "Car Setup Optimization Contest" at EvoStar (Evo*), 2010.

STEERING COMMITTEES

Daniele Loiacono is member of the **Games Technical Committee** (GTC) of the **Computational Intelligence Society** (IEEE-CIS) since 2017.

PROGRAM COMMITTEE MEMBERSHIP

Daniele Loiacono was a member of the Program Committee of the following conferences:

- ACM Genetic and Evolutionary Computation Conference (GECCO), 2007 – present.
- IEEE Congress on Evolutionary Computation (CEC), 2009 – present.
- IEEE Conference on Computational Intelligence and Games (CIG), 2009 – present.
- International Conference on Parallel Problem Solving From Nature (PPSN), 2012 - present.
- International Workshop on Learning Classifier Systems (IWLCS), 2009 – present.
- IEEE International Conference on Fuzzy Systems (FUZZ-IEEE), 2010.
- International Conference on Evolutionary Computation (ICEC), 2009.

REFEREE SERVICES

Daniele Loiacono is a reviewer for the following conferences/journals:

- Transactions on Evolutionary Computation (TEC), IEEE.
- Transactions on Computational Intelligence and AI in Games (TCIAIG), IEEE.
- Genetic Programming and Evolvable Machines (GPEM), Springer.
- Evolutionary Computation Journal (ECJ), MIT Press.
- Information Sciences (INS), Elsevier.
- Engineering Computations, Emerald.
- Conference on Computational Intelligence and Games (CIG).
- International Conference on Artificial Neural Networks (ICANN)
- IEEE Congress on Evolutionary Computation (CEC).
- Genetic and Evolutionary Computation Conference (GECCO).
- International Workshop on Learning Classifier Systems (IWLCS).
- Italian Workshop on Evolutionary Computation (GSICE).

Talks and Tutorials

INVITED TALKS

- "Evolving Rules with XCSF: Analysis of Generalization and Performance" at the Congress of the Italian Association for Artificial Intelligence, 2005.
- "Learning, evolution and adaptation in racing games" at the 9th ACM Conference on Computing Frontiers, 2012.

TUTORIALS

- "Computational Intelligence in Games" at the the ACM Genetic and Evolutionary Computation Conference (GECCO), 2012
- "Computational Intelligence in Games" at the the ACM Genetic and Evolutionary Computation Conference (GECCO), 2013

TALKS AT INTERNATIONAL CONFERENCES AND WORKSHOPS

So far, Daniele Loiacono has given more than 30 talks at International Conference and Workshops presenting his works.

Research interests

GENETICS-BASED MACHINE LEARNING

Genetics-Based Machine Learning (GBML) is a machine learning paradigm introduced by Holland in 1976 based on evolutionary computation. In this paradigm, the learning is viewed as a process of ongoing adaptation to an unknown environment which provides feedback in terms of numerical reward. The incoming reward is then used to guide the evolution of a population of condition-action-prediction rules, called classifiers, which represents the solution to the target problem. Each classifier represents a small piece of the overall solution: the condition identifies a problem subspace; the action represents a decision to take in the problem subspace identified by the classifier condition; the prediction estimates how valuable the classifier is in terms of problem solution.
My research in this area focused mainly on the following topics:

- theoretical analysis of the GBML systems [JR.9], [IB.6], [IC.31], [IC.29], [IC.22]
- design and extension of the classifier prediction model [IB.3], [IC.37], [IC.36], [IC.35], [IC.34], [IC.33], [IC.27], [IC.25]
- adapting the classifier prediction model to the problem [JR.3], [IB.7], [IB.5], [IC.32], [IC.31], [IC.28], [IC.26]
- GBML systems applied to the design space exploration of embedded systems [IB.4], [IC.24], [IC.23]
- implementation of GBML systems on GPUs [IB.2]

COMPUTATIONAL INTELLIGENCE AND GAMES

The Electronic Entertainment industry grew very fast and attracted a lot of researchers in the recent years. In this area, my research interests are articulated in two main directions: *video games as testbed for Computational Intelligence (CI) methods* and the *automatic game content generation*.

Video Game as Testbed for CI. Modern video games are at the same time a fascinating application domain and an ideal testbed for the CI methods. My main contribution in this area is the design and the organization of the Simulated Car Racing Competition [JR.7], [IC.21], a scientific competition where the goal is developing (by means of a CI approach) a controller for The Open Racing Car Simulator (TORCS), an open-source racing game. So far, the Simulated Car Racing has been used as *research platform* in approximately 20 published works (in proceedings of international conferences as well in international journals) in the game research community.

Automatic Game Content Generation. During the development of a modern game a major part of the available resources is used to create the game content, such as the game mechanics, the environments and the characters. In order to develop ground-breaking new games, the industry is in need of reliable and effective tools for creating contents capable of engaging the customers. Moreover, the broadening of the customer base poses new additional challenges to the game industry and demands and for individualization to the abilities and needs of the single customer. In this scenario, my research interests involve the application of CI methods (i) to develop characters at the same time challenging and believable [IC.19], [IC.18], [IC.16], [IC.15], [IC.14], (ii) to enable learning and adaptivity in games [JR.6], [IC.20], [IC.17], and (iii) to generate game content, that is both innovative and entertaining [JR.2], [JR.5], [IC.13], [IC.5], [IC.2], [IC.1].

Complete publication list

PUBLICATION LIST

REFEREED INTERNATIONAL JOURNALS

JR.1. DANIELE LOIACONO, Luca Arnaboldi. Multi-Objective Evolutionary Map Design for Cube 2: Sauerbraten. *IEEE Transactions on Games*, to appear.

JR.2. Luigi Cardamone, Pier Luca Lanzi, DANIELE LOIACONO. TrackGen: An interactive track generator for TORCS and Speed-Dreams. *Applied Soft Computing*, 28: 550–558, 2015.
[doi: https://doi.org/10.1016/j.asoc.2014.11.010]

JR.3. Pier Luca Lanzi, DANIELE LOIACONO. XCSF with tile coding in discontinuous action-value landscapes. *Evolutionary Intelligence*, 8(2-3): 117–132, 2015.
[doi: http://doi.org/10.1007/s12065-015-0129-7]

JR.4. Luigi Cardamone, Pier Luca Lanzi, DANIELE LOIACONO, Enrique Onieva. Advanced overtaking behaviors for blocking opponents in racing games using a fuzzy architecture. *Expert Systems with Applications*, 40(16): 447 –6458, 2013
[doi: http://dx.doi.org/10.1016/j.eswa.2013.04.030]

JR.5. DANIELE LOIACONO, Luigi Cardamone, Pier Luca Lanzi. Automatic Track Generation for High-End Racing Games Using Evolutionary Computation. *Computational Intelligence and AI in Games, IEEE Transactions on*, 3(3):245 –259, sep. 2011.
[doi: http://dx.doi.org/10.1109/TCIAIG.2011.2163692]

JR.6. Luigi Cardamone, DANIELE LOIACONO, Pier Luca Lanzi. Learning to Drive in the Open Racing Car Simulator Using Online Neuroevolution. *Computational Intelligence and AI in Games, IEEE Transactions on*, 2(3):176 –190, sep. 2010.
[doi: http://dx.doi.org/10.1109/TCIAIG.2010.2052102]

JR.7. DANIELE LOIACONO, Pier Luca Lanzi, Julian Togelius, Enrique Onieva, David A. Pelta, Martin V. Butz, Thies D. Lonneker, Luigi Cardamone, Diego Perez, Yago Saez, Mike Preuss and Jan Quadflieg. The 2009 Simulated Car Racing Championship *Computational Intelligence and AI in Games, IEEE Transactions on*, 2(2):131 –147, jun. 2010.
[doi: http://dx.doi.org/10.1109/TCIAIG.2010.2050590]

JR.8. Fabio Dercole, DANIELE LOIACONO, and Sergio Rinaldi. Synchronization in ecological networks: A byproduct of Darwinian evolution? *International Journal of Bifurcation and Chaos*, 17(7):2435 – 2446, 2007.
[doi: http://dx.doi.org/10.1142/S0218127407018506]

JR.9. Pier Luca Lanzi, DANIELE LOIACONO, Stewart W. Wilson, and David E. Goldberg. Generalization in the XCSF classifier system: Analysis, improvement, and extension. *Evolutionary Computation*, 15(2):133–168, 2007.
[doi: http://dx.doi.org/10.1162/evco.2007.15.2.133]

EDITORIAL CONTRIBUTIONS

ED.1. DANIELE LOIACONO, Moshe Sipper. Special issue on GECCO competitions. *Genetic Programming and Evolvable Machines*, 15(4): 375–377, 2014.
[doi: http://doi.org/10.1007/s10710-014-9226-0]

ED.2. DANIELE LOIACONO, Albert Orriols-Puig, Ryan J. Urbanowicz. Special issue on advances in learning classifier systems. *Evolutionary Intelligence*, 5(2): 57-58, June 2012.
[doi: http://dx.doi.org/10.1007/s12065-012-0081-8]

REFEREED CHAPTERS IN INTERNATIONAL BOOKS

IB.1. G. N. Yannakakis, P. Spronck, DANIELE LOIACONO and E. Andre. Player Modeling. In Simon M. Lucas, Michael Mateas, Mike Preuss, Pieter Spronck, and Julian Togelius, editors, *Artificial and Computational Intelligence in Games*, volume 6 of *Dagstuhl Follow-Ups*, pages 45–59. Schloss Dagstuhl–Leibniz-Zentrum fuer Informatik, Dagstuhl, Germany, 2013.

[doi: http://dx.doi.org/10.4230/DFU.Vol6.12191.45]

IB.2. Pier Luca Lanzi and DANIELE LOIACONO. Speeding Up Matching in Learning Classifier Systems using CUDA. In *A Compilation of two exciting workshop years - IWLCS 2008/2009*, J. Bacardit et al. (Eds.), LNAI 6471, pages 1–20. Springer, 2010.

[doi: http://dx.doi.org/10.1007/978-3-642-17508-4_1]

IB.3. DANIELE LOIACONO and Pier Luca Lanzi. Recursive Least Squares and Quadratic Prediction in Continuous Multi-step Problems. In *A Compilation of two exciting workshop years - IWLCS 2008/2009*, J. Bacardit et al. (Eds.), LNAI 6471, pages 70–86. Springer, 2010.

[doi: http://dx.doi.org/10.1007/978-3-642-17508-4_6]

IB.4. Christian Pilato, DANIELE LOIACONO, Antonino Tumeo, Fabrizio Ferrandi, Pier Luca Lanzi and Donatella Sciuto. Speeding-Up Expensive Evaluations in High-Level Synthesis Using Solution Modeling and Fitness Inheritance, In *Computational Intelligence in Expensive Optimization Problems.* Y. Tenne and C.-K. Goh (Eds.), Springer, February 2010, pp. 701-723.

[doi: http://dx.doi.org/10.1007/978-3-642-10701-6]

IB.5. DANIELE LOIACONO and Pier Luca Lanzi. Tile coding based on hyperplane tiles. In *Recent Advances in Reinforcement Learning, 8th European Workshop, EWRL 2008, Villeneuve d'Ascq, France, June 30 - July 3, 2008, Revised and Selected Papers*, volume 5323 of *Lecture Notes in Computer Science*, pages 179–190. Springer, 2008.

[doi: http://dx.doi.org/10.1007/978-3-540-89722-4_14]

IB.6. DANIELE LOIACONO, Jan Drugowitsch, Alwyn Barry, and Pier Luca Lanzi. Analysis and improvements of the classifier error estimate in XCSF. In *Learning Classifier Systems, 10th International Workshop, IWLCS 2006, Seattle, MA, USA, July 8, 2006 and 11th International Workshop, IWLCS 2007, London, UK, July 8, 2007, Revised Selected Papers*, volume 4998 of *Lecture Notes in Computer Science*, pages 117–135. Springer, 2008.

[doi: http://dx.doi.org/10.1007/978-3-540-88138-4_7]

IB.7. Pier Luca Lanzi, DANIELE LOIACONO, and Matteo Zanini. Evolving classifiers ensembles with heterogeneous predictors. In *Learning Classifier Systems, 10th International Workshop, IWLCS 2006, Seattle, MA, USA, July 8, 2006 and 11th International Workshop, IWLCS 2007, London, UK, July 8, 2007, Revised Selected Papers*, volume 4998 of *Lecture Notes in Computer Science*, pages 218–234. Springer, 2008.

[doi: http://dx.doi.org/10.1007/978-3-540-88138-4_13]

REFEREED INTERNATIONAL CONFERENCES

IC.1. DANIELE LOIACONO, Luca Arnaboldi. Fight or Flight: Evolving Maps for Cube 2 to Foster a Fleeing Behavior. In *Proceedings of Computational Intelligence and Games (CIG)*, 2017, pages 199 – 206.

[doi: http://doi.org/10.1109/CIG.2017.8080436]

IC.2. Daniele Gravina, DANIELE LOIACONO. Procedural weapons generation for Unreal Tournament III. In *Proceedings of IEEE Games Entertainment Media Conference (GEM)*, 2015, pages 1–8.

[doi: http://doi.org/10.1109/GEM.2015.7377225]

IC.3. DANIELE LOIACONO, Renato Mainetti, Michele Pirovano. Volcano: An interactive sword generator. In *Proceedings of IEEE Games Entertainment Media Conference (GEM)*, 2015, pages 1–8.

[doi: http://doi.org/10.1109/GEM.2015.7377226]

IC.4. Luca Galli, Pier Luca Lanzi, DANIELE LOIACONO. Applying data mining to extract design patterns from Unreal Tournament levels. In *Proceedings of Computational Intelligence and Games (CIG)*, 2014, pages 1–8.

[doi: http://doi.org/10.1109/CIG.2014.6932914]

IC.5. Pier Luca Lanzi, DANIELE LOIACONO, Riccardo Stucchi. Evolving maps for match balancing in first person shooters. In *Proceedings of Computational Intelligence and Games (CIG)*, 2014, pages 1–8.

[doi: http://doi.org/10.1109/CIG.2014.6932901]

IC.6. Pier Luca Lanzi and DANIELE LOIACONO. Tuning mobile game design using data mining. In *Games Innovation Conference (IGIC), 2013 IEEE International*, pages 122–129, 2013.

[doi; http://dx.doi.org/10.1109/IGIC.2013.6659146]

IC.7. DANIELE LOIACONO. Learning, evolution and adaptation in racing games. In *Proceedings of the 9th conference on Computing Frontiers (CF '12)*. ACM, New York, NY, USA, 277–284, 2012.
[doi: http://dl.acm.org/citation.cfm?doid=2212908.2212953]

IC.8. Matteo Botta, Vincenzo Gautieri, DANIELE LOIACONO, and Pier Luca Lanzi. Evolving the optimal racing line in a high-end racing game. In *Proceedings of Computational Intelligence and Games (CIG), 2012 IEEE Conference on*, pages 108 – 115, Sept. 2012
[doi: http://dx.doi.org/10.1109/CIG.2012.6374145]

IC.9. Luca Galli, DANIELE LOIACONO, Luigi Cardamone, and Pier Luca Lanzi. A cheating detection framework for Unreal Tournament III: A machine learning approach. In *Proceedings of the 2011 IEEE Symposium on Computational Intelligence and Games (CIG'11)*, pages 266–272 , Seoul, South Korea, 2011.
[doi: http://dx.doi.org/10.1109/CIG.2011.6032016]

IC.10. Luigi Cardamone, Antonio Caiazzo, DANIELE LOIACONO, and Pier Luca Lanzi. Transfer of driving behaviors across different racing games. In *Proceedings of the 2011 IEEE Symposium on Computational Intelligence and Games (CIG'11)*, pages 227–234 , Seoul, South Korea, 2011.
[doi: http://dx.doi.org/10.1109/CIG.2011.6032011]

IC.11. Luigi Cardamone, DANIELE LOIACONO, and Pier Luca Lanzi. Interactive evolution for the procedural generation of tracks in a high-end racing game. In *Proceedings of the 13th annual conference on Genetic and evolutionary computation (GECCO '11)*, pages 395–402, New York, NY, USA, 2011.
[doi: http://doi.acm.org/10.1145/2001576.2001631]

IC.12. DANIELE LOIACONO. Fast prediction computation in learning classifier systems using CUDA. In *Proceedings of the 13th annual conference companion on Genetic and evolutionary computation (GECCO '11)*, pages 169–170, New York, NY, USA, 2011. **Best paper candidate in track *Digital Entertainment Technologies and Arts***.
[doi: http://doi.acm.org/10.1145/2001858.2001953]

IC.13. Luigi Cardamone, DANIELE LOIACONO, Pier Luca Lanzi, and Alessandro Pietro Bardelli. Searching for the Optimal Racing Line Using Genetic Algorithms. In *Proceedings of the 2010 IEEE Symposium on Computational Intelligence and Games (CIG'10)*, pages 388–394, Copenhagen, Denmark, 2010.
[doi: http://doi.ieeecomputersociety.org/10.1109/ITW.2010.5593330]

IC.14. Enrique Onieva, Luigi Cardamone, DANIELE LOIACONO, Pier Luca Lanzi. Overtaking Opponents with Blocking Strategies Using Fuzzy Logic. In *Proceedings of the 2010 IEEE Symposium on Computational Intelligence and Games (CIG'10)*, pages 123–130, Copenhagen, Denmark, 2010. **Best paper candidate**.
[doi: http://doi.ieeecomputersociety.org/10.1109/ITW.2010.5593364]

IC.15. DANIELE LOIACONO, Luigi Cardamone, and Pier Luca Lanzi. Learning to Overtake in TORCS Using Simple Reinforcement Learning. In *Evolutionary Computation, 2010. CEC 2010. IEEE Congress on*, pages 3121–3128, 2010.
[doi: http://dx.doi.org/10.1109/CEC.2010.5586191]

IC.16. Luigi Cardamone, DANIELE LOIACONO, and Pier Luca Lanzi. Applying Cooperative Coevolution to Compete in the 2009 TORCS Endurance World Championship In *Evolutionary Computation, 2010. CEC 2010. IEEE Congress on*, pages 1162–1169, 2010.
[doi: http://dx.doi.org/10.1109/CEC.2010.5586041]

IC.17. Luca Galli, DANIELE LOIACONO, and Pier Luca Lanzi. Learning a Context-Aware Weapon Selection Policy for Unreal Tournament III. In *Proceedings of the 2009 IEEE Symposium on Computational Intelligence and Games (CIG'09)*, pages 310–316, Milan, Italy, 2009.
[doi: http://dx.doi.org/10.1109/CIG.2009.5286461]

IC.18. Luigi Cardamone, DANIELE LOIACONO, and Pier Luca Lanzi. Learning Drivers for TORCS through Imitation Using Supervised Methods. In *Proceedings of the 2009 IEEE Symposium on Computational Intelligence and Games (CIG'09)*, pages 148–155, Milan, Italy, 2009.
[doi: http://dx.doi.org/10.1109/CIG.2009.5286480]

IC.19. Luigi Cardamone, DANIELE LOIACONO, and Pier Luca Lanzi. Evolving Competitive Car Controllers for Racing Games with Neuroevolution. In *GECCO '09: Proceedings of the 11th annual conference on Genetic and evolutionary computation*, pages 1179–1186, New York, NY, USA, 2009. ACM.
[doi: http://doi.acm.org/10.1145/1569901.1570060]

IC.20. Luigi Cardamone, DANIELE LOIACONO, and Pier Luca Lanzi. On-line Neuroevolution Applied to The Open Racing Car Simulator. In *Evolutionary Computation, 2009. CEC 2009. IEEE Congress on*, pages 2622–2629, 2009.
[doi: http://dx.doi.org/10.1109/CEC.2009.4983271]

IC.21. DANIELE LOIACONO, Julian Togelius, Pier Luca Lanzi, Leonard Kinnaird-Heether, Simon M. Lucas, Matt Simmerson, Diego Perez, Robert G. Reynolds and Yago Saez. The WCCI 2008 Simulated Car Racing Competition. In *Proceedings of the 2008 IEEE Symposium on Computational Intelligence and Games (CIG'08)*, pages 119–126, Perth, Australia, 2008.

[doi: http://dx.doi.org/10.1109/CIG.2008.5035630]

IC.22. Martin V. Butz, Pier Luca Lanzi, Xavier Llorà, and DANIELE LOIACONO. An analysis of matching in learning classifier systems. In *GECCO '08: Proceedings of the 10th annual conference on Genetic and evolutionary computation*, pages 1349–1356, New York, NY, USA, 2008. ACM.

[doi: http://doi.acm.org/10.1145/1389095.1389359]

IC.23. Fabrizio Ferrandi, Pier Luca Lanzi, DANIELE LOIACONO, Christian Pilato, and Donatella Sciuto. A multi-objective genetic algorithm for design space exploration in high-level synthesis. In *ISVLSI-08 – IEEE Annual Symposium on VLSI 2008*, pages 417–422, 2008.

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