Pier Luca Lanzi

Curriculum Vitae

Positions

2016–now **Full Professor**, *Politecnico di Milano*, Dipartimento di Elettronica, Informazione e Bioingegneria, School of Industrial and Information Engineering.

2005–2015 **Associate Professor**, *Politecnico di Milano*, Dipartimento di Elettronica, Informazione e Bioingegneria, School of Industrial and Information Engineering.

2001–2005 **Assistant Professor (Ricercatore)**, *Politecnico di Milano*, Dipartimento di Elettronica e Informazione, School of Information.

1998–2001 **Post-Doc**, *Politecnico di Milano*, Dipartimento di Elettronica e Informazione, School of Information.

1996–1998 **PhD Student**, *Politecnico di Milano*, Dipartimento di Elettronica e Informazione, School of Information.

Education

1999 **PhD in Information Engineering**, *Politecnico di Milano*, with the thesis "Apprendimento per Rinforzo con Tecniche di Computazione Evolutiva"; supervisor Prof. Marco Colombetti.

1994 **MSc in Computer Science**, *Universitá di Udine*, with a final grade of "110/110 e lode" or summa cum laude; thesis title "Computazione Reale Esatta con Algoritmi Lazy"; supervisors Prof. Furio Honsel and Prof. Pietro di Gianantonio.

Institutional Activities

2016–now Giunta della sezione di Informatica

2006–now Coordinator for MSc program between the University of Illinois at Chicago and the Politecnico di Milano

2006–2012 Giunta della sezione di Informatica

2006–2012 Giunta del Dipartimento di Elettronica, Informazione e Bioingegneria

2006–2012 Responsabile della didattica integrativa

Patents

2013 N.A. Borghese, P.L. Lanzi, R. Mainetti. M. Pirovano (2013), Apparatus and method for rehabilitation employing a game engine, US Application number: 13/911577, 6th June 2013.

2005 P. L. Lanzi, F. di Giunta, S. Ceri, Method for the determination of pseudo-constraints and their violations in databases, Italian Patent MI2005A 000229, February 2005.

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Activity as PhD Supervisor

2015 **Michele Pirovano**, *Politecnico di Milano.*

2012 **Luigi Cardamone**, *Politecnico di Milano.*

2012 **Le Hoang Son**, *Hanoi University of Science and Vietnam National University.*

2011 **David E. Howard**, *University of West England, UK*, with Prof. Larry Bull.

2008 **Daniele Loiacono**, *Politecnico di Milano.*

Editorial Activities (Journals)

2013–now **Associate Editor**, *Applied Soft Computing (Elsevier).*

2007–now **Board Member**, *Evolutionary Intelligence (Springer-Verlag).*

2005–now **Associate Editor**, *Evolutionary Computation Journal (MIT Press).*

2009–2010 **Associate Editor**, *Information Sciences (Elsevier).*
From May 2009 until November 2010

2008–2017 **Associate Editor**, *IEEE Transactions on Computational Intelligence and AI in Games.*

2006–2014 **Editor in Chief**, *SIGEVOlution the Newsletter of the ACM Special Interest Group on Genetic and Evolutionary Computation(SIGEVO).*
First and founding editor in chief.

2003–2004 **Board Member**, *Evolutionary Computation Journal (MIT Press).*

Editorial Activities (Conferences)

2011 **General Chair**, *ACM Genetic and Evolutionary Computation Conference.*
Dublin, Ireland, July 12-16, 2011

2010 **Publicity Chair**, *ACM Genetic and Evolutionary Computation Conference.*
Portland, Oregon, July 7-11, 2010

2010 **Proceedings Chair**, *IEEE Symposium on Computational Intelligence and Games (IEEE CIG-2010).*
Copenhagen, August 18-21, 2010.

2009 **General Chair**, *IEEE Symposium on Computational Intelligence and Games (IEEE CIG-2010).*
Milan, September 7-10, 2009

2009 **Competition Chair**, *ACM Genetic and Evolutionary Computation Conference.*
Montreal, Canada, July 8-12, 2009

2004 **Track Chair**, *ACM Genetic and Evolutionary Computation Conference.*
Seattle, WA, June 26-30, 2004; chair of the Learning Classifier Systems track

2001 **Local Chair**, *4th European Conference on Genetic Programming (EuroGP-2001) and gli EvoWorkshop-2001.*
Como, Italy, April 18-20, 2001

Tutorials

2014 Learning classifier systems: a gentle introduction, GECCO 2014, Vancouver, Canada

2012 Computational Intelligence and Games, Parallel Problem Solving from Nature, Taormina, Italy

2009 Introduction to Learning Classifier Systems, Genetic and Evolutionary Computation Conference (GECCO'09), Montreal, Canada

2002 Introduction to Learning Classifier Systems, Genetic and Evolutionary Computation Conference (GECCO'02), New York City, NY

2002 Introduction to Learning Classifier Systems, Parallel Problem Solving from Nature (PPSN 2002), Granada, Spain

2001 Introduction to Learning Classifier Systems, Genetic and Evolutionary Computation Conference (GECCO'01), San Francisco, CA

Participation to Projects

2011–2014 REWIRE - Rehabilitative Wayout In Responsive home Environments

2009–2012 SYNthesis using Advanced Process Technology Integrated in regular Cells, IPs, architectures, and design platforms

2006–2008 ProLearn, IST (Information Society Technology - 507310)

2006–2009 HARTES (Holistic Approach to Real-Time Reconfigurable Embedded Systems), Integrated Project, 035143

2001–2003 consortium on discovering knowledge with Inductive Queries Information Society Technologies Programme Future and Emerging Technologies arm. no. IST-2000-26469

2000–2003 European Network of Excellence in Evolutionary Computing (EvoNET), Information Society Technologies Programme

2002 Agentcities.NET, Information Society Technologies Programme

Fundings

2013 Centro Nazionale Sangue – serious games for dissemination of blood donation culture

2008 RDE Systems srl – Data Mining in automotive scenarios

2008 PromuovItalia – Data mining to assess project Italian territorial government funding

2008 "Japan Society for the Promotion of Science" fellowship

Invited Talks

2007 Portuguese Conference in Artificial Intelligence

2008 University of Electro-Communication, Chofu, Tokyo, Japan, March 5, 2008

2008 Tokyo Institute of Technology, Tokyo, Japan, March 3, 2008

2008 Doshisha University, Kyoto, Japan, February 27, 2008

2008 ATR, Kyoto, Japan, February 25, 2008

2007 University of West England, Bristol, UK, March 15, 2007

2006 Department of General Engineering, University of Illinois at Urbana-Champaign, IL, USA, November 14, 2006

2003 Department of General Engineering, University of Illinois at Urbana-Champaign, IL, USA, May 6, 2003

Activity as External PhD Examiner

2013   *Evolution of Groups for Common Pool Resource Sharing*, Alan Cunningham, National University of Ireland, Galway, supervisor: Colm O'Riordan

2008   *Fault Detection in Autonomous Robots*, Anders Lyhne Christensen, supervised by Marco Dorigo, Universit Libre de Bruxeles Facult des Sciences Appliques

2002   *Quantitative Approach to the Analysis of Memory Requirements for Autonomous Agent Behaviours using Evolutionary Computation*, Kim DaeEun, Institute for Perception, Action and Behaviour, Division of Informatics, University of Edinburgh. Supervisor: Prof. John Hallam

2001   *Use of GA for Pattern Recognition with Application to OCR with possible extension to handwriting recognition*, Clyde Meli, Fakultá Tax-Xjenza. Universitá tá Malta. Msida-Malta

Teaching Experience

2010-now   Video game Design and Programming (Master)

2007-now   Data Mining and Text Mining (Master)

2010-2013   Algoritmi e Calcolo Parallelo (Algorithms and Parallel Programming) (Master)

2006-2010   Laboratory of Artificial Intelligence and Robotics (Master)

2009   Informatica B [Mod. 2] (Bachelor)

2008   Algoritmi e Strutture Dati (Algorithms and Data Structures) (Bachelor)

2003-2007   Informatica 3 (Bachelor)

2006   Machine Learning and Data Mining (Master)

2004-2006   Tecniche di Apprendimento Automatico per Applicazioni di Data Mining (Master)

2005   Informatica 2 (Bachelor)

2003-2005   Metodologie per Sistemi Intelligenti (Master)

1998-2004   Laboratorio di Informatica Grafica (Bachelor)

2000-2004   Informatica Grafica (Bachelor)

Activity in Organizing Committees

2003   Sixth Workshop on Learning Classifier Systems(IWLCS03), July 2003, Chicago, IL, USA

2002   International Workshop on *Discovery in Inductive Databases* (KDID02), August 19-20, 2002, Helsinki, Finland

2002   International Workshop on *Database Technologies for Data Mining* (DTDM02), March 24, 2002, Prague, Czech Republic

2002   Fifth Workshop on Learning Classifier Systems(IWLCS02), September 2002, Granada, Spain

2001   4th European Conference on Genetic Programming and EvoApplication, April 18-20, 2001, Como, Italy

2001   Fourth Workshop on Learning Classifier Systems(IWLCS01), July 2001, San Francisco, CA, USA

2000   Convegno Nazionale della Associazione Italiana di Intelligenza Artificiale (AIIA), September 2000, Milan, Italy

2000   Third Workshop on Evolutionary Robotics, April 2000, Edinbourgh, Scotland

2000   Third Workshop on Learning Classifier Systems(IWLCS03), September 2000, Paris, France

1999   Second Workshop on Learning Classifier Systems(IWLCS03), July 1999, Orlando, FL, USA

Publications

Summary

- 2 edited books and 11 edited proceeding volumes
- 34 international journals
- 15 book chapters
- 104 refereed international conference papers
- 2 refereed national conference papers;
- 1 workshop paper
- 1 best paper award, 3 best paper runner ups

Citation Indexes (from Google Scholar)

- 5692 citations (2218 since 2013)
- h-index 42 (25 since 2013)
- i10-index 109 (61 since 2013)

Edited Volumes

1. Pier Luca Lanzi, Wolfgang Stolzmann, and Stewart W. Wilson, editors. *Learning Classifier Systems: From Foundations to Applications*, volume 1813 of *Lecture Notes in Computer Science*. Springer-Verlag, April 2000.
2. Rosa Meo, PierLuca Lanzi, and Mika Klemettinen, editors. *Database Support for Data Mining Applications: Discovering Knowledge with Inductive Queries*, volume 2682 of *Lecture Notes in Computer Science*. Springer-Verlag, 2004.

International Journals

1. Michele Pirovano, Elif Surer, Renato Mainetti, Pier Luca Lanzi, N. Alberto Borghese: Exergaming and rehabilitation: A methodology for the design of effective and safe therapeutic exergames. *Entertainment Computing* 14: 55–65, 2016.
2. Gerard David Howard, Larry Bull, Pier Luca Lanzi. A Cognitive Architecture Based on a Learning Classifier System with Spiking Classifiers. *Neural Processing Letters* 44(1): 125–147, 2016.
3. Michele Pirovano, Renato Mainetti, Gabriel Baud-Bovy, Pier Luca Lanzi, N. Alberto Borghese. Intelligent Game Engine for Rehabilitation (IGER). *IEEE Trans. Comput. Intellig. and AI in Games* 8(1): 43–55, 2016.
4. Luigi Cardamone, Pier Luca Lanzi, Daniele Loiacono. TrackGen: An interactive track generator for TORCS and Speed-Dreams. *Applied Soft Computing* 28: 550–558, 2015.
5. Masaya Nakata, Pier Luca Lanzi, Keiki Takadama. Rule reduction by selection strategy in XCS with adaptive action map. *Evolutionary Intelligence* 8(2-3): 71–87, 2015.
6. Pier Luca Lanzi, Daniele Loiacono. XCSF with tile coding in discontinuous action-value landscapes. *Evolutionary Intelligence* 8(2-3): 117–132, 2015.
7. Michele Pirovano, Pier Luca Lanzi. Fuzzy Tactics: A scripting game that leverages fuzzy logic as an engaging game mechanic. *Expert Systems with Applications* 41(13): 6029–6038, 2014.
8. Nunzio Alberto Borghese, Michele Pirovano, Pier Luca Lanzi, Seline Wüest, and Eling D. de Bruin. Computational intelligence and game design for effective at-home stroke rehabilitation. *Games for Health Journal*, 2:81–88, April 2013.
9. Luigi Cardamone, Pier Luca Lanzi, Daniele Loiacono, and Enrique Onieva. Advanced overtaking behaviors for blocking opponents in racing games using a fuzzy architecture. *Expert Systems with Applications*, 40(16):6447–6458, 2013.
10. Le Hoang Son, Bui Cong Cuong, Pier Luca Lanzi, and Nguyen Tho Thong. A novel intuitionistic fuzzy

clustering method for geo-demographic analysis. *Expert Systems with Applications*, 39(10):9848 – 9859, 2012.

11. Daniele Loiacono, Luigi Cardamone, and Pier Luca Lanzi. Automatic track generation for high-end racing games using evolutionary computation. *IEEE Trans. Comput. Intellig. and AI in Games*, 3(3):245–259, 2011.

12. Fabrizio Ferrandi, Pier Luca Lanzi, Christian Pilato, Donatella Sciuto, and Antonino Tumeo. Ant colony heuristic for mapping and scheduling tasks and communications on heterogeneous embedded systems. *IEEE Trans. on CAD of Integrated Circuits and Systems*, 29(6):911–924, 2010.

13. Luigi Cardamone, Daniele Loiacono, and Pier Luca Lanzi. Learning to drive in the open racing car simulator using online neuroevolution. *IEEE Trans. Comput. Intellig. and AI in Games*, 2(3):176–190, 2010.

14. Daniele Loiacono, Pier Luca Lanzi, Julian Togelius, Enrique Onieva, David A. Pelta, Martin V. Butz, Thies D. Lönneker, Luigi Cardamone, Diego Perez, Yago Sáez, Mike Preuss, and Jan Quadflieg. The 2009 simulated car racing championship. *IEEE Trans. Comput. Intellig. and AI in Games*, 2(2):131–147, 2010.

15. A. Orriols-Puig, E. Bernado-Mansilla, D.E. Goldberg, K. Sastry, and Pier Luca Lanzi. Facetwise analysis of xcs for problems with class imbalances. *Evolutionary Computation, IEEE Transactions on*, 13(5):1093 –1119, October 2009.

16. Martin Butz and Pier Luca Lanzi. Sequential problems that test generalization in learning classifier systems. *Evolutionary Intelligence*, 2:141–147, December 2009.

17. Pier Luca Lanzi. Learning classifier systems: then and now. *Evolutionary Intelligence*, 1:63–82, March 2008.

18. Christian Pilato, Antonino Tumeo, Gianluca Palermo, Fabrizio Ferrandi, Pier Luca Lanzi, and Donatella Sciuto. Improving evolutionary exploration to area-time optimization of fpga designs. *Journal of Systems Architecture - Embedded Systems Design*, 54(11):1046–1057, 2008.

19. Martin V. Butz, Pier Luca Lanzi, and Stewart W. Wilson. Function approximation with xcs: Hyperellipsoidal conditions, recursive least squares, and compaction. *IEEE Trans. Evolutionary Computation*, 12(3):355–376, 2008.

20. Stefano Ceri, Cristiana Bolchini, Daniele Braga, Marco Brambilla, Alessandro Campi, Sara Comai, Piero Fraternali, Pier Luca Lanzi, Marco Masseroli, Maristella Matera, Mauro Negri, Giuseppe Pelagatti, Giuseppe Pozzi, Elisa Quintarelli, Fabio A. Schreiber, and Letizia Tanca. Data and web management research at politecnico di milano. *SIGMOD Record*, 36(4):43–48, 2007.

21. Stefano Ceri, Francesco Di Giunta, and Pier Luca Lanzi. Mining constraint violations. *ACM Trans. Database Syst.*, 32(1):6, 2007.

22. Martin V. Butz, David E. Goldberg, Pier Luca Lanzi, and Kumara Sastry. Problem solution sustenance in xcs: Markov chain analysis of niche support distributions and the impact on computational complexity. *Genetic Programming and Evolvable Machines*, 8(1):5–37, 2007.

23. Cristiana Bolchini, Paolo Ferrandi, Pier Luca Lanzi, and Fabio Salice. Evolving classifiers on field programmable gate arrays: Migrating xcs to fpgas. *Journal of Systems Architecture*, 52(8–9):516–533, August 2006.

24. Pier Luca Lanzi, Daniele Loiacono, Stewart W. Wilson, and David E. Goldberg. Generalization in the xcsf classifier system: Analysis, improvement, and extension. *Evolutionary Computation Journal*, 15:133–168, 2007.

25. Piero Fraternali, Pier Luca Lanzi, Maristella Matera, and Andrea Maurino. Model-driven web usage analysis for the evaluation of web application quality. *Journal of Web Engineering*, 3(2):124–152, 2004.

26. Martin V. Butz, David E. Goldberg, and Pier Luca Lanzi. Gradient descent methods in learning classifier systems: Improving xcs performance in multistep problems. *IEEE Transaction on Evolutionary Computation*, 9(5):452–473, October 2005.

27. Pietro Di Gianantonio and Pier Luca Lanzi. Lazy algorithms for exact real arithmetic. *Electronic Notes in Theoretical Computer Science*, 104:113–128, 2004.

28. Federico Facca and Pier Luca Lanzi. Mining interesting knowledge from weblogs: A survey. *Journal of Data and Knowledge Engineering*, 53(3):225–241, 2005.

29. Martin V. Butz, Tim Kovacs, Pier Luca Lanzi, and Stewart W. Wilson. Toward a theory of generalization and learning in xcs. *IEEE Transaction on Evolutionary Computation*, 8(1):28–46, February 2004.

30. Pier Luca Lanzi and Alessandro Strada. A statistical analysis of the trading agent competition 2001. *SIGecom Exchanges. Newsletter of the ACM Special Interest Group on E-commerce*, 3(2):1–8, 2002.
31. John H. Holmes, Pier Luca Lanzi, Wolfgang Stolzmann, and Stewart W. Wilson. Learning classifier systems: new models, successful applications. *Information Processing Letters*, 82(1):23–30, 2002.
32. Pier Luca Lanzi. Learning classifier systems from a reinforcement learning perspective. *Soft Computing - A Fusion of Foundations, Methodologies and Applications*, 6(3):162–170, 2002.
33. Pier Luca Lanzi and Stewart W. Wilson. Toward optimal classifier system performance in non-Markov environments. *Evolutionary Computation*, 8(4):393–418, 2000.
34. Pier Luca Lanzi. An Analysis of Generalization in the XCS Classifier System. *Evolutionary Computation Journal*, 7(2):125–149, 1999.

Book Chapters

1. Pier Luca Lanzi. Classifier Systems. *Encyclopedia of Machine Learning and Data Mining* pages 217–224, Springer, 2017
2. Julian Togelius, Alex J Champandard, Pier Luca Lanzi, Michael Mateas, Ana Paiva, Mike Preuss, Kenneth O Stanley, Simon M Lucas, Michael Mateas, Mike Preuss, et al. Procedural content generation: Goals, challenges and actionable steps. *Artificial and Computational Intelligence in Games*.
3. Pier Luca Lanzi. Classifier systems. In Claude Sammut and Geoffrey I. Webb, editors, *Encyclopedia of Machine Learning*, pages 172–178. Springer, 2010.
4. Daniele Loiacono and Pier Luca Lanzi. Tile coding based on hyperplane tiles. In Sertan Girgin, Manuel Loth, Rémi Munos, Philippe Preux, and Daniil Ryabko, editors, *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.
5. Pier Luca Lanzi, Luigi Nichetti, Kumara Sastry, Davide Voltini, and David E. Goldberg. Real-coded extended compact genetic algorithm based on mixtures of models. In Ying-Ping Chen and Meng-Hiot Lim, editors, *Linkage in Evolutionary Computation*, volume 157 of *Studies in Computational Intelligence*, pages 335–358. Springer, 2008.
6. Pier Luca Lanzi, Daniele Loiacono, and Matteo Zanini. Evolving classifiers ensembles with heterogeneous predictors. In Jaume Bacardit, Ester Bernadó-Mansilla, Martin V. Butz, Tim Kovacs, Xavier Llorà, and Keiki Takadama, editors, *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, 2007.
7. Pier Luca Lanzi, Stefano Rocca, Kumara Sastry, and Stefania Solari. Analysis of population evolution in classifier systems using symbolic representations. In Jaume Bacardit, Ester Bernadó-Mansilla, Martin V. Butz, Tim Kovacs, Xavier Llorà, and Keiki Takadama, editors, *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 22–45. Springer, 2007.
8. Rosa Meo, Pier Luca Lanzi, Maristella Matera, Danilo Careggio, and Roberto Esposito. Employing inductive databases in concrete applications. In Jean-François Boulicaut, Luc De Raedt, and Heikki Mannila, editors, *Constraint-Based Mining and Inductive Databases*, volume 3848 of *LNCS*, pages 295–327. Springer, 2005.
9. Pier Luca Lanzi. Learning classifier systems: A reinforcement learning perspective. In Larry Bull and Tim Kovacs, editors, *Foundations of Learning Classifier Systems*, volume 183 of *Studies in Fuzziness and Soft Computing*, pages 267–284. Springer, 2005.
10. Martin V. Butz, David E. Goldberg, and Pier Luca Lanzi. Computational complexity of the xcs classifier system. In Larry Bull and Tim Kovacs, editors, *Foundations of Learning Classifier Systems*, volume 183 of *Studies in Fuzziness and Soft Computing*, pages 183–126. Springer, 2005.
11. Marco Colombetti and Pier Luca Lanzi. Developing rational agents. In L. Cantoni and V. Di Gesú, editors, *Human and machine perception 3: Thinking, deciding, and acting*, pages 51–66. Kluwer Academic/Plenum Publishers, 2001.
12. Pier Luca Lanzi and Rick L. Riolo. Recent trends in learning classifier systems research. In Ashis Ghosh and Shigeyoshi Tsutsui, editor, *Advances in Evolutionary Computing: Theory and Applications*, pages 955–988,

Berlin, 2003. Spriger-Verlag.

13. John H. Holland, Lashon B. Booker, Marco Colombetti, Marco Dorigo, David E. Goldberg, Stephanie Forrest, Rick L. Riolo, Robert E. Smith, Pier Luca Lanzi, Wolfgang Stolzmann, and Stewart W. Wilson. What is a Learning Classifier System? In Pier Luca Lanzi, Wolfgang Stolzmann, and Stewart W.Wilson, editors, *Learning Classifier Systems. From Foundations to Applications*, volume 1813 of *LNAI*, pages 3–32, Berlin, 2000. Springer-Verlag.

14. Pier Luca Lanzi and Rick L. Riolo. A Roadmap to the Last Decade of Learning Classifier System Research (from 1989 to 1999). In Pier Luca Lanzi, Wolfgang Stolzmann, and Stewart W. Wilson, editors, *Learning Classifier Systems. From Foundations to Applications*, volume 1813 of *LNAI*, pages 33–62, Berlin, 2000. Springer-Verlag.

15. Tim Kovacs and Pier Luca Lanzi. A Learning Classifier Systems Bibliography. In Pier Luca Lanzi, Wolfgang Stolzmann, and Stewart W. Wilson, editors, *Learning Classifier Systems. From Foundations to Applications*, LNAI, pages 321–347, Berlin, 2000. Springer-Verlag.

16. Tim Kovacs and Pier Luca Lanzi. A bigger learning classifier systems bibliography. In Pier Luca Lanzi, Wolfgang Stolzmann, and Stewart W. Wilson, editors, *Advances in Learning Classifier Systems. Third International Workshop, IWLCS 2000, Paris, France, September 15-16*, volume 1996 of *Lecture notes in Computer Science*, pages 213–249. Springer-Verlag, April 2001.

Proceedings

1. Natalio Krasnogor and Pier Luca Lanzi, editors. *13th Annual Genetic and Evolutionary Computation Conference, GECCO 2011, Proceedings, Dublin, Ireland, July 12-16, 2011*. ACM, 2011.

2. Pier Luca Lanzi, editor. *Proceedings of the 2009 IEEE Symposium on Computational Intelligence and Games*. IEEE, 2009.

3. Tim Kovacs, Xavier Llorà, Keiki Takadama, Pier Luca Lanzi, Wolfgang Stolzmann, and Stewart W. Wilson, editors. *Learning Classifier Systems, International Workshops, IWLCS 2003-2005, Revised Selected Papers*, volume 4399 of *Lecture Notes in Computer Science*. Springer, 2007.

4. Pier Luca Lanzi, Wolfgang Stolzmann, and Stewart W. Wilson, editors. *Advances in Learning Classifier Systems. Fourth International Workshop, IWLCS 2002, Granada, Spain, USA, September*, volume 2661 of *Lecture Notes in Computer Science*. Springer-Verlag, 2004.

5. Pier Luca Lanzi, Wolfgang Stolzmann, and Stewart W. Wilson, editors. *Advances in Learning Classifier Systems. Fourth International Workshop, IWLCS 2001, San Francisco (CA), USA, July 7-8*, volume 2321 of *Lecture Notes in Computer Science*. Springer-Verlag, 2002.

6. Pier Luca Lanzi, Wolfgang Stolzmann, and Stewart W. Wilson, editors. *Advances in Learning Classifier Systems. Third International Workshop, IWLCS 2000, Paris, France, September 15-16*, volume 1996 of *Lecture Notes in Computer Science*. Springer-Verlag, April 2001.

7. J. Miller, M. Tomassini, P. L. Lanzi, C. Ryan, A. Tettamanzi, and W. B. Langdon, editors. *Genetic Programming, 4th European Conference, (EuroGP 2001)*, volume 2038 of *Lecture Notes in Computer Science*, Lake Como, Italy, April 2001. Springer-Verlag.

8. E.J.W. Boers, J. Gottlieb, P.L. Lanzi, R.E. Smith, S. Cagnoni, E. Hart, G.R. Raidl, and H. Tijink, editors. *Applications of Evolutionary Computing. EvoWorkshops 2001. Como, Italy, April 18-20*, volume 2037 of *Lecture Notes in Computer Science*. Springer-Verlag, April 2001.

9. S. Cagnoni, R. Poli, G.D. Smith, D. Corne, M. Oates, E. Hart, P.L. Lanzi, E.J. Willem, Y. Li, B. Paechter, and Fogarty, editors. *Real-World Applications of Evolutionary Computing. EvoWorkshops 2000. Edinburgh, Scotland, UK, April 17, 2000*, volume 1803 of *Lecture Notes in Computer Science*. Springer-Verlag, April 2000.

10. Kalyanmoy Deb, Riccardo Poli, Wolfgang Banzhaf, Hans-Georg Beyer, Edmund K. Burke, Paul J. Darwen, Dipankar Dasgupta, Dario Floreano, James A. Foster, Mark Harman, Owen Holland, Pier Luca Lanzi, Lee Spector, Andrea Tettamanzi, Dirk Thierens, and Andrew M. Tyrrell, editors. *Genetic and Evolutionary Computation - GECCO 2004, Genetic and Evolutionary Computation Conference, Seattle, WA, USA, June 26-30, 2004, Proceedings, Part I*, volume 3102 of *Lecture Notes in Computer Science*. Springer, 2004.

11. Kalyanmoy Deb, Riccardo Poli, Wolfgang Banzhaf, Hans-Georg Beyer, Edmund K. Burke, Paul J. Darwen, Dipankar Dasgupta, Dario Floreano, James A. Foster, Mark Harman, Owen Holland, Pier Luca Lanzi, Lee

Spector, Andrea Tettamanzi, Dirk Thierens, and Andrew M. Tyrrell, editors. *Genetic and Evolutionary Computation - GECCO 2004, Genetic and Evolutionary Computation Conference, Seattle, WA, USA, June 26-30, 2004, Proceedings, Part II*, volume 3103 of *Lecture Notes in Computer Science*. Springer, 2004.

International Conferences

1. Masaya Nakata, Pier Luca Lanzi, Tim Kovacs, Will Neil Browne, Keiki Takadama. How should Learning Classifier Systems cover a state-action space? In *IEEE Conference of Ecolutionary Computation (CEC 2015), IEEE International*, pages 3012–3019, 2015.

2. Alice Cancer, Silvia Bonacina, Maria Luisa Lorusso, Pier Luca Lanzi, Alessandro Antonietti. Rhythmic Reading Training (RRT) - A Computer-Assisted Intervention Program for Dyslexia. In *5th EAI International Symposium on Pervasive Computing Paradigms for Mental Health (MindCare 2015)*, pages 249–258, 2015.

3. Luca Galli, Pier Luca Lanzi, Daniele Loiacono: Applying data mining to extract design patterns from Unreal Tournament levels. In *IEEE Conference on Computational Intelligence in Games (CIG 2014)*, Dortmund, Germany, pages 1–8, 2014.

4. Masaya Nakata, Pier Luca Lanzi, Tim Kovacs, Keiki Takadama. Complete action map or best action map in accuracy-based reinforcement learning classifier systems. Genetic and Evolutionary Computation Conference, (GECCO 2014), Vancouver, Canada, pages 557–564, 2014.

5. Pier Luca Lanzi, Daniele Loiacono, Riccardo Stucchi. Evolving maps for match balancing in first person shooters. In *IEEE Conference on Computational Intelligence in Games (CIG 2014)*, Dortmund, Germany, pages 1–8, 2014.

6. P.L. Lanzi, D. Loiacono, E. Parini, F. Sannicolo, D. Jones, and C. Scamporlino. Tuning mobile game design using data mining. In *Games Innovation Conference (IGIC), 2013 IEEE International*, pages 122–129, 2013.

7. M. Pirovano, P.L. Lanzi, R. Mainetti, and N.A. Borghese. The design of a comprehensive game engine for rehabilitation. In *Games Innovation Conference (IGIC), 2013 IEEE International*, pages 209–215, 2013.

8. Michele Pirovano, Pier Luca Lanzi, Renato Mainetti, and Nunzio Alberto Borghese. Iger: A game engine specifically tailored to rehabilitation. In Ben Schouten, Stephen Fedtke, Tilde Bekker, Marlies Schijven, and Alex Gekker, editors, *Games for Health*, pages 85–98. Springer Fachmedien Wiesbaden, 2013.

9. Fabrizio Ferrandi, Pier Luca Lanzi, Christian Pilato, Donatella Sciuto, and Antonino Tumeo. Ant colony optimization for mapping, scheduling and placing in reconfigurable systems. In *2013 NASA/ESA Conference on Adaptive Hardware and Systems (AHS-2013), Torino, Italy, June 24-27, 2013*, pages 47–54. IEEE, 2013.

10. Masaya Nakata, Pier Luca Lanzi, and Keiki Takadama. Simple compact genetic algorithm for xcs. In *Proceedings of the IEEE Congress on Evolutionary Computation, CEC 2013, Cancun, Mexico, June 20-23, 2013*, pages 1718–1723. IEEE, 2013.

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