

CURRICULUM VITAE

ANDREA EMILIO RIZZOLI

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BIOGRAPHICAL NOTES

Sex: male
Marital status: married
Date of birth: 23 june 1964
Citizenship: Swiss and Italian

EDUCATION

1990–1993	Dottorato di ricerca in Ingegneria Informatica e Automatica (PhD Degree in Computer Science and Control Engineering), Politecnico di Milano, Italia.
1985–1989	Laurea in Ingegneria Elettronica (MSc Degree in Control Engineering), indirizzo Automatica, Politecnico di Milano, Italia.

LANGUAGES

Italian	mother tongue
English	excellent command of written and oral communication
French	basic knowledge, sufficient conversation ability
German	basic knowledge

EXPERIENCES IN SCIENTIFIC RESEARCH

- Since 1996 Senior Researcher at Istituto Dalle Molle di Studi sull'Intelligenza artificiale (IDSIA), Lugano, Switzerland.
- The main research fields in which I am active are: decision support systems for the management of natural resources; modelling and simulation of industrial systems and supply chains; integration and re-use of simulation models. I have been active in a number research projects, funded both at the national and international (EU) level. I have been involved in the design and implementation of various applications such as: computer support for the integrated assessment of policies for the agricultural sector; discrete-event simulation models for the management of intermodal terminals; optimal distribution of goods in urban environments and vehicle routing problems; decision support systems for the optimal management of multi purpose reservoirs.
- 07/1994–12/1999 Research consultant, Dipartimento di Informatica ed Elettronica, Politecnico di Milano, Italy.
- I have worked in the group led by Professor Soncini-Sessa on various water related management problems. In particular, I have contributed to the design and development of TwoLe, a two-level decision support system for the multi-objective optimisation of reservoir networks. TwoLe has been used in various applications, most notably to the integrated management of Lake Maggiore, where it was embedded into a participatory decision making process.
- 05/1993–06/1994 Post-doctoral fellow, Division of Water Resources, CSIRO Australia.
- In cooperation with the group led by Dr J Richard Davis, I have designed and prototyped a software tool for the management of nutrient balance in watersheds. Some of the generic concepts in that application have been extended used in the design of the Open Modelling Engine, a software environment for the integration and re-use of environmental models. This environment has been used as the basis for the development of ICMS, the Integrated Catchment Management System, developed and maintained by CSIRO Australia.
- 01/1991–06/1991 Visiting researcher at IZEA, Université de Lausanne, Switzerland.
- During my visit at the IZEA (Institut de Zoologie et d'Ecologie Animale) of the University of Lausanne I have worked under the supervision of Prof. Roger Arditi. During this stay I have laid out the theoretical groundwork which has been

later implemented in the software tool “Lakemaker”, which has been described in my PhD thesis. Lakemaker was one of the first examples of a tool for assess and evaluate alternative modelling choices for the study of eutrophication in stratified lakes.

1990-1993 PhD student at Politecnico di Milano, Italy

ACADEMIC EXPERIENCES

- Since 2008 Lecturer of the course “Modelling, Simulation and Optimisation” taught in the Master programme of the Faculty of Informatics, University of Lugano, Switzerland and in the Master of Engineering programme of the Swiss Universities of Applied Sciences.
- 2007, 2008, 2009, 2010 Holds Lectures on “Planning and management of logistic systems” for the course “The Logic of Modelling” at the Alta Scuola Politecnica in Milan, Italy.
- 10/2006 Lecturer of the course “Development of biophysical modular models in .NET”, held at “Istituto Sperimentale Culture Industriali”, Bologna, Italy.
- 09/2005 Nominated “Professore SUPSI” (Professor of University of Applied Sciences of Southern Switzerland).
- 05/2006, 06/2005, 03/2004 Lecturer of the course “Environmental Decision Support Systems” taught at University of Girona, Spain in the context of the PhD programme in Environmental Sciences.
- 10/2004 – 02/2005 Lecturer of the course “Analisi dei processi industriali” (Analysis of Industrial Processes) at SUPSI (University of Applied Sciences of Southern Switzerland), Manno, Switzerland.
- 08/2004 Author of the simulation chapters for the online course of the Swiss Virtual Campus titled “Optimization and Simulation Methods in Operations Management”.
- since 2000 Lecturer of the undergraduate courses “Fondamenti di Informatica” (Computer Science Foundations), “Programmazione e Linguaggi” (Programming Languages), “Ambienti di Sviluppo” (Software Development Environments) at SUPSI, Manno, Switzerland.
- 10/1998 – 07/2000 Teaching Assistant of the course “Informatica di Base” (Introduction to Computer Science) at SUPSI, Manno, Switzerland.
- 01/1996 – 05/1996 Lecturer of the course “Modellistica matematica e simulazione di sistemi ambientali e territoriali” (Mathematical modelling and simulation of environmental systems) at the University of Brescia, Italy.

- 02/1995 – 06/1995 Teaching Assistant of the course “Elementi di Automatica” (Elements of Control Engineering) at Politecnico di Milano, Faculty of Como, Italy.
- 02/1993 – 05/1993 Teaching Assistant of the course “Analisi dei Sistemi” (Systems Analysis) at Politecnico di Milano, Italy.
- 01/1992 – 06/1992 Lecturer at the Master course “Metodi di analisi quantitativa” (Methods for quantitative analyses) at Scuola Superiore E.N.I. “Enrico Mattei”, Milano, Italy.
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PROFESSIONAL EXPERIENCES

- since 2001 Founding member of AntOptima SA, Lugano, Switzerland
AntOptima is spin-off company of IDSIA, specialised in the development of applications of innovative research in the field of optimisation and simulation of industrial processes.
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EDITORIAL ACTIVITIES

Editor of the international journal *Environmental Modelling & Software* (Elsevier, impact factor 2011: 2.871).

In 2002 I have organised and chaired, together with Professor A.J. Jakeman (ANU, Australia) the first biennial meeting of iEMSs (the International Environmental Modelling and Software Society). The conference was attended by more than 300 participants and a book of proceedings was published as result. I have also co-edited the proceedings of iEMSs 2004, iEMSs 2006, iEMSs 2008 and the forthcoming iEMSs 2010.

AFFILIATIONS

- since 2008 Vice-President of the International Environmental Modelling and Software Society (iEMSs).
- 2006-2008 Secretary of the International Environmental Modelling and Software Society (iEMSs).
- since 2008 member of the Simulation Interoperability Standards Organization (SISO)
- since 2004 member of the European Society for Agronomy.
- 2003-2010 member of GCSI (Gruppo Coordinamento Sicurezza Informatica della Svizzera Italiana) as representative of IDSIA.
- since 2002 member of the working group 5.11 of the International Federation for Information processing (IFIP).
- 2000-2006 Treasurer of the International Environmental Modelling and Software Society (iEMSs).

since 1997 member of MSSANZ (Modelling & Simulation Society of Australia and New Zealand).

AWARDS

2004 Fellow of the International Environmental Modelling and Software Society (iEMSs).

2000 ECRE prize (Early Career Research Excellence) awarded by the Modelling & Simulation Society of Australia and New Zealand.

LIST OF PUBLICATIONS

BOOKS AND CHAPTERS

- [1] J. Barta, A. E. Rizzoli, M. Salani, and L. M. Gambardella, “Statistical Modelling of Delays in a Rail Freight Transportation Network,” in *Proceedings of the 2012 Winter Simulation Conference* (C. Laroque, J. Himmelspach, R. Pasupathy, O. Rose, and A. Uhrmacher, eds.), (Berlin), 2012.
- [2] M. Donatelli, I. Cerrani, D. Fanchini, D. Fumagalli, and A. E. Rizzoli, “Enhancing Model Reuse via Component-Centered Modeling Frameworks : the Vision and Example Realizations,” in *International Environmental Modelling and Software Society (iEMSs) 2012 International Congress on Environmental Modelling and Software Managing Resources of a Limited Planet: Pathways and Visions under Uncertainty, Sixth Biennial Meeting, Leipzig, Germany* (R. Seppelt, A. Voinov, S. Lange, and D. Bankamp, eds.), pp. 1185–1192, iEMSs, Manno, Switzerland, 2012.
- [3] A. Mignatti, G. Corani, and A. Rizzoli, “Credal Model Averaging : dealing robustly with model uncertainty on small data sets,” in *International Environmental Modelling and Software Society (iEMSs) 2012 International Congress on Environmental Modelling and Software Managing Resources of a Limited Planet: Pathways and Visions under Uncertainty, Sixth Biennial Meeting, Leipzig, Germany* (R. Seppelt, A. Voinov, S. Lange, and D. Bankamp, eds.), pp. 163–170, iEMSs, Manno, Switzerland, 2012.
- [4] S. Nestic, A. E. Rizzoli, G. Schimak, G. Avelino, A. Kaufmann, and M. Donatelli, “Semantic annotation of environmental resources : Does it really matter to resource users ?,” in *International Environmental Modelling and Software Society (iEMSs) 2012 International Congress on Environmental Modelling and Software Managing Resources of a Limited Planet: Pathways and Visions under Uncertainty, Sixth Biennial Meeting, Leipzig, Germany* (R. Seppelt, A. Voinov, S. Lange, and D. Bankamp, eds.), pp. 2429–2436, iEMSs, Manno, Switzerland, 2012.
- [5] A. E. Rizzoli, M. Salani, C. Valeri, J. Barta, S. Croci-Torti, A. Croci, A. Barbone, and L. M. Gambardella, “WHATIF : A Decision Support System for Planning and Management of Rsail Freight Networks,” in *Proceedings of the International Conference on Harbor Maritime and Multimodal Logistics M&S* (Bruzzone, Gronalt, Merkuryev, Piera, and Talley, eds.), pp. 128–133, 2012.
- [6] R. S. Sojda, S. H. Chen, S. E. Sawah, H. A. Joseph, A. J. Jakeman, S. Lautenbach, B. S. McIntosh, A. E. Rizzoli, R. Seppelt, P. Struss, and A. A. Voinov, “Identifying the decision to be supported : a review of papers from Environmental Modelling and Software,” in *International Environmental Modelling and Software Society (iEMSs) 2012 International*

Congress on Environmental Modelling and Software Managing Resources of a Limited Planet: Pathways and Visions under Uncertainty, Sixth Biennial Meeting, Leipzig, Germany (R. Seppelt, A. Voinov, S. Lange, and D. Bankamp, eds.), (Leipzig, Germany), pp. 73–80, iEMSs, Manno, Switzerland, 2012.

- [7] S. Nešić, I. N. A. N., and A. E. Rizzoli, “Publishing agro-environmental resources to the linked environmental data,” *International Journal of Metadata, Semantic and Ontologies*, vol. 7, no. 1, pp. 25–36, 2012.
- [8] P. Fraternali, A. Castelletti, R. S. Sessa, C. V. Ruiz, and A. E. Rizzoli, “Putting humans in the loop: Social computing for water resources management,” *Environmental Modelling & Software*, vol. 37, pp. 68–77, 2012.
- [9] I. Athanasiadis, A. Rizzoli, and D. Beard, “Data Mining Methods for Quality Assurance in an Environmental Monitoring Network,” in *ARTIFICIAL NEURAL NETWORKS – ICANN 2010* (K. Diamantaras, W. Duch, and L. Iliadis, eds.), pp. 451–456, Springer Berlin / Heidelberg, 2010.
- [10] M. Donatelli, G. Russell, A. E. Rizzoli, , and . others, “A component-based framework for simulating agricultural production and externalities,” in *Environmental and Agricultural Modeling: Integrated Approaches for Policy Impact Assessment* (F. M. Brouwer and M. K. Ittersum, eds.), ch. 4, Berlin: Springer, 1st ed., 2010.
- [11] A. Kassahun, I. N. Athanasiadis, A. E. Rizzoli, A. Krause, H. Scholten, M. Makowski, and A. Beulens, “Towards a service - oriented e - infrastructure for multidisciplinary environmental research,” in *Proceedings of the iEMSs Fourth Biennial Meeting: International Congress on Environmental Modelling and Software (iEMSs 2010)*. (D. A. Swayne, W. Yang, A. A. Voinov, A. E. Rizzoli, and T. Filatova, eds.), Ottawa, Canada: iEMSs, the International Environmental Modelling and Software Society, 2010.
- [12] K. Louhichi, S. Janssen, A. Kanellopoulos, H. Li, N. Borkowski, G. Flichman, H. Hengsdijk, P. Zander, M. Blanco, G. Stokstad, A. E. Rizzoli, D. Huber, T. Heckelei, and M. V. Ittersum, “A generic farming system simulator,” in *Environmental and Agricultural Modeling*: (F. Brouwer and M. van Ittersum, eds.), ch. 5, pp. 1–42, Berlin: Springer, 1st ed., 2010.
- [13] A. E. Rizzoli, G. Schimak, M. Donatelli, and J. Hrebicek, “TaToo : tagging environmental resources on the web by semantic annotations,” in *Proceedings of the International Congress on International Environmental Modelling and Software (iEMSs 2010)* (D. A. Swayne, W. Yang, A. A. Voinov, A. E. Rizzoli, and T. Filatova, eds.), Ottawa, Canada: iEMSs, the International Environmental Modelling and Software Society, 2010.
- [14] G. Schimak, A. Rizzoli, G. Avellino, T. Lobo, J. Fuentes, and I. Athanasiadis, “Information enrichment using TaToo’s semantic framework,” *Metadata and Semantic Research*, pp. 149–159, 2010.
- [15] G. Schimak, A. E. Rizzoli, and K. Watson, “Sensors and the environment – Modelling & ICT challenges,” *Environmental Modelling & Software*, Apr. 2010.

- [16] J.-e. Wien, A. E. Rizzoli, R. Knapen, I. Athanasiadis, and S. Janssen, “A web-based software system for model integration in impact assessments of agricultural and environmental policies,” in *Environmental and Agricultural Modeling*: (F. Brouwer and M. van Ittersum, eds.), ch. 9, pp. 1–48, Berlin: Springer, 1st ed., 2010.
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- [18] G. Avellino, T. P. Lobo, G. Schimak, A. E. Rizzoli, and P. Dihé, “Applying semantics in the environmental domain : The TaToo project approach,” in *Innovations in Sharing Environmental Observation and Information Proceedings of the 25th Enviroinfo Conference ”Environmental Informatics”* (W. Pillmann, S. Schade, and P. Smits, eds.), pp. 848–855, Ispra (VA), Italy: Shaker Verlag, 2011.
- [19] W. Cuff, P. Sands, M. Benyon, and A. E. Rizzoli, “A simulation modeller’s legacy: “Modelling and Simulation of System Dynamics” by Peter Benyon,” *Environmental Modelling & Software*, pp. 10–11, 2011.
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- [22] S. Nešić, A. Rizzoli, I. Athanasiadis, and M. Donatelli, “Publishing Agro-Environmental Data to a Semantically Unified Environmental Information Space: a Case Study,” in *Innovations in Sharing Environmental Observation and Information Proceedings of the 25th Enviroinfo Conference ”Environmental Informatics”* (W. Pillmann, S. Schade, and P. Smits, eds.), pp. 856–867, Ispra (VA), Italy: Shaker Verlag, 2011.
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- [25] G. Schimak, B. Božić, A. Kaufmann, J. Peter-anders, P. Dihé, A. Rizzoli, T. Pariente, and G. Avellino, “The TaToo Semantic Case – Requirements, impacts and application,” in *Innovations in Sharing Environmental Observation and Information Proceedings of the 25th Enviroinfo Conference “Environmental Informatics”* (W. Pillmann, S. Schade, and P. Smits, eds.), pp. 832–847, Ispra (VA), Italy: Shaker Verlag, 2011.
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- [28] I. Athanasiadis, A. Rizzoli, S. Janssen, E. Andersen, and F. Villa, “Ontology for seamless integration of agricultural data and models,” in *MTSR 2009, CCIS 46* (F. Sartori, M. Sicilia, and N. Manouselis, eds.), Springer-Verlag, 2009.
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- [31] I. N. Athanasiadis, P. A. Mitkas, A. E. Rizzoli, and J. M. Gómez, eds., *Information Technologies in Environmental Engineering - Proceedings of the 4th International ICSC Symposium, Thessaloniki, Greece*. Environmental Science and Engineering, Springer-Verlag, 2009.
- [32] S. Janssen, F. Ewert, H. Li, I. N. Athanasiadis, J.-E. J. Wien, O. Thèrond, M. J. Knapen, I. Bezlepkina, J. Alkan-Olsson, A. E. Rizzoli, H. Belhouchette, and M. Svensson, “Defining assessment projects and scenarios for policy support: use of ontology in integrated assessment and modelling,” *Environmental Modelling and Software*, vol. 24, no. 12, pp. 1491–1500, 2009.
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- [34] I. Athanasiadis, S. Janssen, E. Andersen, A. Rizzoli, and J. Wien, “Granular ontologies for integrated assessment of agricultural systems,” in *Integrated Assessment of Agriculture and Sustainable Development; Setting*

- the Agenda for Science and Policy (AgSAP 2009)* (M. van Ittersum, J. Wolf, and G. van Laar, eds.), vol. ISBN: 978-90-8585-401-2, p. 320, Wageningen University and Research Centre, The Netherlands, 2009.
- [35] M. Donatelli, G. Russell, and A. Rizzoli, “Apes: The agricultural production and externalities simulator,” in *Integrated Assessment of Agriculture and Sustainable Development; Setting the Agenda for Science and Policy (AgSAP 2009)* (M. van Ittersum, J. Wolf, and G. van Laar, eds.), vol. ISBN: 978-90-8585-401-2, p. 206, Wageningen University and Research Centre, The Netherlands, 2009.
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- [37] R. Montemanni, A. Rizzoli, D. Smith, and L. Gambardella, “Sequential ordering problems for crane scheduling in port terminals,” in *The International Workshop on Harbour, Maritime & Multimodal Logistics Modelling and Simulation*, September 17-19, 2008 2008.
- [38] A. E. Rizzoli, G. Leavesley, J. A. II, R. Argent, I. Athanasiadis, V. Brilhante, F. Claeys, O. David, M. Donatelli, P. Gijssbers, D. Havlik, A. Kasahun, P. Krause, N. Quinn, H. Scholten, R. Sojda, and F. Villa, *Environmental Modelling, Software, and Decision Support - State of the Art and Future Perspectives*, vol. 3 of *Developments in Integrated Environmental Assessment*, ch. Integrated modelling frameworks for environmental assessment and decision support. Elsevier, 2008.
- [39] A. Rizzoli, R. Soncini-Sessa, and E. Weber, *Integrated and Participatory Water Resources Management - Theory*, vol. 1 of *Developments in Integrated Environmental Assessment*, ch. Software architecture of MODSSs. Elsevier, 2008.
- [40] A. Voinov, A. J. Jakeman, and A. E. Rizzoli, eds., *Proceedings of the iEMSs Third Biennial Meeting - Summit on Environmental Modelling and Software*, (Burlington, VT, USA), International Environmental Modelling and Software Society, July 2006.
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- Rizzoli, and G. Guariso, eds.), Barcelona, Catalonia: International Environmental Modelling and Software Society, July 2008.
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 - [44] D. Coltorti and A. E. Rizzoli, “Ant colony optimization for real-world vehicle routing problems,” *SIGEVolution*, vol. 2, pp. 2–9, Summer 2007.
 - [45] A. E. Rizzoli, I. N. Athanasiadis, and F. Villa, “Delivering environmental knowledge: a semantic approach,” in *Proc. 21st International Conference on Informatics for Environmental Protection: EnviroInfo 2007* (O. Hryniewicz, J. Studziński, and M. Romaniuk, eds.), vol. 1, pp. 43–50, Shaker Verlag, September 2007. Invited plenary lecture.
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