Carlotta Orsenigo

Politecnico di Milano
Dep. of Management, Economics
and Industrial Enigineering
Via Lambruschini, 4b
20156 Milan, Italy

Phone: (+39) 02 2399 3970
Email: carlotta.orsenigo@polimi.it

Current and previous positions

- June 2019-Present: Associate professor of Computer Science at Politecnico di Milano, Dep. of Management, Economics and Industrial Engineering.
- November 2008-Present: Assistant professor of Computer Science at Politecnico di Milano, Dep. of Management, Economics and Industrial Engineering.
- January 2005-October 2008: Assistant professor at Università degli Studi di Milano, Dep. of Economics, Management and Quantitative Methods.
- April 2003-December 2004: Research fellow at Politecnico di Milano, Dep. of Management, Economics and Industrial Engineering.

Research activity

The research activity has been focused on the development of novel models and methods for machine learning and pattern recognition and their application in several domains ranging from biolife sciences to marketing and finance. Two major research strands were explored. From one side, the development of classification algorithms in the context of statistical learning theory. Main research achievements in this area focused on discrete variants of support vector machines (SVM) and on their combination with classification trees. Specifically, algorithms for time series classification, multi-class discrimination and polyhedral methods for binary classification tasks were proposed and effectively applied on several benchmark problems. From the other side, the design of non-linear dimensionality reduction techniques for high-dimensional data embedding. Major research goals were achieved in the context of manifold learning where effective variants of Isometric feature mapping (Isomap) and novel out-of-sample projection techniques were proposed and applied in several domains. Recent research efforts have been devoted to sentiment and emotion recognition through machine learning algorithms, the use of text classification methods in innovation and entrepreneurship studies, the development of deep learning techniques for fault detection in manufacturing systems.

Publications

ISI/SCOPUS Journals and Books

1. R. Jalayer, M. Jalayer, A. Mor, C. Orsenigo, C. Vercellis. ConvLSTM-based Sound Source Localization in a manufacturing workplace. *Computers & Industrial Engineering* 192 (2024), pp. 110213, https://doi.org/10.1016/j.cie.2024.110213.
2. R. Jalayer, M. Jalayer, C. Orsenigo, C. Vercellis. A Conceptual Framework for Localization of Active Sound Sources in Manufacturing Environment Based on Artificial Intelligence. *Lecture*

Notes in Mechanical Engineering 11314 (2024), pp. 699–707, https://doi.org/10.1007/978-3-031-38241-3_78.

3. M. Jalayer, A. Kaboli, C. Orsenigo, C. Vercellis. Fault detection and diagnosis with imbalanced and noisy data: a hybrid framework for rotating machinery. *Machines* 10 (2022), pp. 237, https://doi.org/10.3390/machines10040237
4. K.A. Araño, C. Orsenigo, M. Soto, C. Vercellis. Multimodal sentiment and emotion recognition in hyperbolic space.*Expert Systems with Applications* 184 (2021), https://doi.org/10.1016/j.eswa.2021.115507
5. K.A. Arano, P. Gloor, C. Orsenigo, C. Vercellis. When Old Meets New: Emotion Recognition from Speech Signals. *Cognitive Computation* 13 (2021), pp. 771–783, https://doi.org/10.1007/s12559-021-09865-2
6. M. Jalayer, C. Orsenigo, C. Vercellis. Fault detection and diagnosis for rotating machinery: A model based on convolutional LSTM, Fast Fourier and continuous wavelet transforms. *Computers in Industry* 125 (2021), https://doi.org/10.1016/j.compind.2020.103378
7. K.A. Arano, P. Gloor, C. Orsenigo, C. Vercellis. "Emotions are the Great Captains of our Lives": Measuring Moods through the Power of Physiological and Environmental Sensing. *IEEE Transactions on Affective Computing* 13(3) (2020), pp. 1378—1389, https://doi.org/10.1109/TAFFC.2020.3003736.
8. E. Lettieri, C. Orsenigo. Predicting soccer consumption: do eSports matter? Empirical insights from a machine learning approach. *Sport, Business and Management: An International Journal* 10(5) (2020), pp. 523-–544, https://doi.org/10.1108/SBM-10-2019-0093.
9. V. Butticè, M.G. Colombo, E. Fumagalli, C. Orsenigo. Green oriented crowdfunding campaigns: Their characteristics and diffusion in different institutional settings. *Technological Forecasting and Social Change* 141 (2019), pp. 85–97, https://doi.org/10.1016/j.techfore.2018.07.047.
10. L. Malandri, F.Z. Xing, C. Orsenigo, C. Vercellis, E. Cambria. Public Mood Drive Asset Allocation: the Importance of Financial Sentiment in Portfolio Management. *Cognitive Computation* 10 (2018), pp. 1167–1176, https://doi.org/10.1007/s12559-018-9609-2.
11. C. Orsenigo, C. Vercellis, C. Volpetti. Concatenating or Averaging? Hybrid Sentences Representations for Sentiment Analysis. *Lecture Notes in Computer Science* 11314 (2018), pp. 567–575, https://doi.org/10.1007/978-3-030-034931_59.
12. C. Orsenigo, C. Vercellis. Anthropogenic influence on global warming for effective cost-benefit analysis: a machine learning perspective. *Journal of Industrial and Business Economics* 45 (2018), pp. 425–442, https://doi.org/10.1007/s40812-018-0092-2.
13. V. Buttice', M.G. Colombo, E. Fumagalli, C. Orsenigo. Green oriented crowdfunding campaigns: Their characteristics and diffusion in different institutional settings. *Technological Forecasting and Social Change* (2018), https://doi.org/10.1016/j.techfore.2018.07.047.
14. V. Buttice', C. Orsenigo, M. Wright. The effect of information asymmetries on serial crowdfunding and campaign success. *Journal of Industrial and Business Economics* 45 (2018), pp. 143–173, https://doi.org/10.1007/s40812-017-0074-9.

15. C. Orsenigo. Effective MVU via central prototypes and kernel ridge regression. In: Modeling Decisions for Artificial Intelligence. *Lecture Notes in Computer Science* 9321 (2015), pp. 143-154, https://doi.org/10.1007/978-3-319-23240-9_12.

16. C. Orsenigo. An improved set covering problem for Isomap supervised landmark selection. *Pattern Recognition Letters* 49 (2014), pp. 131-137, https://doi.org/10.1016/j.patrec.2014.07.007.

17. C. Orsenigo, C. Vercellis. Linear versus nonlinear dimensionality reduction for banks' credit rating prediction. *Knowledge-Based Systems* 47 (2013), pp. 14–22, https://doi.org/10.1016/j.knosys.2013.03.001.

18. C. Orsenigo, C. Vercellis. A comparative study of nonlinear manifold learning methods for cancer microarray data classification. *Expert Systems with Applications* 40 (2013), pp. 2189–2197, https://doi.org/10.1016/j.eswa.2012.10.044.

19. C. Orsenigo, C. Vercellis. Landmark selection for isometric feature mapping based on mixed-integer optimization. In: Modeling Decisions for Artificial Intelligence. *Lecture Notes in Computer Science* 8234 (2013), pp 260–271, https://doi.org/10.1007/978-3-642-41550-0_23.

20. C. Orsenigo, C. Vercellis. Dimensionality reduction via Isomap with lock-step and elastic measures for time series gene expression classification. In: Evolutionary Computation, Machine Learning and Data Mining in Bioinformatics. *Lecture Notes in Computer Science* 7833 (2013), pp 92–103, https://doi.org/10.1007/978-3-642-37189-9_9.

21. C. Orsenigo, C. Vercellis. Regularization through fuzzy discrete SVM with applications to customer ranking. *Journal of Intelligent & Fuzzy Systems* 23 (2012), pp. 101–110, https://doi.org/10.3233/IFS-2012-0493.

22. C. Orsenigo, C. Vercellis. Kernel ridge regression for out-of-sample mapping in supervised manifold learning. *Expert Systems with Applications* 39 (2012), pp. 7757–7762, https://doi.org/10.1016/j.eswa.2012.01.060.

23. C. Orsenigo, C. Vercellis. An effective double-bounded tree-connected Isomap algorithm for microarray data classification. *Pattern Recognition Letters* 33 (2012), pp. 9–16, https://doi.org/10.1016/j.patrec.2011.09.016.

24. C. Orsenigo, C. Vercellis. Combining discrete SVM and fixed cardinality warping distances for multivariate time series classification. *Pattern Recognition* (2010), pp. 3787–3794, https://doi.org/10.1016/j.patcog.2010.06.005.

25. C. Orsenigo, C. Vercellis. Time series gene expression data classification via L1-norm temporal SVM. In: Pattern Recognition in Bioinformatics. *Lecture Notes in Computer Science* 6282 (2010), pp. 264–274, https://doi.org/10.1007/978-3-642-16001-1_23.

26. C. Orsenigo, C. Vercellis. Multicategory classification via discrete support vector machines. *Computational Management Science* 6 (2009), pp. 101–114, https://doi.org/10.1007/s10287-008-0068-1.

27. C. Orsenigo. Gene selection and cancer microarray data classification via mixed-integer optimization. In: Evolutionary Computation, Machine Learning and Data Mining in Bioinformatics. *Lecture Notes in Computer Science* 4973 (2008), pp. 141–152, https://doi.org/10.1007/978-3-540-78757-0_13.

28. C. Orsenigo, C. Vercellis. Accurately learning from few examples with a polyhedral classifier. *Computational Optimization and Applications* 38 (2007), pp. 235–247, https://doi.org/10.1007/s10589-007-9041-0.

29. C. Orsenigo, C. Vercellis. Evaluating membership functions for fuzzy discrete SVM. In: Applications of fuzzy sets theory. *Lecture Notes in Computer Science* 4578 (2007), pp. 187–194, https://doi.org/10.1007/978-3-540-73400-0_23.

30. C. Orsenigo, C. Vercellis. Softening the margin in discrete SVM. In: Advances in Data Mining. *Lecture Notes in Artificial Intelligence* 4597 (2007), pp. 49–62, https://doi.org/10.1007/978-3-540-73435-2_5.

31. C. Orsenigo, C. Vercellis. Predicting HIV protease-cleavable peptides by discrete support vector machines. In: Evolutionary Computation, Machine Learning and Data Mining in Bioinformatics. *Lecture Notes in Computer Science* 4447 (2007), pp.197–206, https://doi.org/10.1007/978-3-540-71783-6_19.

32. C. Orsenigo, C. Vercellis. Protein folding classification through multicategory discrete SVM In: *Mathematical Methods for Knowledge Discovery and Data Mining*, G. Felici and C. Vercellis eds., IGI, 2007, pp. 116–129.

33. C. Orsenigo, C. Vercellis. A Bayesian stopping rule for greedy randomized procedures. *Journal of Global Optimization* 36 (2006), pp. 365–377, https://doi.org/10.1007/s10898-006-9014-3.

34. C. Orsenigo, C. Vercellis. Discrete support vector decision trees via tabu-search. *Computational Statistics and Data Analysis* 47 (2004), pp. 311–322, https://doi.org/10.1016/j.csda.2003.11.005.

35. C. Orsenigo, C. Vercellis. Multivariate classification trees based on minimum features discrete support vector machines. *IMA Journal of Management Mathematics* 14 (2003), pp. 221–234, https://doi.org/10.1093/imaman/14.3.221.

36. C. Orsenigo, C. Vercellis. One-against-all multicategory classification via discrete support vector machines. *Management Information Systems* 7 (2003), pp. 255–264.

International volumes/books

35. C. Orsenigo, C. Vercellis. Rules induction through discrete support vector decision trees. In: *Data Mining and Knowledge Discovery.* Approaches Based on Rule Induction Techniques, E. Triantaphyllou and G. Felici eds., Springer, 2006, pp. 305–325.

Conference proceedings

36. C. Orsenigo, C. Vercellis. Classification of social networks entities by exploiting relational measures. *INFORMS Proc. Artificial Intelligence and Data Mining Workshop*, Seattle, 2007, 1–6.

37. C. Orsenigo, C. Vercellis. Time series classification by discrete support vector machines. *INFORMS Proc. Artificial Intelligence and Data Mining Workshop*, Pittsburgh, 2006, 1–6.

38. C. Orsenigo, C. Vercellis. Hard separation in discrete support vector machines with relational marketing applications. *Proc. 2nd Int. Workshop on Data Mining and Adaptive Modelling Methods for Economics and Management*, Pisa, 2004, 111–123.

Conference talks and seminars

Speaker at the following conferences and invited seminars:

1. Invited speaker at the 1st EIBA-EuSPRI Summer Schools (Machine Learning seminar), Como, July 2022.

2. Invited speaker at the Social Media Days-Italy (Machine Learning seminar), Milano, October 2018.

3. Invited speaker at Google Italy for the Google Machine Learning Day, Milano, January 2018.

4. 10th International Conference on Modeling Decisions for Artificial Intelligence (MDAI 2013), Barcelona, November 2013.
   Title: *Landmark selection for isometric feature mapping based on mixed-integer optimization*

5. 11th European Conference on Evolutionary Computation, Machine Learning and Data Mining in Bioinformatics (EVOBIO 2013), Vienna, April 2013.
   Title: *Dimensionality reduction via Isomap with lock-step and elastic measures for time series gene expression classification*

6. 5th IAPR International Conference on Pattern Recognition in Bioinformatics (PRIB 2010), Nijmegen, September 2010 (http : //videolectures.net/prib2010_orsenigo_tsge/)
   Title: *Time series gene expression data classification via L1-norm temporal SVM*

7. International Conference on Operations Research (OR 2010), Monaco, September 2010.
   Title: *Nonlinear dimensionality reduction through an improved Isomap algorithm for the classification of large datasets*

8. XXIV European Conference on Operational Research (EURO 2010), Lisbon, July 2010.
   Title: *Combining discrete SVM and fixed cardinality warping distances for multivariate time series classification*

9. IX Conference of the Italian Society of Applied and Industrial Mathematics (SIMAI 2008), Roma, September 2008.
   Title: *Discrete support vector machines: a family of classification methods based on mixed-integer optimization*

10. XXXIX Annual Conference of the Italian Operational Research Society (AIRO 2008), Ischia, September 2008.
    Title: *Combining discrete SVM and fixed cardinality warping distances for multivariate time series classification*

11. Invited seminar at Dip. di Informatica, Sistemistica e Comunicazione dell'Università degli Studi di Milano Bicocca, Milano, June 2008.
    Title: *Discrete support vector machines: a family of classification methods based on mixed-integer optimization*

12. 6th European Conference on Evolutionary Computation, Machine Learning and Data Mining in Bioinformatics (EVOBIO 2008), Napoli, March 2008.
    Title: *Gene selection and cancer microarray data classification via mixed-integer optimization*

13. 7th International International Workshop on Fuzzy Logic and Applications (WILF 2007), Camogli, July 2007.
    Title: *Evaluating membership functions for fuzzy discrete SVM*

14. 8th Industrial Conference on Data Mining (ICDM 2007), Leipzig, July 2007.
    Title: *Softening the margin in discrete SVM*

15. INFORMS 2nd Artificial Intelligence and Data Mining Workshop (WAID 2007), Seattle, November 2007.
    Title: *Classification of social networks entities by exploiting relational measures*

16. 5th European Conference on Evolutionary Computation, Machine Learning and Data Mining in Bioinformatics (EVOBIO 2007), Valencia, April 2007.
    Title: *Predicting HIV protease-cleavable peptides by discrete SVM*

17. INFORMS 1st Artificial Intelligence and Data Mining Workshop (WAID 2006), Pittsburgh, November 2006.
    Title: *Time series classification by discrete support vector machines*

18. XXXVI Annual Conference of the Italian Operational Research Society (AIRO 2005), Camerino, September 2005.
    Title: *Accurately learning from few examples with MIP-based classifiers*

19. Mathematical methods for learning: advances in data mining and knowledge discovery (MML 2004), Como, June, 2004.
    Title: *Discrete support vector machines for multicategory classification*

20. ECML/PKDD Workshop on Data Mining and Adaptive Modelling Methods for Economics and Management, Pisa, September 2004.
    Title: *Hard separation in discrete support vector machines with relational marketing applications*

21. XXXV Annual Conference of the Italian Operational Research Society (AIRO 2004), Lecce, September 2004.
    Title: *Hard separation in binary and multicategory discrete support vector machines*

22. XXXIV Annual Conference of the Italian Operational Research Society (AIRO 2003), Venezia, September 2003.
    Title: *Multivariate classification trees based on minimum features discrete support vector machines*

Funded research projects

Investigator in the following funded national research projects:

- **PRIN Project 2004**
  Title: Data mining methods for e-business applications
  Duration: 24 months
  Role: Local unit researcher

- **PRIN Project 2006**
  Title: Data mining and optimization models for biolife and healthcare problems
  Duration: 24 months
  Role: Local unit researcher

Editorial services

- Associate Editor of BOHR International Journal of Computer Science (BIJCS).
- Associate Editor of the International Journal of Data Mining Techniques and Applications (IJDMTA).
- Editorial board member of the The Open Bioinformatics Journal (TOBIOIJ).
- Editorial board member of the International Journal of Data Mining & Knowledge Management Process (IJDKP).
- Reviewer for the following international journals: AI Communications, Algorithms, Annals of Operations Research, Computers and Operations Research, Computational Optimization and Applications, Computers in Biology and Medicine, European Journal of Operational Research, Expert Systems with Applications, Knowledge-Based Systems, IEEE Signal Processing Letters, IEEE Transactions on Pattern Analysis and Machine Intelligence, Information Sciences, International Journal of Bioinformatics Research and Applications, International Journal of Pattern Recognition and Artificial Intelligence, International Journal of Software and Informatics, Multidiscipline Modeling in Materials and Structures, Operations Research.
- Program committee member of the following international conferences for which she also serves as a reviewer:
  - European Conference on Information System and Data Mining (CISDM 2019, 2020)
  - 17th Portuguese Conference on Artificial Intelligence (EPIA 2015)
  - 2015 Genetic and Evolutionary Computation Conference (GECCO-2015), Biological and Biomedical and Applications track
  - Evolutionary Computation, Machine Learning and Data Mining in Computational Biology (EVOBIO, from 2008 to present).
  - IAPR International Conference on Pattern Recognition in Bioinformatics (PRIB, from 2009 to 2015).

Organized conferences and workshops

- Co-Organizer of the International Conference *Mathematical Methods for Learning* (MML 2004), Como, June 2004 [with C. Vercellis (Politecnico di Milano) and G. Felici (IASI-CNR)].
- Invited session organizer on the topic "Data Mining for Life Sciences" at the XXIII European Conference on Operational Research (EURO 2009), Bonn, 2009.

- Invited session organizer on the topic "Forecasting, Data Mining and Machine Learning" at the Operations Research 2010 Conference (OR 2010), Monaco, 2010.
- Organizer of the following workshops at Politecnico di Milano:
  - *Business Intelligence: A constantly changing universe* (November 2011)
  - *Business Intelligence: Looking towards the future* (November 2010)
  - *Optimizing the performance with Business Intelligence systems* (November 2009)
  - *Business Intelligence: Create competitive advantage through data analysis* (November 2008)

Institutional activities and other roles

- Director of the *International Master in Business Analytics and Data Science* at GSOM-Politecnico di Milano (from 2015).
- Director of *DOOR*-Machine Learning and Big Data Analytics group at Politecnico di Milano.
- Director of the HumanTech DataHub Lab at DIG-Politecnico di Milano (from 2024).
- Scientific research responsible of the *Business Intelligence Observatory* at School of Management-Politecnico di Milano (from 2007 to 2013).
- Invited member of the Information Management School (NOVA IMS) Research and Development Center at Universidade Nova de Lisboa (from 2015).
- Member of the faculty board of the Doctoral Programme in Data Analytics and Decision Sciences (DADS) at Politecnico di Milano (from 2023).
- Member of the faculty board of the Doctoral Programme in Data Science and Computation at Università degli Studi di Bologna and Politecnico di Milano (from 2018 to 2020).
- Member of the faculty board of the Doctoral Programme in Management Engineering at Politecnico di Milano (from 2017 to 2018).
- Member of the faculty board of the Doctoral Programme in Economics at Università degli Studi di Milano (from 2007 to 2009).
- Co-organizer of Milan Women in Machine Learning and Data Science Meetup (from 2018).

Knowledge and technology transfer activities

- Co-founder and CTO of Aiblooms, spin-off Politecnico di Milano (from 2018).
- Participant in the following projects:
  - **Project JRN** (May 2024 - present)
    Objective: A journey to Data Analytics and Artificial Intelligence.
    Industrial Partner: Lamborghini
    Role: Principal investigator
  - **Project PAC** (Sept. 2023 - present)
    Objective: Development of artificial intelligence tools for patient access support.
    Industrial Partner: Swedish Orphan Biovitrum
    Role: Principal investigator

- **Project TAL** (Sept. 2023 - present)
  Objective: Development of artificial intelligence-based systems for talents' retention.
  Industrial Partner: Agenzia Generale Monza
  Role: Principal investigator

- **Project MNT** (Sept. 2022 - Dec. 2023)
  Objective: Mentoring on machine learning methods, algorithms and applications.
  Industrial Partner: Banca d'Italia
  Role: Principal investigator

- **Project AGE** (May 2020 - Sept. 2020)
  Objective: Development of a decision support system for enhancing agents' productivity and efficiency.
  Industrial Partner: Generali Group
  Role: Principal investigator

- **Project NPI** (Jan. 2019 - Jan. 2020)
  Objective: Machine learning for new products demand forecasting.
  Industrial Partner: Luxottica
  Role: Artificial intelligence advisor

- **Project Flexa** (March 2018 - Dec. 2021)
  Objective: Development of a web platform for continuous learning based on artificial intelligence.
  Partners: School of Management (Politecnico di Milano) and Microsoft
  Role: Artificial intelligence advisor

- **Project STM** (March 2018 - Dec. 2018)
  Objective: Development of machine learning methods for early failure detection.
  Industrial Partner: STMicroelectronics
  Role: Principal investigator

- **Project Meli** (Feb. 2017 - Sept. 2017)
  Objective: Development of a roadmap for predictive analytics aimed at designing innovative services for publishers and bookstores.
  Industrial Partner: Messaggerie Libri
  Role: Principal investigator

- **Project ODM** (Oct. 2015 - March 2016)
  Objective: Development and release of effective algorithms for origin-destination matrix estimation based on mobile phone call data.
  Industrial Partner: Tim
  Role: Principal investigator

- **Project Preca2** (Jan. 2015 - Nov. 2016)
  Objective: Development and release of a novel prediction tool for optimal queue management.
  Industrial Partner: Esselunga
  Role: Principal investigator

- **Project HiddenCorr** (Oct. 2014 - Jan. 2015)
  Objective: Development of classification models for churn prediction based on supervised learning algorithms.
  Industrial Partner: Vittoria Assicurazioni
  Role: Principal investigator

- **Project Churner Prevention** (Jan. 2011 - June 2011)
  Objective: Churners profiling and characterization based on pattern recognition methods. Analysis of churning root causes.
  Industrial Partner: Mediaset Premium
  Role: Principal investigator

- **Project Lido** (Oct. 2007 - May 2008)
  Objective: Design and implementation of a novel production planning tool for liquid detergents optimal production.
  Industrial Partner: Unilever
  Role: Principal investigator

- **Project SMB** (Oct. 2006 - April 2007)
  Objective: Targeting of prospects based on data mining technologies to optimize marketing campaigns.
  Industrial Partner: Oracle
  Role: Investigator

- **Project MediaMarketing Intelligence** (Nov. 2003 - May 2004)
  Objective: Analysis and comparison of business intelligence tools for profiling customers of electronic goods.
  Industrial Partner: MediaMarket
  Role: Principal investigator

- **Project Optimal Packaging** (Dec. 2003 - Jan. 2004)
  Objective: Design and release of a production planning tool for the optimal production of packaging cases.
  Industrial Partner: Barilla
  Role: Research team member

Teaching experience

Bachelor (BSc), Master of Science (MSc), Postgraduate and Doctoral programs (PhD)

- **Politecnico di Milano**
  BSc in Management and Production Engineering (Role: Professor)
  - *Mathematical Methods for Operations Research (A-C)*, 10 CFU (2013-2016, 2017-present)
  - *Mathematical Methods for Operations Research (P-Z)*, 10 CFU (2008-2015)
  - *Mathematical Methods for Operations Research (L-P)*, 10 CFU (2015-2018)
  - *Fundamentals of Operations Research (P-Z)*, 5 CFU (2005-2008)

  MSc in Biomedical Engineering (Role: Professor)

- *Data Mining*, 5 CFU (AA 2009/2010)
- *Fundamentals of Operations Research*, 5 CFU (AA 2005/2006, 2008/2009)

PhD in Management Engineering (Role: Professor)

- *Machine Learning*, 2 CFU (2021-present)
- *Data Mining*, 2 CFU (2016-2021)

International Master in Business Analytics and Big Data (Role: Professor)

- *Predictive Analytics and Business Applications*, 8 CFU (2016-present)

◦ **Università degli Studi di Milano**
BSc in European Economics (Role: Professor)

- *Laboratory of Business and Marketing Intelligence*, 5 CFU (2005-2008)
- *Mathematics*, 3 CFU (2005-2008)
- *Complements of Mathematics*, 3 CFU (2005-2008)

PhD in Economics and Political Sciences (Role: Professor)

- *Mathematics*, 6 CFU (AA 2008/2009)

◦ **Politecnico di Milano**
BSc in Management Engineering (Role: Lecturer)

- *Fundamentals of Operations Research (A-D)* (Milano Campus), 5 CFU (2003-2005, AA 2006/2007)
- *Fundamentals of Operations Research (P-Z)* (Milano Campus), 5 CFU (2003-2005)
- *Fundamentals of Operations Research (P-Z)* (Lecco Campus), 5 CFU (AA 2004/2005)

MSc in Management Engineering (Role: Lecturer)

- *Business Intelligence* (Milano Campus), 10 CFU (AA 2004/2005, 2006-2011)
- *Business Intelligence* (Como Campus), 10 CFU (AA 2004/2005, 2006-2008)
- *Models and Methods for Decision Support* (Milano Campus), 10 CFU (AA 2003/2004)
- *Models and Methods for Decision Support* (Como Campus), 10 CFU (AA 2003/2004)

Awards

EVOBIO 2007 Best Paper Award for the paper *Predicting HIV protease-cleavable peptides by discrete SVM.*