

# Francesco Trovò

## Curriculum Vitae - Short

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### Highlights

<b>Research</b>	Positions	Assistant Professor (Tenure Track), Politecnico di Milano, DEIB (04/2022–Today). Research Assistant, Politecnico di Milano, DEIB (04/2015 – 02/2020).
	Publications	23 paper on international journals, 3 in class A*, 1 in class A, 4 in class B (CORE2020 ranking). 32 conference proceedings papers, 10 in class A++, 1 in class A+, 8 in class A (GSS ranking).
	Bibliometrics	Google scholar: h-index 14, citations 616 (since 2017, accessed February 25, 2024). Scopus: h-index 11, citations 353 (accessed February 25, 2024). 186 co-authors (according to Scopus).
	Conference Activities	Workflow Chair for AISTATS 2020, Organizing Chair EWRL 2022. Senior Program Committee: AAI 2022, IJCAI 2021. Program Committee: NeurIPS 2020 – 2023, AAMAS 2019, AAI 2017 – 2021 (PC), IJCAI 2017 – 2022, ICML 2021 – 2023.
<b>Teaching</b>	Lecturer	<i>Machine Learning</i> , M.Sc. program at PoliMi (since 2023/2024). <i>Online Learning and Monitoring</i> , Ph.D. program at PoliMi (since 2019/2020). <i>Intelligenza Artificiale</i> , M.Sc. program at UniBG (2017/2018-2019/2020). <i>Informatica</i> , B.Sc. program at PoliMi (2021/2022-2022/2023). <i>Informatica B</i> , B.Sc. program at PoliMi (since 2018/2019).
	Teaching assistant	<i>Machine Learning</i> , M.Sc. program at PoliMi (since 2015/2016-2022/2023). <i>Machine Learning for Networking</i> , Passion in Action program at PoliMi (2018/2019-2019/2020). <i>Informatica B</i> , B.Sc. program at PoliMi (2014/2015-2017/2018).
	Supervision	Advisor/Co-advisor of 2 Doctoral Students at Politecnico di Milano. Opponent Member of 1 Doctoral Examination Committees at Politecnico di Milano. Advisor/Co-advisor of 60+ Master Students at Politecnico di Milano.
<b>Projects</b>	Research	Principal Investigator iBeChange (HE 2023-2027), Investigator for FAIR (PNRR 2023-2026), ELIAS (HE 2023-2027), SafeCREW (HE 2022–2025), I3Lung (HE 2022-2026), Algadimar (PRIN 2018-2020), Total Efficiency 4.0 (POR FESR 2014-2020) and iSense (7th framework programme 2011-2014).
	Industrial	Principal investigator: RealBidMatic (MLcube, 84.000€), Best 2 (RSE S.p.A., 35.000€) Investigator: Best (RSE S.p.A.), BidMatic (AdsHotel), RentMatic (DoveVivo), Aero1, Aero2 (Ferrari S.p.A.), Mediamatic (MMM Advertising), CyberFleet (Pirelli), Methamatics (Lastminute.com).
<b>Tech. Transfer</b>	Spinoff	Co-founder of <b>MLcube</b> (in 2020), Spinoff of Politecnico di Milano ( <a href="http://www.mlcube.com">www.mlcube.com</a> ), which aims at transferring AI cutting-edge methods to the industrial world.

## Selected Publications <sup>1</sup>

### Journals

- 2020 **F. Trovò**, S. Paladino, M. Restelli, N. Gatti, “Sliding-Window Thompson Sampling for Non-Stationary Settings”, *Journal of Artificial Intelligence Research*, AI Access Foundation, 2020, Volume 68, pp 311–364 (CORE2020 class: *A\**, DOI: 10.1613/jair.1.11407).
- 2018 **F. Trovò**, S. Paladino, M. Restelli, N. Gatti, “Improving Multi-armed Bandit Algorithms in Online Pricing Settings”, *International Journal of Approximate Reasoning*, Elsevier, 2018, Volume 98, pp 196–235 (DOI: 10.1016/j.ijar.2018.04.006).
- 2017 M. Roveri, F. Trovò, “An Ensemble Approach for Cognitive Fault Detection and Isolation in Sensor Networks”, *International Journal of Neural Systems*, World Scientific, 2017, Volume 27(3), pp 1–16 (DOI: 10.1142/S0129065716500477).
- 2015 N. Gatti, A. Lazaric, M. Rocco, F. Trovò, “Truthful Learning Mechanisms for Multi-Slot Sponsored Search Auctions with Externalities”, *Artificial Intelligence*, Elsevier, 2015, Volume 227, pp 93–139 (DOI: 10.1016/j.artint.2015.05.012).
- 2014 C. Alippi, M. Roveri, F. Trovò, “A Self-Building and Cluster-Based Cognitive Fault Diagnosis System for Sensor Networks”, *IEEE Transactions on Neural Networks and Learning Systems*, 2014, Volume 25(64), pp 1021–1032 (DOI: 10.1109/TNNLS.2014.2303651).

### Conferences

- 2020 **A. Marchesi, F. Trovò**, N. Gatti, “Learning Probably Approximately Correct Maximin Strategies in Simulation-Based Games with Infinite Strategy Spaces”, proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2020, pp 834–842 (DOI: 10.5555/3398761.3398860) (**acc. rate: 186/808, 23.0%**).
- 2020 **A. Nuara, F. Trovò**, D. Crippa, N. Gatti, M. Restelli, “Driving Exploration by Maximum Distribution in Gaussian Process Bandits”, proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2020, pp 948–956 (DOI: 10.5555/3398761.3398872) (**acc. rate: 186/808, 23.0%**).
- 2019 **A. Nuara, N. Sosio, F. Trovò, M.C. Zaccardi**, N. Gatti, M. Restelli, “Dealing with Interdependencies and Uncertainty in Multi-Channel Advertising Campaigns Optimization”, *The Web Conference (WWW)*, 2019, pp 1376–1386 (DOI: 10.1145/3308558.3313470) (**acc. rate: 225/1247, 18.0%**).
- 2018 **A. Nuara, F. Trovò**, N. Gatti, M. Restelli, “A Combinatorial-Bandit Algorithm for the Online Joint Bid/Budget Optimization of Pay-per-Click Advertising Campaigns”, proceedings of the Conference on Artificial Intelligence (AAAI), 2018, pp 2379–2386 (**acc. rate: 933/3800, 24.6%**).
- 2017 **L. Bisi, G. De Nittis, F. Trovò**, M. Restelli, N. Gatti, “Regret Minimization Algorithms for the Follower’s Behaviour Identification in Leadership Games”, proceedings of the Conference on Uncertainty in Artificial Intelligence (UAI), 2017, pp 1–10, (**acc. rate: 87/282, 30.9%**).
- 2017 **S. Paladino, F. Trovò**, M. Restelli, N. Gatti, “Unimodal Thompson Sampling for Graph-Structured Arms”, proceedings of the Conference on Artificial Intelligence (AAAI), 2017, pp 2457–2463 (DOI: 10.5555/3298483.3298593) (**acc. rate: 638/2590, 24.6%**).
- 2012 N. Gatti, A. Lazaric, F. Trovò, “A Truthful Learning Mechanism for Multi-slot Sponsored Search Auctions with Externalities”, proceedings of the ACM Conference on Electronic Commerce (EC), 2012, pp 605–622 (DOI: 10.1145/2229012.2229057) (**acc. rate: 57/219, 26.0%**).

Milano, February 25, 2024

<sup>1</sup>The research activity took place in a tightly knit collaboration among the authors, thus each author significantly contributed to the publication. For each publication, the author/the authors leading the development of the paper (with equal contribution) are highlighted in boldface, unless the alphabetic order is used. In the latter case the contribution is supposed to be equally distributed among all authors.

# Francesco Trovò

## Curriculum Vitae - Extended

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### Short Bio

Francesco Trovò (Milano, Italy, 5 July 1986) is a tenure track assistant professor with the Dipartimento di Elettronica, Informazione e Bioingegneria at the Politecnico di Milano (Italy). He received his Ph.D. in Information Technology from the Politecnico di Milano (Italy) in 2015. He is currently the lecturer for the courses of Online Learning and Monitoring (Ph.D.), Machine Learning (M.Sc), and Informatica (Basic Programming, B.Sc.). His main research interest is on *online machine learning*, specifically for microeconomic environments in the presence of opponents and non-stationarities.

### Research Experience

- 04/2022 - Today **Assistant Professor, Tenure Track (RTDB)**, *Politecnico di Milano, Dipartimento di Elettronica, Informazione e Bioingegneria*, Milano, Italy  
Topic: Online Learning
- 03/2020 - 02/2022 **Assistant Professor (RTDA)**, *Politecnico di Milano, Dipartimento di Elettronica, Informazione e Bioingegneria*, Milano, Italy  
Topic: Online Learning Techniques for Microeconomic Environments
- 04/2018 - 02/2020 **Research Assistant**, *Politecnico di Milano, Dipartimento di Elettronica, Informazione e Bioingegneria*, Milano, Italy  
Topic: Sviluppo di tecniche multi-armed bandit per il pricing di biglietti aerei.  
Project Leader: Prof. Marcello Restelli.
- 04/2017 - 03/2018 **Research Assistant**, *Politecnico di Milano, Dipartimento di Elettronica, Informazione e Bioingegneria*, Milano, Italy  
Topic: Developing online learning techniques for digital economic scenarios.  
Project Leader: Prof. Nicola Gatti.
- 04/2016 - 03/2017 **Research Assistant**, *Politecnico di Milano, Dipartimento di Elettronica, Informazione e Bioingegneria*, Milano, Italy  
Topic: Development of Machine Learning Techniques for Security Games.  
Tutor: Prof. Nicola Gatti.
- 04/2015 - 03/2016 **Research Assistant**, *Politecnico di Milano, Dipartimento di Elettronica, Informazione e Bioingegneria*, Milano, Italy  
Topic: Flight Clustering Algorithms for Best Price Learning.  
Project Leader: Prof. Nicola Gatti.
- 01/2012 - 03/2015 **Ph.D. in Information Technology**, *Politecnico di Milano, Dipartimento di Elettronica, Informazione e Bioingegneria*, Milano, Italy  
Topic: Machine Learning Techniques for Fault Detection, Isolation and Identification in Sensors/Actuators Networks.  
Thesis: A Cognitive Fault Diagnosis System for Sensor Networks.  
Supervisor: Prof. Manuel Roveri.

### Education

- 09/2009 - 10/2011 **M.Sc. in Machine Learning and Data Mining**, *Aalto University, School of Science and Technology*, Espoo, Finland, 4.47/5  
Thesis: Regret Estimation for Multi-Slot Incentive Compatible Multi-armed Bandit.  
Supervisor: Prof. Erkki Oja, Prof. Alessandro Lazaric.

- 10/2008 - 12/2011 **M.Sc. in Mathematical Engineering**, *Politecnico di Milano, Dipartimento di Matematica*, Milano, Italy, 95/110  
Thesis: An Automated Mechanism Design Approach for Federated Search Engines.  
Supervisor: Prof. Nicola Gatti.
- 09/2005 - 09/2008 **B.Sc. in Mathematical Engineering**, *Politecnico di Milano, Dipartimento di Matematica*, Milano, Italy, 105/110  
Thesis: Breve Introduzione alla Firma Digitale.  
Supervisor: Prof. Alessandra Cherubini.

## List of Publications

- Journals [J23] M. Gabrielli, M. Antonelli, F. Trovò. “Adapting bandit algorithms for settings with sequentially available arms”, *Engineering Applications of Artificial Intelligence*, 2024, Volume 131, pp. 107815. (CORE2020 rank: B)
- [J22] M. Mussi, L. Pellegrino, O.F. Pindaro, M. Restelli, F. Trovò, “A Reinforcement Learning controller optimizing costs and battery State of Health in smart grids”, *Journal of Energy Storage*, 2024, Volume 82, pp. 110572.
- [J21] A. Prelaj, ..., F. Trovò, et al., “APOLLO 11 Project, Consortium in Advanced Lung Cancer Patients Treated With Innovative Therapies: Integration of Real-World Data and Translational Research.”, *2023 Clinical Lung Cancer*, in press.
- [J20] A. Prelaj, ...F. Trovò, et al., “Artificial intelligence for predictive biomarker discovery in immuno-oncology: A systematic review”, *Annals of Oncology*, 2023, Volume 35.1 pp. 29 – 65.
- [J19] M. Bernasconi, E. Vittori, F. Trovò, M. Restelli, “Dealer markets: A reinforcement learning mean field game approach”, *The North American Journal of Economics and Finance*, 2023, Volume 68, pp. 101974.
- [J18] O. Cartagena, F. Trovò, M. Roveri, D. Saez, “Evolving Fuzzy Prediction Intervals in Nonstationary Environments”, *IEEE Transactions on Emerging Topics in Computational Intelligence*, 2023, Volume 8, pp. 903 – 916.
- [J17] M. Mussi, D. Lombarda, A.M. Metelli, F. Trovò, M. Restelli, “ARLO: A framework for Automated Reinforcement Learning”, *Expert Systems with Applications*, 2023, Volume 224, pp. 119883. (CORE2020 rank: B)
- [J16] F. Fedeli, A.M. Metelli, F. Trovò, M. Restelli, “IWDA: Importance Weighting for Drift Adaptation in Streaming Supervised Learning Problems”, *Transaction on Neural Networks and Learning Systems*, Volume 34, Issue 10, pp. 6813 – 6823. (DOI 10.1109/TNNLS.2023.3265524). (CORE2020 rank: A\*)
- [J15] A. Prelaj, ..., F. Trovò, et al., “The EU-funded I3LUNG Project: Integrative Science, Intelligent Data Platform for Individualized LUNG Cancer Care With Immunotherapy”, *Clinical Lung Cancer*, Volume 24.4, pp. 381 – 387.
- [J14] M. Mussi, L. Pellegrino, M. Restelli, F. Trovò, “An online state of health estimation method for lithium-ion batteries based on time partitioning and data-driven model identification”, *Journal of Energy Storage*, 2022, Volume 55, pp. 105467.
- [J13] E.G. Galli, ..., F. Trovò, et al., “Using Real World data to build effective predictive machine learning models for NSCLC patients treated with immune-based therapy”, *Journal of Thoracic Oncology*, Volume 17, Number 9, pp. S337 – S338.
- [J12] M. Gabrielli, F. Trovò, M. Antonelli, “Automatic optimization of temporal monitoring schemes dealing with daily water contaminant concentration patterns”. *Environmental Science: Water Research & Technology*, The Royal Society of Chemistry, 2022, Volume 8, pp- 2099–2113. (DOI 10.1039/D2EW00089J).
- [J11] A. Nuara, F. Trovò, N. Gatti, M. Restelli, “Online Joint Bid/Daily Budget Optimization of Internet Advertising Campaigns”, *Artificial Intelligence*, Elsevier, 2022, Volume 305, Number 103663 (DOI 10.1016/j.artint.2022.103663). (CORE2020 rank: A\*)
- [J10] A. Prelaj, ..., F. Trovò, et al., “Machine Learning Using Real-World and Translational Data to Improve Treatment Selection for NSCLC Patients Treated with Immunotherapy”. *Cancers*, MDPI, 2022, Volume 14, Number 435 (DOI 10.3390/cancers14020435).
- [J9] M. Mussi, L. Pellegrino, M. Restelli, F. Trovò, “A voltage dynamic-based state of charge estimation method for batteries storage systems”, *Journal of Energy Storage*, 2021, Volume 44, Number 103309 (DOI: 10.1016/j.est.2021.103309).

- [J8] F. Trovò, S. Paladino, M. Restelli, N. Gatti, “Sliding-Window Thompson Sampling for Non-Stationary Settings”, *Journal of Artificial Intelligence Research*, 2020, Volume 68, pp 311–364 (DOI: 10.1613/jair.1.11407). (CORE2020 rank: A)
- [J7] A. Prelaj, ..., F. Trovò, et al., “Integrating clinical and biological prognostic biomarkers in patients with advanced NSCLC treated with immunotherapy: the DEMo score system”, *Translational Lung Cancer Research*, AME Publishing Company, 2020, Volume 9(3), pp 617–628 (DOI: 10.21037/tlcr-20-231).
- [J6] F. Trovò, S. Paladino, M. Restelli, N. Gatti, “Improving Multi-armed Bandit Algorithms in Online Pricing Settings”, *International Journal of Approximate Reasoning*, Elsevier, 2018, Volume 98, pp 196–235 (DOI: 10.1016/j.ijar.2018.04.006). (CORE2020 rank: B)
- [J5] M. Roveri, F. Trovò, “An Ensemble Approach for Cognitive Fault Detection and Isolation in Sensor Networks”, *International Journal of Neural Systems*, World Scientific, 2017, Volume 27(3), pp 1–16 (DOI: 10.1142/S0129065716500477). (CORE2020 rank: B)
- [J4] M.A. Cugueró-Escofet, J. Quevedo, C. Alippi, M. Roveri, V. Puig, D. García, F. Trovò, “Model-vs. Data-Based Approaches Applied to Fault Diagnosis in Potable Water Supply Networks”, *Journal of Hydroinformatics*, 2016, IWA Publishing, Volume 18(5), pp 831–850 (DOI: 10.2166/hydro.2016.218).
- [J3] N. Gatti, A. Lazaric, M. Rocco, F. Trovò, “Truthful Learning Mechanisms for Multi-Slot Sponsored Search Auctions with Externalities”, *Artificial Intelligence*, Elsevier, 2015, Volume 227, pp 93–139 (DOI: 10.1016/j.artint.2015.05.012).
- [J2] C. Alippi, M. Roveri, F. Trovò, “A Self-Building and Cluster-Based Cognitive Fault Diagnosis System for Sensor Networks”, *IEEE Transactions on Neural Networks and Learning Systems*, 2014, Volume 25(64), pp 1021–1032 (DOI: 10.1109/TNNLS.2014.2303651). (CORE2020 rank: A\*)
- [J1] A.A. Nacci, F. Trovò, F. Maggi, M. Ferroni, A. Cazzola, D. Sciuto, M.D. Santambrogio, “Adaptive and Flexible Smartphone Power Modeling”, *Mobile Networks and Applications*, Springer US, 2013, Volume 18(5), pp 600–609 (DOI: 10.1007/s11036-013-0470-y).
- Conferences [C32] T. Paladini, M. Bernasconi, M. Carminati, M. Polino, F. Trovò, S. Zanero, “Advancing Fraud Detection Systems through Online Learning”, proceedings of the European Conference on Machine Learning (ECML), 2023, pp. 275 – 292.
- [C31] M. Bernasconi, M. Castiglioni, A. Celli, A. Marchesi, F. Trovò, N. Gatti, “Optimal rates and efficient algorithms for online bayesian persuasion”, proceedings of the International Conference on Machine Learning (ICML), 2023, pp. 2164 – 2183.
- [C30] M. Bernasconi, M. Castiglioni, A. Marchesi, F. Trovò, N. Gatti, “Constrained Phi-Equilibria”, proceedings of the International Conference on Machine Learning (ICML), 2023, pp. 2184 – 2205.
- [C29] M. Zanitti, M. Ferens, A. Ferrarin, F. Trovò, V. Miskovic, A. Prelaj, M. Shen, S. Kosta, “Metalung: Towards a secure architecture for lung cancer patient care on the metaverse” proceedings of the IEEE International Conference on Metaverse Computing, Networking and Applications (MetaCom), 2023, pp. 201 – 208
- [C28] M. Mussi, G. Genalti, A. Nuara, F. Trovò, M. Restelli, N. Gatti, “Dynamic Pricing with Volume Discounts in Online Settings”, proceedings of the conference on Innovative Applications of Artificial Intelligence (IAAI), 2023, pp. 15560 – 15568.
- [C27] M. Bernasconi, S. Martino, E. Vittori, F. Trovò, M. Restelli, “Dark-Pool Smart Order Routing: a Combinatorial Multi-armed Bandit Approach” proceedings of the ACM International Conference on Artificial Intelligence in Finance (ICAIF), 2022.
- [C26] M. Mussi, G. Genalti, F. Trovò, A. Nuara, N. Gatti, M. Restelli, “Pricing the Long Tail by Explainable Product Aggregation and Monotonic Bandits”, proceedings of the ACM Special Interest Group on Knowledge Discovery and Data Mining (SIGKDD), 2022.
- [C25] M. Bernasconi, F. Cacciamani, M. Castiglioni, A. Marchesi, N. Gatti, F. Trovò, “Safe Learning in Tree-Form Sequential Decision Making: Handling Hard and Soft Constraints”, proceedings of the International Conference on Machine Learning (ICML), 2022.
- [C24] M. Pirola, A.M. Metelli, F. Trovò, M. Restelli, “Stochastic Rising Bandits” proceedings of the International Conference on Machine Learning (ICML), 2022.

- [C23] G. Romano, A. Agostini, F. Trovò, N. Gatti, M. Restelli, “Multi-Armed Bandit Problem with Temporally-Partitioned Rewards: When Partial Feedback Counts”, proceedings of the International Joint Conference on Artificial Intelligence (IJCAI), 2022.
- [C22] M. Bernasconi de Luca, F. Cacciamani, S. Fioravanti, N. Gatti, F. Trovò, “The Evolutionary Dynamics of Soft-Max Policy Gradient in Multi-Agent Settings”, proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2022.
- [C21] M. Bernasconi de Luca, F. Cacciamani, S. Fioravanti, N. Gatti, A. Marchesi, F. Trovò, “Exploiting Opponents Under Utility Constraints in Sequential Games”, proceedings of the Neural Information and Processing Systems (NeurIPS), 2021.
- [C20] E. Vittori, M. Bernasconi de Luca, F. Trovò, M. Restelli, “Conservative Online Convex Optimization”, proceedings of the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD), 2021.
- [C19] G. Re, F. Chiusano, F. Trovò, D. Carrera, G. Boracchi, M. Restelli, “Exploiting History Data for Nonstationary Multi-armed Bandit”, proceedings of the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD), 2021.
- [C18] E. Vittori, M. Bernasconi de Luca, F. Trovò, M. Restelli, “Dealing with Transaction Costs in Portfolio Optimization: Online Gradient Descent with Momentum”, proceedings of the ACM International Conference on Artificial Intelligence in Finance (ICAIF), 2020.
- [C17] A. Marchesi, F. Trovò, N. Gatti, “Learning Probably Approximately Correct Maximin Strategies in Simulation-Based Games with Infinite Strategy Spaces”, proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2020, pp 834-842 (DOI: 10.5555/3398761.3398860).
- [C16] A. Nuara, F. Trovò, D. Crippa, N. Gatti, M. Restelli, “Driving Exploration by Maximum Distribution in Gaussian Process Bandits”, proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2020, pp 948-956 (DOI: 10.5555/3398761.3398872).
- [C15] A. Nuara, N. Sosio, F. Trovò, M.C. Zaccardi, N. Gatti, M. Restelli, “Dealing with Interdependencies and Uncertainty in Multi-Channel Advertising Campaigns Optimization”, The Web Conference (WWW), 2019, pp 1376-1386 (DOI: 10.1145/3308558.3313470).
- [C14] A. Nuara, F. Trovò, N. Gatti, M. Restelli, “Online Joint Bid/Budget Optimization of Pay-per-click Advertising Campaigns”, European Conference on Multi-agent Systems (EUMAS), 2018.
- [C13] L. Bisi, G. De Nittis, F. Trovò, M. Restelli, N. Gatti, “Online Follower’s Behaviour Identification in Leadership Games”, European Conference on Multi-agent Systems (EUMAS), 2018.
- [C12] F. Trovò, S. Paladino, M. Restelli, N. Gatti, “Improving Multi-Armed Bandit Algorithms for Pricing”, European Conference on Multi-agent Systems (EUMAS), 2018.
- [C11] M. Gasparini, A. Nuara, F. Trovò, N. Gatti, M. Restelli, “Targeting Optimization for Internet Advertising by Learning from Logged Bandit Feedback”, proceedings of the International Joint Conference on Neural Networks (IJCNN), 2018, pp 1-8 (DOI: 10.1109/IJCNN.2018.8489092).
- [C10] A. Nuara, F. Trovò, N. Gatti, M. Restelli, “A Combinatorial-Bandit Algorithm for the Online Joint Bid/Budget Optimization of Pay-per-Click Advertising Campaigns”, proceedings of the Conference on Artificial Intelligence (AAAI), 2018, pp 2379-2386.
- [C9] L. Bisi, G. De Nittis, F. Trovò, M. Restelli, N. Gatti, “Regret Minimization Algorithms for the Follower’s Behaviour Identification in Leadership Games”, proceedings of the Conference on Uncertainty in Artificial Intelligence (UAI), 2017, pp 1-10.
- [C8] F. Trovò, S. Paladino, P. Simone, M. Restelli, N. Gatti, “Risk-averse Trees for Learning from Logged Bandit Feedback”, proceedings of the International Joint Conference on Neural Networks (IJCNN), 2017, pp 976-983 (DOI: 10.1109/IJCNN.2017.7965958).
- [C7] S. Paladino, F. Trovò, M. Restelli, N. Gatti, “Unimodal Thompson Sampling for Graph-Structured Arms”, proceedings of the Conference on Artificial Intelligence (AAAI), 2017, pp 2457-2463 (DOI: 10.5555/3298483.3298593).

- [C6] F. Trovò, S. Paladino, M. Restelli, N. Gatti, “Budgeted Multi-armed Bandit in Continuous Action Space”, proceedings of the European Conference on Artificial Intelligence (ECAI), 2016 (DOI: 10.3233/978-1-61499-672-9-560).
- [C5] M. Roveri, F. Trovò, “An Ensemble of HMMs for Cognitive Fault Detection in Distributed Sensor Networks”, proceedings of the International Conference on Artificial Intelligence Applications and Innovations (IAI), 2014, 90–100 (DOI: 10.1007/978-3-662-44654-6\_9).
- [C4] M. Ferroni, A. Cazzola, F. Trovò, D. Sciuto, M.D. Santambrogio, “On Power and Energy Consumption Modeling for Smart Mobile Devices”, proceedings of the IEEE International Conference on Embedded and Ubiquitous Computing (EUC), 2014 (DOI: 10.1109/EUC.2014.47).
- [C3] C. Alippi, M. Roveri, F. Trovò, “A Learning from Models Cognitive Fault Diagnosis System”, proceedings of the Artificial Neural Networks and Machine Learning (ICANN), 2012 (DOI: 10.1007/978-3-642-33266-1\_38).
- [C2] N. Gatti, A. Lazaric, F. Trovò, “A Truthful Learning Mechanism for Multi-slot Sponsored Search Auctions with Externalities”, proceedings of the ACM Conference on Electronic Commerce (EC), 2012 (DOI: 10.1145/2229012.2229057).
- [C1] N. Gatti, A. Lazaric, and F. Trovò, “A Truthful Learning Mechanism for Multi-slot Sponsored Search Auctions with Externalities”, proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2012.
- Workshops and Symposia [W18] A. Montenegro, M. Mussi, F. Trovò, M. Restelli, A.M. Metelli, “Stochastic Rising Bandits: A Best Arm Identification Approach”, European Workshop on Reinforcement Learning, 2023.
- [W17] B. Cantoni, L. Riva, C. Romani, I. Epifani, F. Trovò, C. Punta, M. Antonelli, “SafeCREW: a holistic project to reduce NOM and DBPs in drinking water and minimize the human health risk under climate change scenarios”, Gordon Research Conference, 2023.
- [W16] A. Montenegro, M. Mussi, F. Trovò, M. Restelli, A.M. Metelli, “A Best Arm Identification Approach for Stochastic Rising Bandits”, Workshop on New Frontiers in Learning, Control, and Dynamical Systems @ICML 2023.
- [W15] M. Bernasconi, F. Cacciamani, S. Fioravanti, A. Marchesi, N. Gatti, F. Trovò, “Exploiting Opponents under Utility Constraints in Extensive-Form Games”, Workshop on Reinforcement Learning in Games @AAAI, 2022.
- [W14] M. Bernasconi de Luca, F. Cacciamani, S. Fioravanti, N. Gatti, F. Trovò, “The Evolutionary Dynamics of Soft-Max Policy Gradient in Games”, Workshop on Reinforcement Learning in Games @AAAI, 2022.
- [W13] M. Bernasconi de Luca, F. Cacciamani, S. Fioravanti, N. Gatti, F. Trovò, “The Evolutionary Dynamics of Soft-Max Policy Gradient in Multi-Agent Settings”, Cooperative AI Workshop @ NeurIPS, 2021.
- [W12] M. Castiglioni, A. Nuara, G. Romano, G. Spadaro, F. Trovò, N. Gatti, “Safe Online Bid Optimization with Uncertain Return-On-Investment and Budget Constraints”, Workshop on Machine Learning meets Econometrics @ NeurIPS, 2021.
- [W11] E. Vittori, M. Bernasconi de Luca, F. Trovò, M. Restelli, “Dealing with Transaction costs in Online Portfolio Optimization” Workshop on MIning DAta for financial applicationS (MIDAS) @ ECML, 2021.
- [W10] M. Bernasconi de Luca, E. Vittori, F. Trovò, M. Restelli, “Dealer Markets: a Reinforcement Learning Mean Field Approach”, Big Data and Machine Learning in Finance Conference, 2021.
- [W9] F. Trovò, S. Paladino, M. Restelli, N. Gatti, “Sliding-Window Thompson Sampling for Non-Stationary Settings”, International Joint Conference on Artificial Intelligence (IJCAI), Journal Track (Invited), 2020.
- [W8] A. Prelaj, M. Boeri, A. Robuschi, C. Proto, G. Lo Russo, R. Ferrara, G. Galli, A. De Toma, M. Brambilla, M. Occhipinti, S. Manglaviti, A. Labianca, T. Beninato, M. Bini, M. Mensah, M. Ganzinelli, N. Zilembo, F. de Braud, G. Sozzi, M. Restelli, A. Pedrocchi, M.C. Garassino, F. Trovò “Artificial intelligence to improve selection for NSCLC patients treated with immunotherapy”, Clinical Cancer Research (Abstract), 2021.
- [W7] A. Marchesi, F. Trovò, N. Gatti “Learning Maximin Strategies with Best Arm Identification Techniques”, Games, Agents and Incentives Workshops (GAIW) @ AAMAS, 2020.

[W6] A. Marchesi, F. Trovò, N. Gatti “Learning Maximin Strategies in Simulation-Based Games with Infinite Strategy Spaces”, Smooth Games Optimization and Machine Learning Workshop (SGO&ML) @ NeurIPS, 2019.

[W5] A. Nuara, N. Sosio, F. Trovò, M.C. Zaccardi, N. Gatti, M. Restelli “IDIL: Exploiting Interdependence to Optimize Multi-Channel Advertising Campaigns”, Games, Agents and Incentives Workshops (GAIW) @ AAMAS, 2019.

[W4] G.M. Accabi, A. Nuara, F. Trovò, N. Gatti, M. Restelli “When Gaussian Processes Meet Combinatorial Bandits: GCB” European Workshop on Reinforcement Learning (EWRL), 2018.

[W3] F. Trovò, S. Paladino, M. Restelli, N. Gatti, “Multi-armed Bandit for Pricing”, European Workshop on Reinforcement Learning (EWRL), 2015.

[W2] M. Roveri, F. Trovò, “Making Intelligent the Embedded Systems Through Cognitive Outlier and Fault Detection”, proceedings of the Italian Workshop on Neural Networks (WIRN), 2015 (DOI: 10.1007/978-3-319-33747-0\_38).

[W1] C. Alippi, M. Roveri, F. Trovò, “Learning Causal Dependencies to Detect and Diagnose Faults in Sensor Networks”, proceedings of the IEEE Symposium on Intelligent Embedded Systems (IES), 2014 (DOI: 10.1109/INTELES.2014.7008983).

Other Publications [O5] A. Prelaj, F. Trovò, et al., “Trustworthy artificial intelligence models using real-world and circulating genomics data for the prediction of immunotherapy efficacy in non-small cell lung cancer patients”, *Annals of Oncology*, 2022, Volume 33, pp. S1043.

[O4] A. Nuara, F. Trovò, N. Gatti, “A privacy-preserving tests optimization algorithm for epidemics containment”, arXiv preprint arXiv:2006.15977, 2020.

[O3] G. De Nittis, F. Trovò, “Machine Learning Techniques for Stackelberg Security Games: a Survey”, arXiv preprint arXiv:1609.09341, 2016.

[O2] F. Trovò, “A Cognitive Fault Detection and Diagnosis System for Sensor Networks”, Ph.D. Thesis, 2015.

[O1] F. Trovò, “Automated Mechanism Design for Large Instances of Federate Search Engines”, Politecnico di Milano, Dipartimento di Elettronica, Informazione e Bioingegneria, Milano, Italy, N 2012.37.

In preparation/Sub- [N2] M. Bernasconi de Luca, F. Cacciamani, S. Fioravanti, N. Gatti, F. Trovò, “The Evolutionary Dynamics of Soft-Max Policy Gradient in Multi-Agent Settings” (Submitted to *Theoretical Computer Science*).

[N1] G. Spadaro, G. Romano, A. Nuara, M. Castiglioni, F. Trovò, N. Gatti, “Safe Online Bid Optimization with Uncertain Return-On-Investment and Budget Constraints” (Submitted to NeurIPS 2023).



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## Technological Transfer

2020-Today **Co-founder of MLcube**, *Politecnico di Milano Spin-off company MLcube ([www.mlcube.com](http://www.mlcube.com))*, which aims at transferring AI cutting-edge methods to the industrial world

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## Teaching Activities

2023-Today **Lecturer of Machine Learning**, *M.Sc. in Bioinformatics for computational genomics at Master programme interateneo Politecnico di Milano, Milano, Italy*

2020-2022 **Lecturer of Informatica**, *B.Sc. in Civil Engineering for Risk Mitigation at Politecnico di Milano, Milano, Italy*

2020-Today **Lecturer of Online Learning and Monitoring**, *Ph.D. Course at Politecnico di Milano, Milano, Italy*  
In collaboration with Prof. G. Boracchi.

2018-Today **Lecturer of Informatica B**, *B.Sc. in Mechanical and Energy Engineering at Politecnico di Milano, Milano, Italy*

2018-2020 **Lecturer of Intelligenza Artificiale**, *M.Sc. in Computer Science Engineering at Università degli Studi di Bergamo, Bergamo, Italy*

2019-2020 **Teaching assistant of Machine Learning for Networking**, *Passion in Action Course at Politecnico di Milano, Milano, Italy*  
Prof. C.A. Redondi.

2016-2023 **Teaching Assistant of Machine Learning**, *M.Sc. in Computer Engineering and Mathematical Engineering at Politecnico di Milano, Milano, Italy*  
Prof. M. Restelli.

2014-2017 **Teaching Assistant of Informatica B**, *B.Sc. in Mechanical Engineering at Politecnico di Milano, Milano, Italy*  
Prof. G. Boracchi.

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## Honors, Grants and Scholarships

The 2023 IAAI Deployed Application Award for “Dynamic Pricing with Volume Discounts in Online Settings”.

F.Ili Confaloneri Post-Doctoral Scholarship, 2016.

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## Referee Services

Associate Editor IEEE Transaction on Neural Networks and Learning Systems, 2022–Today.

Reviewer Artificial Intelligence.

Journal of Artificial Intelligence Research.

IEEE Transaction on Neural Networks and Learning Systems.

IEEE Transaction on Emerging Topics in Computational Intelligence.

IEEE Transaction on Artificial Intelligence.

IEEE Computational Intelligence Magazine.

Pattern Recognition.

Expert Systems with Applications.

Adaptive Behavior.

Neural Networks.

Neural Computing and Applications.

Evolving Systems.

Heliyon.

Plos One.

Frontiers in Oncology.

Frontiers in Artificial Intelligence.

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## Conference Activities

Organizing Committee	Organizing Chair for EWRL 2022, European Workshop on Reinforcement Learning. Workflow Chair for AISTATS 2020, International Conference on Artificial Intelligence and Statistics.
Session Chairing	Session Chair for ECML 2021, European Conference on Machine Learning.
Senior Program Committee Member	AAAI 2022, Conference on Artificial Intelligence. IJCAI 2021, International Joint Conference on Artificial Intelligence.
Program Committee Member	ICML 2021 – 2024 (PC), International Conference on Machine Learning. NeurIPS 2020 – 2023, Conference on Neural Information Processing Systems. AAMAS 2019, 2022 (PC), International Conference on Autonomous Agents and Multiagent Systems. AAAI 2017 – 2021 (PC), Conference on Artificial Intelligence. IJCAI 2017 – 2020, 2022 – 2023 (PC), International Joint Conference on Artificial Intelligence.
Reviewer	AISTATS 2021 – 2024, International Conference on Artificial Intelligence and Statistics. ICLR 2021 – 2023, International Conference on Learning Representations. EANN 2017 – 2019, International Conference on Engineering Applications of Neural Networks. IJCNN 2017 – 2019, IEEE International Joint Conference on Neural Networks. AAMAS 2017, International Conference on Autonomous Agents and Multiagent Systems. ICAISC 2015, International Conference on Artificial Intelligence and Soft Computing. IEEE SPICE 2015, International Conference on Signal Processing, Informatics, Communication and Energy Systems. IJCNN 2014 – 2016, IEEE International Joint Conference on Neural Networks. SSCI 2014, 2016, IEEE Symposium Series on Computational Intelligence. ICANN 2014, 2017, International Conference on Artificial Neural Networks. AIAI 2013 – 2014, 2018, International Conference on Artificial Intelligence Applications & Innovations. CICIP 2013, International Conference on Intelligent Control and Information Processing.

## Participation in Research Projects

- 12/2023 - Today **iBeChange**, *EU (Horizon Europe Project)*, (500K€ fundings for the Polimi Unit)  
Topic: Development of a reinforcement-learning-based tool to suggest behavioural changes to reduce the risks for cancer patients.  
Role: Principal Investigator for the Polimi Unit. Development of the algorithmic part of the system and identification of the most impactful factors for reducing the risk.
- 06/2023 - Today **ELIAS**, *EU (Horizon Europe Project)*, (380K€ fundings for the Polimi Unit)  
Topic: Establish collaborations in Europe to push the EU as a leader in AI research which impact on the environment, and society.  
Role: Researcher, fostering the collaborations between academics and industry.
- 01/2023 - Today **FAIR**, *PNRR (Spoke 4: Adaptive AI)*  
Topic: Development of AI techniques able to interact with the environment, perceive the surrounding context, and the information related to its change over time and, finally, to act promptly to deal with such a modification of the environment.  
Role: Task Co-leader, assessment, collection, and categorization of the application where the AI has been introduced.  
Spoke Coordinator: Prof. Nicola Gatti.
- 10/2022 - Today **SafeCREW**, *EU (Horizon Europe Project)*, (50K€ fundings for the DEIB unit)  
Topic: Development of machine learning techniques to predict the presence of dangerous material in the potable water, and study on the effectiveness of the different mitigation techniques (e.g., use of disinfectant) due to climatic changes.  
Role: Task Leader, study of data-driven algorithms to determine the potability of the water using physical measurement.  
Principal Investigator: Prof. Manuela Antonelli.

- 07/2022 - Today **I3Lung, EU (Horizon Europe Project)**, (800K€ fundings for the Polimi Unit)  
 Topic: Development of support decision systems for immunotherapeutic treatment of NSCLC using data-driven Artificial Intelligence methods.  
 Role: Work Package Leader, study of novel algorithms for NSCLC response prediction.  
 Principal Investigator: Prof. Alessandra Laura Giulia Pedrocchi.
- 01/2021 - Today **RealBidMatic, MLcube**, (84K€ fundings)  
 Topic: Life-Cycle-Management and Optimization of machine learning algorithms in real-time biddings  
 Role: Principal Investigator, study of novel algorithms for real-time bidding using online learning techniques.  
 Co-Project Leader: Prof. Nicola Gatti, Prof. Marcello Restelli.
- 11/2020 - 10/2021 **BEst 2, RSE S.p.A.**, (35K€ fundings)  
 Topic: Estimation of lithium-ion batteries state of charge for smart energy systems.  
 Role: Principal Investigator, development of data-driven models to provide an accurate estimation of the battery degradation and to manage the battery usage profiles to slow down the battery ageing process.  
 Co-Project Leader: Prof. Marcello Restelli.
- 11/2019 - 10/2020 **BEst, RSE S.p.A.**  
 Topic: Estimation of lithium-ion batteries state of charge for smart energy systems.  
 Role: Senior research scientist, development of data-driven models able to providing an accurate estimation of the current state of a lithium-ion battery, relying on the current and voltage measurements provided on the operational life of the battery.  
 Project Leader: Prof. Marcello Restelli.
- 11/2019 - Today **BidMatic, AdHotel**  
 Topic: Development of an automatic bidding system for hotel advertisement.  
 Role: Senior research scientist, coordinating the experimental activities and the development of the algorithms for automatic bidding and segmentation of the ad market.  
 Project Leader: Prof. Nicola Gatti.
- 08/2019 - Today **ALGADIMAR, MIUR (PRIN)**  
 Topic: Development of new methods and tools in research areas that are critical to the understanding of digital markets.  
 Role: Research scientist, design of novel algorithmic game theory and machine learning tools for optimization in strategic settings.  
 Local Project Leader: Prof. Nicola Gatti.
- 10/2018 - 04/2021 **RentMatic, DoveVivo**  
 Topic: Development of a pricing algorithm for long-term room rent.  
 Role: Research scientist, development of a model able to providing a pricing strategy basing on the features of the rooms, the neighbourhood, and dealing whit seasonality effects.  
 Project Leaders: Prof. Nicola Gatti, Prof. Marcello Restelli.
- 08/2019 - 11/2019 **Aero 2, Ferrari SpA**  
 Topic: Further analysis on the machine Learning techniques for aerodynamics performance optimization.  
 Role: Research scientist (topic details are not disclosed due to NDA).  
 Project Leaders: Prof. Marcello Restelli.
- 03/2019 - 12/2019 **Aero 1, Ferrari SpA**  
 Topic: Machine learning techniques for aerodynamics performance optimization.  
 Role: Research scientist (topic details are not disclosed due to NDA).  
 Project Leaders: Prof. Marcello Restelli.
- 11/2016 - 10/2019 **Mediamatic, MMM Advertising**  
 Topic: Development of an algorithm for assisting the humans to design more efficient advertisement campaigns.  
 Role: Research scientist, development of a user model able to capture the non-stationary nature of the phenomenon and application of reinforcement learning techniques to provide an approximated optimal planning of the campaign.  
 Project Leaders: Prof. Nicola Gatti, Prof. Marcello Restelli.
- 10/2016 - 02/2020 **Total Efficiency 4.0, Regione Lombardia (POR FESR 2014-2020)**  
 Topic: Development of a model to perform predictive maintenance in the context of smart manufacturing plants.  
 Role: Research scientist, developing techniques and models suited for the data provided by the different units of the industrial process. Coordinating the master theses activities.  
 Local Project Leader: Prof. Marcello Restelli.

- 11/2015 - 05/2017 **CyberFleet, Pirelli**  
 Topic: Development of a model to predict the pressure deflation for truck tyres, to improve the tyres maintenance schedules.  
 Role: Research scientist, developing data preprocessing techniques and predictive models suited for the data provided by the available pressure sensors. Coordinating the master theses activities.  
 Local Project Leader: Prof. Marcello Restelli.
- 04/2015 - 02/2019 **Methamatics, Lastminute.com**  
 Topic: Development of an algorithm for automatic pricing of flight tickets.  
 Role: Research scientist, developing new multi-armed bandit algorithms able to exploit the characteristics of the pricing scenario and new clustering algorithm to improve the optimal price learning process.  
 Project Leaders: Prof. Nicola Gatti, Prof. Marcello Restelli.
- 03/2013 - 08/2016 **Mpower**  
 Topic: Design and implementation of a system able to predict a mobile device Time To Live (TTL), able to provide the user with suggestions on the optimal device configuration w.r.t. the desired TTL.  
 Role: Research scientist, developing new predictive models for energy consumption based on dynamic models (e.g., autoregressive with exogenous inputs). Coordinating the master theses activities.  
 Project Leader: Prof. Marco Domenico Santambrogio.
- 01/2012 - 02/2014 **iSense, EU (7th framework programme)**  
 Topic: Development of intelligent data processing methods for fault diagnosis.  
 Role: Research scientist, investigating computational intelligence approaches and algorithms to detect and diagnose faults in critical application scenarios such as water distribution networks and environmental monitoring systems.  
 Local Project Leader: Prof. Cesare Alippi.

## Talks

- Seminar “Explainable AI: come rendere spiegabili gli algoritmi di AI”, Online Certification Program in Artificial Intelligence for Professionals, Online, July 2023.
- Talk “Machine Learning for real-world data analysis” at the Artificial Intelligence for Oncology Conference, Milano (IT), May 2023.
- Talk “Rising Bandits” at the ELLIS@Milan Artificial Intelligence Workshop, Milano (IT), September 2022.
- Seminar “Applying ML Techniques into the Pirelli Environment”, at the Master-RDExcellenceNext course, Milano (IT), September 2022.
- Talk “Hitchhiker Guide to Artificial Intelligence”, at I mercoledì dell'oncologia, Online, July 2022.
- Seminar “Explainable AI: come rendere spiegabili gli algoritmi di AI”, Online Certification Program in Artificial Intelligence for Professionals, Online, June 2022.
- Talk “Artificial Intelligence in the Industrial World”, Panel for the Future of Science and Technology, Milano (IT), May 2022.
- Talk “Sliding-Window Thompson Sampling for Non-Stationary Settings” at the International Joint Conference on Artificial Intelligence, Journal Track, Online, August 2021.
- Seminar “Explainable regression and Classification” at the Osservatorio AI technical webinar series, Online, June 2021.
- Seminar “From MAB to RL ...and beyond!” at the AI meetup by MLModena, Online, January 2021.
- Seminar “Explainable regression and Classification” at the Osservatorio AI technical workshop series, Online, September 2020.
- Talk “Learning Probably Approximately Correct Maximin Strategies in Simulation-Based Games with Infinite Strategy Spaces” at the International Conference on Autonomous Agent and Multi-Agent Systems, Online, May 2020.
- Talk “Driving Exploration by Maximum Distribution in Gaussian Process Bandits” at the International Conference on Autonomous Agent and Multi-Agent Systems, Online, May 2020.
- Talk “Dealing with Interdependencies and Uncertainty in Multi-Channel Advertising Campaigns Optimization” at the Markets, Algorithms, Prediction and LEarning (MAPLE) workshop, the Politecnico di Milano, Milano (IT), September 2019.
- Talk “Improving Multi-Armed Bandit Algorithms” at the European Conference on Multi-Agent Systems, the University of Bergen, Bergen (NO), November 2018.

- Talk “Online Joint Bid/Budget Optimization of Pay-per-click Advertising Campaigns” at the European Conference on Multi-Agent Systems, the University of Bergen, Bergen (NO), November 2018.
- Talk “Online Follower’s Behaviour Identification in Leadership Games” at the European Conference on Multi-Agent Systems, the University of Bergen, Bergen (NO), November 2018.
- Talk “Online learning techniques for optimization of internet advertising campaigns” at the Permanent Itinerant Game Theory Seminars, the Politecnico di Milano, Milano (IT), November 2017.
- Seminar “Online Learning Techniques for Pricing in e-Commerce Scenarios” at the University of Edinburgh Agent Group Reading Group, the University of Edinburgh, Edinburgh (UK), November 2016.
- Demo “Fault Diagnosis in Environmental Monitoring demo” at the iSense final review meeting, STmicroelectronics, Agrate Brianza (Italy), February 2014.
- Talk “MPower: Gain Back your Android Battery Life!”, Northeastern University, Boston, MA (USA), May 2013.
- Talk “MPower: Gain Back your Android Battery Life!” at Bilateral research exchange between MIT (USA) and the Politecnico di Milano, MIT, Boston, MA (USA), May 2013.
- Talk “Cognitive Fault Diagnosis Systems: Identification and Dictionary Creation” at Bilateral research exchange between MIT (USA) and the Politecnico di Milano, MIT, Boston, MA (USA), May 2013.
- Demo “Fault Diagnosis on iNemo Platform Demo” at the iSense review meeting, Universitat Politecnica de Catalunya, Barcelona (Spain), March 2013.
- Talk “An Adapting, Model-free Fault Diagnosis Framework for Dynamic Systems” at the iSense 5th project meeting, STmicroelectronics, Agrate Brianza (Italy), October 2012.
- Talk “A Learning from Models Cognitive Fault Diagnosis System” at the iSense 4th project meeting, The University of Birmingham, Birmingham (UK), May 2012.

## PhD Supervision

- Supervisor M. Bernasconi de Luca, “Online learning for sequential games”, 2020 - Today.
- Co-Supervisor A. Zec, “Developing new methods for processing digital pathology images in treating lung cancer patients”, 2023 - Today.
- D. Salaorni, “Empowering digital twins for battery energy storage systems using machine learning techniques”, 2022 - Today.
- A. Nuara, “Machine learning algorithms for the optimization of internet advertising campaigns”, 2019 - 2021.
- A. Prelaj, “Developing AI methods for immunotherapeutic treatments of NSCLC”, 2020 - Today.

## Master Theses Supervision

- Supervisor M. Arca, “A Framework to Accelerate the Adaptation of Machine Learning Models”, 2023.
- C. Scrimieri, “Exploration Monitoring for Online Learning Algorithms”, 2023.
- G. Giacometti, “An expert learning approach for end to end monitoring optimization”, 2023.
- A. Contu, “Budget optimization in marketing mix models”, 2023.
- A. Alparone, “A Comparative Analysis of Machine Learning and Time Series Models for Alarm Forecasting”, 2023.
- V.K. Munnaluri, “Dynamic Pricing in the Hospitality industry in the presence of data scarcity”, 2023.
- A. Immordino, “Using evolution strategies to optimize the Flow Factor in semiconductor wafer fabrication”, 2023.
- A. Ferrarin, “Advancing NSCLC treatment with a machine learning-enabled EDC platform: design and implementation”, 2023.
- C. Caroni, “Rental price prediction using machine learning: a french case-study”, 2023.
- A. D’Silva, “Integrating behavioral cloning into a reinforcement learning pipeline”, 2023.
- G. Polvanesi, “OCR-based text extraction algorithms for loan underwriting automation”, 2023.
- F.F. Gonzales, “Stochastic linear bandits with global-local structure”, 2023.

- O. Abdrabou, "Survival analysis techniques applied to car insurance for claims and frauds risks prediction", 2022.
- P. Bighignoli, P. Kumar, "Predicting residential houses values using a machine learning approach", 2022.
- S. Martino, "A combinatorial multi-armed bandit algorithm for dollar volume maximization in the dark pool problem", 2022.
- L. Alessandrelli, "Online advertising campaign management for hotel booking, 2021.
- A. Agostini, "Multi-armed bandit with persistent reward", 2021.
- G. Re, "REC-NS-MAB: an algorithm for Recurrent Concepts in Non-stationary Multi-armed Bandits", 2021.
- M. Bernasconi de Luca, "Online gradient descent for online portfolio optimization with transaction costs", 2020.
- Cosupervisor J. El Khoury, "TargExp: an Algorithm for Audience Expansion and Profit Maximization for Online Advertising", 2023.
- D. Lombarda, "Towards Automated Reinforcement Learning", Supervisor: Prof. M. Restelli, 2022.
- M. Pirola, "Online model selection with stochastic rising bandits", Supervisor: Prof. M. Restelli, 2022.
- O.F. Pindaro, "Controlling lithium-ion batteries through reinforcement learning", Supervisor: Prof. M. Restelli, 2022.
- F. Fedeli, "An importance weighting framework for drift adaptation in regression problems", Supervisor: Prof. M. Restelli, 2021.
- F. Fontana, "Sales funnel simulation and sales forecasting with Markov chains", Supervisor: Prof. M. Restelli, 2021.
- G. Del Giudice, "Analysis on the use of scraping data for long-term rental room pricing", Supervisor: Prof. M. Restelli, 2021.
- F. Gianotti, "Learning Nash equilibria in simulation-based games : a best arm identification approach", Supervisor: Prof. N. Gatti, 2021.
- L. Casalini, "Algorithm to find the equilibrium point in missile-ship simulator-based game", Supervisor: Prof. N. Gatti, 2021.
- G.M. Gianola, "Development of machine learning algorithms for long-term room rentals pricing", Supervisor: Prof. N. Gatti, 2020.
- G. Spadaro, "Online bid optimization with return-on-investment constraints", Supervisor: Prof. N. Gatti, 2020.
- I. Battaini, "Price-advertising", Supervisor: Prof. N. Gatti, 2020.
- D. Crippa, "Exploiting maximum distribution to drive exploration in Gaussian process bandits", Supervisor: Prof. N. Gatti, 2020.
- M. Perfetto, "Ads content optimization for Internet advertising campaigns", Supervisor: Prof. N. Gatti, 2020.
- M. Maffioli, "Dealing with partial information in follower's behavior identification", Supervisor: Prof. M. Restelli, 2019.
- E. Kulatu, "Exploiting temporal dependencies to predict the revenue of flight tickets", Supervisor: Prof. M. Restelli, 2019.
- M. Mussi, "Improving aerodynamic load estimation algorithms for F1 racing cars, Supervisor: Prof. M. Restelli, 2019.
- G. Gregori, "Optimizing wind tunnel experiments to minimize the uncertainty of lapttime estimation for F1 cars", Supervisor: Prof. M. Restelli, 2019.
- A. Lavelli, "Feature selection for aerodynamic load estimation from pressure measurements for F1 racing cars", Supervisor: Prof. M. Restelli, 2019.
- A. Mongelluzzo, "A data-driven approach to detect faults in the tire building process", Supervisor: Prof. M. Restelli, 2019.
- L. Scannapieco, "Stochastic multi-armed bandit with switching costs : an empirical analysis", Supervisor: Prof. M. Restelli, 2018.

M.C. Zaccardi, N. Sosio, "Exploiting channels interdependence in Internet advertising campaigns optimization", Supervisor: Prof. M. Restelli, 2018.

F. Chiusano, "Breakpoint prediction for the abruptly-changing non-stationary multi-armed bandit problem", Supervisor: Prof. M. Restelli, 2018.

N. Montali "Machine Learning approaches to increase production efficiency: an Industry 4.0 case", Supervisor: Prof. M. Restelli, 2018.

M. Di Napoli, "Multi-asset trading with reinforcement learning : an application to magic the gathering online", Supervisor: Prof. M. Restelli, 2018.

G.M. Accabi, "A bandit algorithm for the joint optimization of budgets in an online advertising context", Supervisor: Prof. M. Restelli, 2017.

M. Gasparini, "Learning from logged bandit feedback techniques for targeting optimization of online advertising", Supervisor: Prof. N. Gatti, 2017.

D. Pensa, "Integration of GPS data into predictive models for tyre maintenance", Supervisor: Prof. M. Restelli, 2017.

G. Corradini, "Online Learning with Risk Averse Tree in Non-stationary Environments", Supervisor: Prof. M. Restelli, 2017.

L. Bisi, "Regret minimization algorithms for the follower's behavior identification in leadership games", Supervisor: Prof. M. Restelli, 2017.

E.M. Italia, "Optimization of digital advertising campaigns in non-stationary environments through a reinforcement learning algorithm", Supervisor: Prof. N. Gatti, 2017.

A. Salmoiraghi, "Analysis of the cold start problem in predictive algorithms for cyber tyres", Supervisor: Prof. M. Restelli, 2017.

F. Di Lorenzo. "Factored approaches for high dimensional multi-armed bandits", Supervisor: Prof. M. Restelli, 2017.

D. Mapelli, D Enerli, "Bayesian learning for flight tickets pricing with performance-based bonus", Supervisor: Prof. M. Restelli, 2017.

P. Simone, "Risk averse trees for learning from logged bandit feedback", Supervisor: Prof. M. Restelli, 2016.

P. Fusari, F. Marocco, "A data-driven predictive model for tyre maintenance", Supervisor: Prof. M. Restelli, 2016.

B. Kotevska, K Kosturanov, "Multi-armed bandit algorithms for pricing in e-commerce", Supervisor: Prof. N. Gatti, 2016.

Z. Nechovski, "Estimation of costs and revenues based on online travel agencies' historical data", Supervisor: Prof. M. Restelli, 2016.

A. Damiani, A Corna, "A scalable framework for resource consumption modelling: the MARC approach", Supervisor: Prof. M.D. Santambrogio, 2016.

P. Serena, "ThermoSense: a complaint-based approach for thermal comfort control in indoor environments", Supervisor: Prof. M.D. Santambrogio, 2016.

E. Gargano, M.A. Nosedà, "Pricing online di biglietti aerei: analisi strategica delle online travel agency in dominio metasearch", Supervisor: Prof. N. Gatti, 2015.

A. Sgarro, "Exploiting monotonicity in continuum and multi armed bandit: the pricing scenario", Supervisor: Prof M. Restelli, 2015.

G. Rumi, "Definizione e sviluppo di metodologie per la gestione dei consumi energetici nei dispositivi mobili", Supervisor: Prof. M.D. Santambrogio, 2015.

A. Cazzola, "MModel : automatic generation of mobile devices power models based on user provided data", Supervisor: Prof. M.D. Santambrogio, 2014.

M. Ferroni, A. Cazzola, "Mpower: on how to effectively predict the time to live for mobile devices", Supervisor: Prof. M.D. Santambrogio, 2013.

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## Opponent Member of Doctoral Examination Committees

07/2023 **Ph.D. Thesis Defense**, *Pierre Liotet*, "*Delays in Reinforcement Learning*"  
 Advisor: Prof. Marcello Restelli.  
 PhD Committee: Prof. Francesco Trovo', DEIB, Prof. Carmine Ventre, King's College London, Prof. Samuele Tosatto, University of Innsbruck.

- 07/2023 **Ph.D. Thesis Defense**, *Luca Sabbioni*, “*Exploiting Hyperparameter Optimization and Control Frequency in Reinforcement Learning*”  
Advisor: Prof. Marcello Restelli.  
PhD Committee: Prof. Francesco Trovo', DEIB, Prof. Carmine Ventre, King's College London, Prof. Samuele Tosatto, University of Innsbruck.
- 10/2020 **Ph.D. Thesis Defense**, *Rolando Brondolin*, “*On the Management of Power and Performance Trade-offs in Distributed Cloud-native Infrastructures*”  
Advisor: Prof. Marco Santambrogio.  
PhD Committee: Dr. Francesco Trovo', DEIB, Prof. Jose L. Ayala, Complutense University of Madrid, Prof. Dionisios N. Pnevmatikatos, National Technical University of Athens.
- 10/2020 **Ph.D. Thesis Defense**, *Lorenzo Di Tucci*, “*Hugenomic: Exploiting FPGAs as Hardware Accelerators in the Genomic Domain*”  
Advisor: Prof. Marco Santambrogio.  
PhD Committee: Dr. Francesco Trovo', DEIB, Prof. Jose L. Ayala, Complutense University of Madrid, Prof. Dionisios N. Pnevmatikatos, National Technical University of Athens.