Curriculum Vitae
Michela Milano

Family name (surname)	**First names**
MILANO	MICHELA

Date of Birth	**Place of birth**	**Nationality**

Address	**Telephone number**

EDUCATION

Name, City, Country and Website	**Attended From/To** MM/YYYY MM/YYYY	**Degree or academic distinctions obtained**	**Main course of study**
Università di Bologna, Dottorato in Elettronica, Informatica e delle Telecomunicazioni	11/1994 04/1998	PhD in Electronics, Computer Science and Telecommunications	3 years
Università di Bologna, Laurea in Ingegneria Elettronica – indirizzo Informatica (Electronic Engineer Degree, Computer Engineer specialization)	10/1998 03/1994	Laurea in Ingegneria Elettronica, 100/100 cum Laude	5 Years
Liceo Scientifico Augusto Righi	09/1993 06/1998	Diploma di Liceo Scientifico	5 Years

EMPLOYMENT RECORD:

A. **PRESENT POST**

FROM	TO	**Director Interdepartmental Research Institute on Human-Centered Artificial Intelligence**
10/02/2020	today	

EMPLOYER:
ALMA MATER STUDIORUM - Università di Bologna

ADDRESS:
Via Zamboni 33

WEBSITE:
http://www.unibo.it

Contact Person: **Giovanni Molari** Email Address: rettore@unibo.it	Number of Professional Staff Supervised: 520 Number of Support Staff Supervised: 5

DESCRIPTION OF DUTIES AND RELATED ACCOMPLISHMENTS

I have been the first Director of the Interdepartmental Research Institute on Human-Centered Artificial Intelligence collecting 28 Departments of the University of Bologna and more than 500 researchers and professors. The Institute **features a unique critical mass encompassing a diverse team of researchers** with technical and scientific background together with experts in social science and humanities, economy, law, ethics, phycology, cognitive science, along with all applications of artificial Intelligence, as medicine, agri-food, mechatronics, manufacturing, arts, finance and management, environment and many other. It is organised in **eight research units**, covering AI foundations, Hard Sciences and AI, AI and HPC and Quantum, AI for industry, AI for health and well being, Humanistic AI, and AI for Law and Governance and AI and Education. I have also created a **Joint Research Unit with the National Research Council (CNR)** inside the center.
The Institute has become an **international and national reference point** and has very strong connections with the local area and with all the major institutions, setting a very strong network of collaborations with private and public stakeholders at local, national

and international level. The Institute has been of paramount importance in the **European and National fund raising**, in the dissemination and outreach of Artificial Intelligence in the industrial ecosystem and for the general public. I am involved in of all major European Initiatives on AI (namely the AI-on-demand platform and follow up projects, the AI, Data and Robotics PPP and several Network of Excellence). Also I am leading a Spoke in a National large initiative funded under the National Plan for Recovery and Resilience. I have created a **computing infrastructu**re (valued almost 1M euros obtained through donations) in a **Co-innovation lab** for the collaboration with companies (including SMEs) to increase trust in AI solutions. I have strong collaboration also with both **CINECA, INFN and the National Center of Supercomputing, Big Data and Quantum** computing that are all part of the Bologna Technopole. In addition, I have created connections and agreements with all the IRCCS (Istituti di Ricovero e Cura a carattere Scientifico) of **Bologna Hospitals**. I have proposed several innovative didactic initiatives, including AI pills for teaching AI targeting people with a non STEM background.
I have created a working environment where inclusion, multidisciplinarity, cohesiveness and openness are fundamental principles.

FROM	TO	**Full Professor**
01/04/2016	today	

EMPLOYER:
ALMA MATER STUDIORUM - Università di Bologna, Department of Computer Science and Engineering

ADDRESS:
Via Mura Anteo Zamboni 7

WEBSITE:
http://www.unibo.it

Contact person: Andrea Omicini, Director of the Department of Computer Science and Engineering Email Address: andrea.omicini@unibo.it	Number of Professional Staff Supervised: 30 Number of Support Staff Supervised: 1

DESCRIPTION OF DUTIES AND RELATED ACCOMPLISHMENTS

I am full professor at the University of Bologna, at the Department of Computer Science and Engineering. In this position I am both performing teaching and research activities. Concerning the first part, I am currently teaching Intelligent Systems courses in the Laurea Magistrale in Computer Engineering (with around 70 students per year) and a course on Fundamentals of Artificial Intelligence and Knowledge Representation in the International Course (Laurea Magistrale) in Artificial Intelligence (with around 200 students per year) with very high student appreciation. Concerning Research activities, I work in the area of decision support systems merging data-driven and knowledge-based components and applied in diverse areas like industrial maintenance and production, scheduling and planning, mobility management, energy management, smart cities, sustainability, policy making. In these settings I have coordinated and lead several European projects collecting more than **18 million euros** of public funding in peer reviewed projects and **650.000 euros** of private funding from companies. I am leading a group at the Department of Computer Science and Engineering of more than 20 people (PhD, PostDoc, Researchers and Associate Professors) working on Artificial Intelligence and I have supervised in the past more than 20 PhD who have reached important achievements and prestigious job positions both in academy and industry. I participate in many committees for the recruitment of new researchers and professors in my University and in other across the country and abroad.

FROM	TO	**Member of the Program Committee of Cluster 4 of Horizon Europe** – Italian Delegation
04/2020	today	

EMPLOYER:
Ministero dell'Università e della Ricerca

ADDRESS: Largo Antonio Ruberti, 1 Roma

WEBSITE: http://mur.gov.it

Contact person: **Dott. Gianluigi Consoli** Direttore Generale dell'Internazionalizzazione e della Comunicazione, Ministero dell'Università e della Ricerca Email Address: gianluigi.consoli@mur.gov.it	Number of Professional Staff Supervised: NA Number of Support Staff Supervised: NA

DESCRIPTION OF DUTIES AND RELATED ACCOMPLISHMENTS

The Program Committee of Cluster 4 in Horizon Europe is a strategic committee formed by a delegation of member states that helps the European Commission in the definition of the Workprogram. Cluster 4 covers Digital, Industry and Space areas and is organized in 6 Destinations. Destination 1 and 2 are related to Industry, Destinations 3, 4 and 6 are related to all Digital Technologies (e.g Microelectronics, Photonics, Quantum technologies, Artificial Intelligence, Big data, Trustworthy and Human centered technologies) and Destination 5 refers to Space. In each destination there are topics with an associated budget that are negotiated with the delegations of the Member States.
The Italian delegation main part is composed by three main experts (Fosca Giannotti, Erasmo Carrera and myself) plus we have a pool of additional experts who help us collecting the feedback from the Italian research and innovation community. My role is to read all the documents, interact with the Italian community of stakeholders and provide feedback to the Commission.

PREVIOUS POSTS

FROM	TO	**Deputy President of the European Association of Artificial Intelligence - EurAI**
19/07/2018	11/01/2021	

EMPLOYER:
European Association of Artificial Intelligence

ADDRESS:
Bruxelles, AI Laboratory, Pleinlaan 2, Building K2.

WEBSITE:
https://www.eurai.org/

Contact person: **Prof. Barry O'Sullivan** – President EurAI Email Address: b.osullivan@cs.ucc.ie	Number of Professional Staff Supervised: 7 Members of the Board Number of Support Staff Supervised: 1

DESCRIPTION OF DUTIES AND RELATED ACCOMPLISHMENTS

EurAI is an international association with scientific and educational objectives It is an umbrella association that collects 25 national associations of Artificial Intelligence. The objectives of the Association, which is non-profit making, are:

- To promote the science and technology of artificial intelligence in Europe.
- To promote the establishment of a European computer network.
- To encourage the teaching of artificial intelligence.
- To publish a European journal of information on artificial intelligence.
- To sponsor a biennial conference organized by one or more of the member societies.

President and Deputy President have the role of representing the Association at European level and International level, by participating to the policy strategic panels. During my term, I have contributed to the definition of **The European Artificial Intelligence Landscape** released on April 18, 2018 and I have been involved in follow up meetings. In addition I have participated in the writing of the **Strategic Research Innovation and Deployment Agenda** of the **Public Private Partnership on Data, Robotics and Artificial Intelligence** released in September 2020, setting up a deep dive on AI.

FROM	TO	**Founder of the Start up MindIT**
13/04/2017	21/04/2022	

EMPLOYER:
MindIT Srl

ADDRESS:
Via Fanin 48

WEBSITE:
http://minditsolutions.it (no longer available as the company has been acquired by Kantar)
You can find a short description here https://www.emiliaromagnastartup.it/index.php/it/innovative/imprese/mindit

SUPERVISOR: **Dr. Alessio Bonfietti** CEO Email Address: alessio.bonfietti@xtel-group.com Telephone No.: +393703458445	Number of Professional Staff Supervised: NA Number of Support Staff Supervised: NA

DESCRIPTION OF DUTIES AND RELATED ACCOMPLISHMENTS

In 2017 I was, together with four post-docs of my group, a **founder of MindIT srl**, a University spin off developing advanced solutions in the field of artificial intelligence for predicting failures in industrial settings and for optimizing promotional funds in the retail market.
In the field of failure prediction, MindIT srl offered Industry 4.0 solutions such as predictive maintenance and production optimization, taking into account possible failures and/or future maintenance interventions. Our main product allowed for the rapid identification of models that effectively predict failures, thereby immediately improving the efficiency of automated machines or complex equipment monitored by sensors.
In the field of promotional fund optimization, MindIT srl provided a product capable of supporting consumer goods manufacturers in the decision-making process of distributing promotional funds among different distribution chains for various products. This software allowed for the observation, through advanced business intelligence tools, of the past sales behavior of different consumer goods. Furthermore, based on historical data, this product suggested how to allocate funds for the subsequent period to achieve specific objectives, such as increasing revenue or units sold. All of this was made possible by machine learning and artificial intelligence algorithms.

MindIT received several awards from the Emilia Romagna Region and from Fondazione Golinelli. **The company was acquired by Kantar (Trade Optimization Team) in 2022** (see the news here https://www.datamanager.it/2022/01/kantar-acquisisce-mindit-nella-sede-di-bologna/).

FROM	TO	**Associate Professor**
1/11/2001	31/03/2016	

EMPLOYER:
University of Bologna, Department of Electronics, Informatics and Systems DEIS (now DEI)

ADDRESS:
Viale Risorgimento 2, 40033 Bologna

WEBSITE:
https://dei.unibo.it/en/index.html

Contact person: **Prof. Riccardo Rovatti** (Director of the DEI Department) Email Address: riccardo.rovatti@unibo.it	Number of Professional Staff Supervised: 10 Number of Support Staff Supervised: -

DESCRIPTION OF YOUR DUTIES AND RELATED ACCOMPLISHMENTS

I have been associate professor at the University of Bologna, at the Department of Electronics, Informatics and Systems. In this position I have performed teaching and research activities. Concerning the first part, I have taught 30 courses in Foundamentals of Computer Science, Symbolic Programming Languages and Intelligent Systems in several laurea courses. Concerning Research activities, I have been one of the founders of a research area at the intersection between Constraint programming and Operations research, organizing the first Conference CPAIOR that has become the major international venue in the field. I have started creating my own research group and started the fund raising for its growth and sustainability.
In 2011 I have coordinated the ePolicy project, devoted to creating a decision support system for the definition of sustainable energy policies for the Regional Energy Plan of the Emilia Romagna Region. I have lead the Bologna Unit of the COLOMBO project on mobility management and optimization and the DAREED project on Sustainable energy districts.
During this period, I have also joined CompSustNet https://www.compsust.net/, a research network sponsored by the US National Science exploring new research directions in computational sustainability.
I have received a Google Faculty Award for my work on Deep Learning and Optimization.

FROM	TO	**Guest Professor at ETH**Z
01/01/2014	31/12/2014	Part time position 10%

EMPLOYER:
ETH Zurich – Department of Information Technology and Electrical Engineering

ADDRESS:
Gloriastrasse 35

WEBSITE:
http:// iis.ee.ethz.ch

Contact person: **Prof. Luca Benini** Department of Information Technology and Electrical Engineering Email Address: lbenini@iis.ee.ethz.ch Telephone No.: +41797055301	Number of Professional Staff Supervised: NA Number of Support Staff Supervised: NA

DESCRIPTION OF YOUR DUTIES AND RELATED ACCOMPLISHMENTS

I have spent a period at ETHZ at the Deparment of Information Technology and Electrical Engineering to collaborate with Professor Luca Benini on the use of Artificial Intelligence methods, mainly based on Hybrid Constraint Programming and Integer Linear Programming methods to solve problems related to embedded system design. We have collaborated on several topics: system mapping, energy and power capping, heat control, frequency scaling of functional task graphs on multi-core and many-core platforms. We have written together several pubblications, reported in the corresponding section.

FROM	TO	**Researcher**
01/11/1999	30/10/2001	

EMPLOYER:
University of Bologna, Department of Electronics, Informatics and Systems DEIS (now DEI)

ADDRESS:
Viale Risorgimento 2, 40033 Bologna

WEBSITE:
https://dei.unibo.it/en/index.html

Contact person: **Prof. Riccardo Rovatti** (Director of the DEI Department) Email Address: riccardo.rovatti@unibo.it	Number of Professional Staff Supervised: 2 Number of Support Staff Supervised: 0

DESCRIPTION OF YOUR DUTIES AND RELATED ACCOMPLISHMENTS

As a researcher at the University of Bologna, I have done research activity and started teaching activity. I had my own courses of Foundamentals of Computer Science and helped Prof. Paola Mello in her Artificial Intelligence courses. My research activity was on scheduling problems. In particular, I continued my thesis work on train scheduling and constraint programming. I have started working in the area at the intersection of Constraint Programming and Operations Research and I have organized the first Workshop CPAIOR in Ferrara in 1999. This has become a conference few years later as a major reference venue of the field.

FROM	TO	**Post Doc Researcher**
01/11/1998	30/10/1999	

EMPLOYER:
University of Ferrara

ADDRESS:
Via Saragat 1

WEBSITE:
http://www.unife.it

Contact Person: **Prof. Paola Mello** (PhD Supervisor and Prof. University of Ferrara) Email Address: paola.mello@unibo.it		Number of Professional Staff Supervised: NA Number of Support Staff Supervised: NA

DESCRIPTION OF YOUR DUTIES AND RELATED ACCOMPLISHMENTS

At the University of Ferrara I have taken a Post Doc position involving mainly research activities on meta-constraint programming. I have devised a method to reify constraints in Constraint programming for reasoning on constraints themselves. I have also taught a Foundamentals of Computer Science course involving more than 200 students.

Editorial Activities

- **Co-Editor In Chief ACM Computing Surveys** 2024-present. ACM Computing surveys has an impact factor 2023 of 23.8 and is ranked first in the Computer Science Theory and Methods list.
- **Senior Associate Editor ACM Computing Surveys**, 2022-2024.
- **Associate Editor ACM Computing Surveys**, 2019-2022.
- **Editorial Board Member Journal of Artificial Intelligence Research** - JAIR, 2020-2024.
  JAIR is one of the reference Journal of the Artificial Intelligence Community, ranked Q1 Scimago.
- **Editor in Chief Constraints, an International Journa**l, 2016-2020.
  The Constraints Journal is the main reference journal of the Constraint Programming Community published by Springer. During the period I was EiC the Journal has moved from Q3 in Artificial Intelligence and Q4 in Discrete Mathematics and Combinatorics to Q2 in all categories.
- **Editorial Board Member of Constraints , an International Journa**l, 2006-2015.
- **Area Editor for INFORMS Journal on Computing** 2009-2019. INFORMS Journal on Computing is an important journal in the area of Operations Research and Management Science. It is ranked Q1 in all categories.
- **Associated Editor for INFORMS Journal on Computing**, 2003-2009.

Guest editor of **Special Issues** on:

- Fairness and Bias in AI, Journal of Artificial Intelligence Research, 2024, to appear
- Trustworthy AI, ACM Computing Surveys 56(7), 2024
- Computational Sustainability, IEEE Transaction on Computer 2(2), 2014.
- The future of CP, Constraints, an International Journal 19(2), 2014.
- Integration of AI and OR Techniques in CP, Constraints 11(4), 2006.
- Integration of OR techniques in CP, J. of Heuristics, vol1., 2002.

Awards and recognitions

- **Member of Accademia di Ingegneria e Tecnologia,** 2024.
- **EurAI fellow**, the European Association of Artificial Intelligence, 2021. This recognition is awarded to the top 3% of European Researchers in AI.
- **Member of Accademia delle Scienze**, 2021. Being founded in 1690, the Academy of Sciences of Bologna Institute has a history spanning more than three centuries. Among its Members one can number famous Italian and foreign scientists as Luigi Galvani, Guglielmo Marconi, Albert Einstein, Giovanni Pascoli, Marie Curie, to name a few.
- **ELLIS fellow**, the European Laboratory for Learning and Intelligent Systems, 2020. The ELLIS Society is the European Laboratory for Learning and Intelligent Systems. The nomination to ELLIS fellow is given to high-caliber scientists advancing the field of machine learning and intelligent systems.
- **Techno-visionary Award**, 2020. This award is promoted by Women&Tech and is given to women that in their professional activity have exhibited vision and forward-looking scientific or innovation capabilities.
- **CP Distinguished service award**, 2018. The award is given by the Association of Constraint Programming and is awarded to scientists that have provided a substantial service to the community of Constraint Programming.
- **Google Faculty Award on** Deep Learning in Optimization, 2016. This award has been associated with a 50.000 euros funding for performing research on the integration of deep learning in combinatorial optimization problem solvers.
- **Gauss Award 2016** (Research Paper Award), International Conference on High Performance Computing ISC High Performance 2016. International Conference on HPC ISC High Performance 2015, for the paper "Predictive Modeling for Job Power Consumption in HPC Systems". The award is sponsored by the German Gauss Center for Supercomputing, which is a collaboration of the German national supercomputing centers at Garching, Juelich and Stuttgart. The paper was chosen as it was considered to be the most outstanding paper in the field of scalable supercomputing.
- **Best paper award 2015 Blue Sky track** of **AAAI 2015** with the paper Emerging architectures in Global System Science. The award honored three papers in the Senior Member track that presented ideas and visions that can stimulate the research community to pursue new research directions and open challenges
- The same paper won the **Great Innovative Idea** from Computing Community Consortium.
- **Best application paper award** 2015 Italian Association of Artificial with Swarm-based Controller for Traffic Lights Management
- **Artificial Intelligence Award "Marco Somalvico"**, Italian Association of Artificial Intelligence, 2004. The award honors the best young Italian researcher in Artificial Intelligence. This award is open to young researchers who have conducted their research activities in Italy and who have made a significant contribution to Artificial Intelligence.
- **Outstanding Scholarly Contribution Award** from the International Institute for Advanced Studies in Systems Research and Cybernetics, Informatics and Cybernetics, 1996.

- **Best Thesis Award** from the Italian Association of Artificial Intelligence, 1995.

Keynote speech, invited talks and outreach acticities

- **Outreach activity** Scienza 4.0 Piazza Maggiore Bologna, 2024.
- **Outreach activity** AI opportunities and Risks, We Make Future, 2024.
- **Outreach activity** Augmented Humanity, Technology Forum 2024.
- **Innovation Speech** Effective, Ethical and Sustainable AI**,** AI forum 2024.
- **TedX Cremona,** AI fairness, 2023.
- **Outreach activity** Nove volte sette, Festival della Scienza di Genova, 2023.
- **Spotlight Seminar on AI** *Integrating Learning Optimizaton and Reasoning*, 2023, Italian Association of Artificial Intelligence.
- **Outreach activity,** *The future of Artificial Intelligence* Future Minds, AI and supercomputing for interpreting reality, Festival Futuro Remoto, 2023.
- **Keynote speech** *Empirical Model Learning* Int. Joint Conference on Artificial Intelligence IJCAI 2019.
- **Plenary Keynote speech** *Empirical Model Learning*, Int. Conf. on Planning and Scheduling and Int. Conf. On the Integration of Artificial Intelligence, Operations Research and Constraint Programming, 2018.
- **TedX Udine**, AI for the good, 2017.
- **Keynote speech** *Optimization for Policy Making: the cornerstone for an integrated approach*, Int. Conf. on Principles and Practice of Constraint Programming, 2013.
- **Keynote speech** *Sustainable energy policies: research challenges and opportunities* Design, Test & Automation Europe, DATE 2013.
- **Keynote speech** Hybrid Optimization for Embedded System design, Symposium on OR applications and Artificial Intelligence, 2011.
- **Keynote speech** *Artificial Intelligence meets Operations Research: a Constraint Programmer perspective*, 14th International Conference on Automated Planning and Scheduling, ICAPS 2004.
- **Keynote speech** *Optimization in Artificial Intelligence*, IX Convegno della Associazione Italiana Intelligenza Artificiale 2004.
- **Invited talk** *Operations Research techniques in Constraint Programming* Sixth Annual Workshop of the ERCIM Working Group on Constraints, 2001.
- **Invited tutorial** *Integration of Operations Research and AI constraint-based techniques for Combinatorial Optimization,* **Int. Joint Conference on Artificial Intelligence**, **IJCAI'2001.**
- **Invited tutorial** *Integration of Mathematical Programming and Constraint Programming for Combinatorial Optimization* **Int. Conference on Principle and Practice of Constraint Programming, CP2000.**
- **Invited tutorial** *Integration of Operations Research and Constraint Programming for Combinatorial Optimization* **Int. Conference on Practical Applications of Constraint Technology and Logic Programming, PACLP 2000.**

International Conference Chairing and Organization

- Program Co-chair of PAIS 2020 (Prestigious Applications of Artificial Intelligence).
- Program Co-Chair of the IJCAI-PRICAI Special Track on Computational Sustainability, 2020.
- Computational Sustainability Track Chair, Int.l conference on Principles and Practice of Constraint Programming, CP2016.
- Program Chair of CP2012 (the main forum on Constraint Programming Technology).
- Program Chair of CompSust 2012 (the main event in Computational Sustainability).
- Program Chair of CPAIOR (the largest event in hybrid optimization) in 2010 (organized in Bologna) and 2005.
- Doctoral Program Chair at IJCAI 2013.
- Doctoral Program Chair of AI*IA (Italian Association of AI) in 2010.
- Doctoral Program Chair of CP (the largest event in Constraint Programming) in 2003, 2004 and 2005.
- Member of the Program committee in several scientific events, including the main Artificial Intelligence Conferences, AAAI (Senior PC member), IJCAI (also as senior PC member), ECAI (Area Chair for Constraints and Search), CP, CPAIOR, cluster chair at ISMP 2012 (major forum on Integer Programming).

Organizing Activities for Schools and PhD courses

- Organizer of the First Master Class on Computational Sustainability, 2012.
- Organizer of the First International School on Constraint Programming, 2005.
- Organizer of the Master Class on Graph Theory and Constraint Programming in 2004.
- Organizer of the Master Class on Constraint Programming for Digital System Design, 2004.
- Organizer of the First School on Optimization, 2001.

Funding ID

Michela Milano has obtained more than 18M€ funds whose major sources are competitive projects:

Program	Acronym	Title	Role	Years	UNIBO Budget
PNRR	FAIR	Future of AI Research	Spoke leader	2023-2025	€ 11.497.727,00
EU H2020	StairwAI	StairwAI to AI	Coordinator	2021-2023	€ 2.497.727
EU H2020	HumaneAINet	Humane and Artificial Intelligence Network	Partner	2020-2024	€ 100.000,00
EU H2020	PRE-PAI	Preparation of the Development of the AI-on-Demand Platform	Partner	2022-2023	€ 37.100,00
EU H2020	TAILOR	Foundations of Trustworthy AI - Integrating Reasoning, Learning and Optimization	Partner	2020-2024	€ 279.653,00
EU H2020	IoTwins	Distributed Digital Twins for industrial SMEs: a big-data plat	Scientific Coordinator	2019-2022	€ 1.140.686,00
EU H2020	AI4EU	European AI-on-demand Platfor	Partner	2019-2022	€ 290.393,00
EU FET Proactive	OPRECOMP	Open Transprecision Computing	Partner	2017-2020	€547.000,00
FP7-SmartCity	DAREED	Decision support Advisor for innovative business models and useR engagement for smart Energy Efficient Districts	Partner	2013-2016	€ 267.000,00
FP7-STREP	COLOMBO	Cooperative Self-Organizing System for low carbon mobility at low penetration rates,	Partner	2012-2015	€ 395.000,00
FP7-STREP	ePolicy	Engineering the Policy Making Life Cycle	Coordinator	2011-2014	€ 550.000,00
Google Focussed Grant		Mathematical Optimization and Combinatorial Optimization in Europe: a case study on thermal aware mapping	Principal Investigator	2012 – 2013	€ 37.200,00
Executive Programme Italy-Quebec		Algorithms and systems for the operational planning in industry and services	Coordinator for the Italian Side	2007- 2009	€ 14.000,00
Ricerca di Sistema	VIRTUS	Virtual Power Plants	Partner	2018-2021	€ 200.000,00
Ricerca di Sistema	ENEA	Modello semantico per la Piattaforma ICT	Partner	2015-1019	€ 35.000,00
Ricerca di Sistema	ENEA	Sviluppo di applicazioni basate sull'ontologia	Partner	2018-2023	€ 60.000,00
Ricerca di Sistema	ENEA	Ontologia per il framework per la governance dei dati urbani energetici	Partner	2019-2021	€ 70.000,00
Ricerca di Sistema	ENEA	Ontologia SCPS: controllo del ciclo di pubblicazione e i'teroperabilità con ontologie smart city	Partner	2022-2024	€ 70.000,00
PRIN Program		Hybrid constraint and integer programming for multi-task applications mapping	Partner	2005-2007	€ 47.000,00

In addition to these research funds, Michela Milano collected more than **650.000 euros** from industries and I have acquired an hardware infrastructure valued around **1.000.000 euros**.

Teaching experience

I have a wide teaching experience with **48 courses** at the University of Bologna:

- **Foundamentals of Artificial Intelligence and Knowledge Engineering – Module 1 (6 CFU)** for **5 years** from 2019/2020 to 2023/2024**.**
- **Intelligent Systems LM (8CFU)** for the laurea courses Computer and Automation Engineering for **8 years** from 2016/2017 to 2023/2024**.**
- **Fondamenti di informatica e Laboratorio T-1 (9CFU)** for the laurea courses Electrical and Automation Engineering, for **6 years** from 2012/2013 to 2017/2018.
- **Sistemi Intelligenti LM** (8CFU) for the laurea courses Computer and Automation Engineering for **2 years** from 2014/2015 to 2015/2016.
- **Sistemi Intelligenti LM** (6CFU) for the laurea courses Computer and Automation Engineering for **4 years** from 2010/2011 to 2013/2014.
- **Fondamenti di informatica e Laboratorio T-AB** (12CFU) for the laurea courses Electronic and Telecommunication Engineering and Automation Engineering for **4 years** from 2008/2009 to 2011/2012.
- **Applicazioni di Intelligenza Artificiale LS** (6CFU) for the laurea courses Computer Engineering for **7 years** from 2003/2004 to 2009/2010.
- **Fondamenti di Informatica L-A** (6CFU) for the laurea courses Electric and Telecommunication Engineering for **7 years** from 2001/2002 to 2007/2008.
- **Intelligenza Artificiale B** (3CFU) for the laurea courses Computer Engineering for **2 years** from 2002/2003 to 2003/2004.
- **Fondamenti di Informatica A** (12CFU) for the laurea courses Computer Engineering for **1 year** 2000/2001.
- **Linguaggi e Traduttori B** (Linguaggi Simbolici) (6CFU) for the laurea courses Computer and Electronic Engineering for **2 years** from 2000/2001 to 2001/2002.

I have taught for two years at the University of Ferrara:

- **Fondamenti di Informatica I** (12CFU) for the laurea courses Electronic Engineering for **2 years** from 1997/98 to 1998/99.

In addition, I have taught several courses for PhD students, in Executive Masters, in companies and public administration bodies.

International experience and advisory board membership

- Fellowship at Brown University, US, 1996 (three months): during my PhD I have spent three months at Brown University working with Prof. Thomas Dean and Prof. Pascal van Hentenryck on automated planning and constraint Programming.
- Internship at Research & Development group ILOG S.A. France 1998 (four months): I have spent four months at ILOG, a company that has been acquired later by IBM and that was developing constraint programming engines for optimization and scheduling. I have developed a cost-based reasoning method for constraint programming.
- Guest professor at ETH Zurich in 2014 (part time position 10%): the description of the position is in the Employment Record.
- Reviewer of the Optimization Research group at NICTA, Australia, 2014.
- Member of the Scientific Advisory Board of INSIGHT Center, Ireland, 2018-today.
- Panel coordinator of the Scientific Review board of Halmstad University, Sweden, 2024.

Supervision of PhD students

Michela Milano supervised and co-supervised many PhD students: M. Gavanelli, A. Roli, F. Focacci, (see section on Evidence on Inspiring Researchers), R.Barruffi (joint PhD with HP-Labs Bristol), A. Guerri, M. Lombardi (who received an Honorable Mention for his PhD thesis at CP2011 and ICAPS 2012 and the Doctoral Research Award from the Italian Assoc. of AI 2011), F. Parisini, M. Bampo (Co-tutored with Prof Mark Wallace – Monash University, Australia), A. Bonfietti, A.C. Bellini, A. Borghesi, R. Belletti, T. Bridi, A. A. De Filippo, M. Salvaro, E. Misino, M. Silvestri, F. Baldo, E. Farook, F. Maggio.

Also Michela Milano has been an External Committee member for the following PhD students: O.Kammarainen (Imperial College, UK), K. Petrie (University of Huddersfield UK), W.J. van Hoeve (CWI Amsterdam, The Netherland), L. Di Gaspero (Università di Udine, Italy), Yulia Maliskaia (4C Cork Constraint Computation Center).

Evidence of inspiring researchers

Several former graduate students are pursuing a successful research career. Among these:

- Marco Gavanelli: Associate Professor at University of Ferrara (permanent position), Italy.
- Andrea Roli: Associate Professor at the University of Bologna (permanent position), Italy.
- Filippo Focacci: Inventory Portfolio Manager at IBM – France, now CEO of the DecisionBrain company.

- Alessio Guerri: Project Manager at Alstom.
- Alessio Bonfietti: CEO of MindIT acquired by Kantar.
- Thomas Bridi: Main developer of MindIT acquired by Kantar.
- Michele Lombardi: Associate Professor at the University of Bologna, Italy.
- Andrea Borghesi: Researcher with tenure track at University of Bologna, Italy.
- Allegra De Filippo: Researcher at University of Bologna, Italy.
- Roberta Calegari: Researcher at University of Bologna, Italy.

Experience in strategic planning and policy advice

I have been involved in a number of advisory boards and I have contributed to the definition of Strategic Research and Innovation Agendas.

- 2019-today: Member of the Italian Delegation nominated by the Italian Ministry of University and Research for the **Program Committee of Cluster 4 on Digital Industry and Space** of the Horizon Europe Workprogram. The committee should advise the European Commission on the content of the workprogram.
- 2019: **Member of the high level expert group** (30 people) for the definition of the **Italian Strate**gy **on Artificial Intelligence** lead by the Italian Ministry of Economic Development https://www.mimit.gov.it/images/stories/documenti/Proposte-per-una-strategia-italiana-2019.pdf
- 2020: **Member of the expert group (AI track)** for the creation of the **National Research plan 2021-2027** lead by the Italian Ministry of University and Research https://www.mur.gov.it/sites/default/files/2021-01/Pnr2021-27.pdf
- 2020: **Member of the editorial team** for the **Strategic Research, Innovation and Deployment Agenda** (third version) of the PPP on AI, Data and Robotics, created by the Big Data Value Association, euRobotics, CLAIRE, ELLIS and EurAI. https://bdva.eu/task-forces/roadmap-strategic-agenda-and-programme/
- 2020: **Editor of the Strategic Research and Innovation Agenda** of the AI-on-demand platform: The AI4EU Vision for Artificial Intelligence in Europe https://ec.europa.eu/futurium/en/system/files/ged/ai4eu_-_visionpublicdocument.pdf
- 2021: **Member of the expert group** (9 people) for the creation of the **Strategic Program on Artificial Intelligence 2022-2024** lead by the Italian Ministry of Economic Development, the Italian Ministry of University and Research and the Italian Ministry for the Digital Transition https://assets.innovazione.gov.it/1637937177-programma-strategico-iaweb-2.pdf
- 2022: **Member of the Editorial group** for the creation of the **Strategic Research and Innovation Roadmap of Trustworthy AI 2022-2030** of the Network of Excellence TAILOR https://tailor-network.eu/wp-content/uploads/2022/07/TAILOR-Roadmap-Full-Version-1.pdf
- 2023: **Contributor** to the Insight Paper on the **Twin Transition Century: The role of digital research for a successful green transition of society** of The Guild https://www.the-guild.eu/publications/insight-papers/the-guild_insight-paper_the-twin-transition-century_sept-2023.pdf

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Impact: on Google scholar h-index: 38, i10-index: 119, citations: 5090

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[J3] Andrea Borghesi, Martin Molan, Michela Milano, Andrea Bartolini: Anomaly Detection and Anticipation in High Performance Computing Systems. IEEE Trans. Parallel Distributed Syst. 33(4): 739-750 (2022)

[J4] Allegra De Filippo, Michele Lombardi, Michela Milano: Integrated Offline and Online Decision Making under Uncertainty. J. Artif. Intell. Res. 70: 77-117 (2021)

[J5] Andrea Borghesi, Andrea Bartolini, Michele Lombardi, Michela Milano, Luca Benini: A semisupervised autoencoder-based approach for anomaly detection in high performance computing systems. Eng. Appl. Artif. Intell. 85: 634-644 (2019)

[J6] Andrea Borghesi, Andrea Bartolini, Michela Milano, Luca Benini: Pricing schemes for energy-efficient HPC systems: Design and exploration. Int. J. High Perform. Comput. Appl. 33(4) (2019)

[J7] Michela Milano: Twenty Years of Constraint Programming (CP) Research. Constraints An Int. J. 23(2): 155-157 (2018)

[J8] Oreste Andrisano, Ilaria Bartolini, Paolo Bellavista, Andrea Boeri, Luciano Bononi, Alberto Borghetti, Armando Brath, Giovanni Emanuele Corazza, Antonio Corradi, Stefano de Miranda, Fabio Fava, Luca Foschini, Giovanni Leoni, Danila Longo, Michela Milano, Fabio Napolitano, Carlo Alberto Nucci, Gianni Pasolini, Marco Patella, Tullio Salmon Cinotti, Daniele Tarchi, Francesco Ubertini, Daniele Vigo: The Need of Multidisciplinary Approaches and Engineering Tools for the Development and Implementation of the Smart City Paradigm. Proc. IEEE 106(4): 738-760 (2018)

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[J12] Michela Milano, Marco Gavanelli, Barry O'Sullivan, *Sustainable Policy Making: a Strategic Challenge for Artificial Intelligence*, AI Magazine, 35(3): 22-35 (2014)
[J13] Alessio Bonfietti, Michele Lombardi, Luca Benini, Michela Milano: *CROSS cyclic resource-constrained scheduling solver.* Artificial Intelligence, 206: 25-52 (2014)
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[J17] Alessio Bonfietti, Michele Lombardi, Michela Milano, Luca Benini: *Maximum-throughput mapping of SDFGs on multi-core SoC platforms*. Journal of Parallel and Distributed Computing, 73(10): 1337-1350 (2013)
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[C.2] Roberta Calegari, Gabriel G. Castañé, Michela Milano, Barry O'Sullivan: Assessing and Enforcing Fairness in the AI Lifecycle. IJCAI 2023: 6554-6562.

[C.3] Allegra De Filippo, Michela Milano: Robotic Choreography Creation Through Symbolic AI Techniques. ICEC 2023: 346-351.

[C.4] Giuseppe Spillo, Allegra De Filippo, Cataldo Musto, Michela Milano, Giovanni Semeraro: Towards Sustainability-aware Recommender Systems: Analyzing the Trade-off Between Algorithms Performance and Carbon Footprint. RecSys 2023: 856-862.

[C.5] Fabrizio Detassis, Michele Lombardi, Michela Milano: Teaching the Old Dog New Tricks: Supervised Learning with Constraints. AAAI 2021: 3742-3749.

[C.6] Allegra De Filippo, Michele Lombardi, Michela Milano: Robust Optimization Models For Local Flexibility Characterization of Virtual Power Plants. AI*IA 2021: 609-623.

[C.7] Mattia Silvestri, Michele Lombardi, Michela Milano: Injecting Domain Knowledge in Neural Networks: A Controlled Experiment on a Constrained Problem. CPAIOR 2021: 266-282.

[C.8] Andrea Borghesi, Giuseppe Tagliavini, Michele Lombardi, Luca Benini, Michela Milano: Combining learning and optimization for transprecision computing. CF 2020: 10-18.

[C.9] Allegra De Filippo, Michele Lombardi, Michela Milano: Hybrid Offline/Online Optimization Under Uncertainty. ECAI 2020: 2899-2900

[C.10] Allegra De Filippo, Michele Lombardi, Michela Milano: The Blind Men and the Elephant: Integrated Offline/Online Optimization Under Uncertainty. IJCAI 2020: 4840-4846

[C.11] Andrea Borghesi, Federico Baldo, Michele Lombardi, Michela Milano: Injective Domain Knowledge in Neural Networks for Transprecision Computing. LOD (1) 2020: 587-600

[C.12] Michele Lombardi, Federico Baldo, Andrea Borghesi, Michela Milano: An Analysis of Regularized Approaches for Constrained Machine Learning. TAILOR 2020: 112-119.

[C.13] Andrea Borghesi, Andrea Bartolini, Michele Lombardi, Michela Milano, Luca Benini: Anomaly Detection Using Autoencoders in High Performance Computing Systems. AAAI 2019: 9428-9433.

[C.14] Andrea Borghesi, Michela Milano, Luca Benini: Frequency Assignment in High Performance Computing Systems. AI*IA 2019: 151-164.

[C.15] Danuta Sorina Chisca, Michele Lombardi, Michela Milano, Barry O'Sullivan:
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[C.16] Allegra De Filippo, Michele Lombardi, Michela Milano: How to Tame Your Anticipatory Algorithm. IJCAI 2019: 1071-1077.

[C.17] Allegra De Filippo, Michele Lombardi, Michela Milano: Off-Line and On-Line Optimization Under Uncertainty: A Case Study on Energy Management. CPAIOR 2018: 100-116

[C.18] Andrea Galassi, Michele Lombardi, Paola Mello, Michela Milano:
Model Agnostic Solution of CSPs via Deep Learning: A Preliminary Study. CPAIOR 2018: 254-262

[C.19] Danuta Sorina Chisca, Michele Lombardi, Michela Milano, Barry O'Sullivan:
From Offline to Online Kidney Exchange Optimization. ICTAI 2018: 587-591

[C.20] Michele Lombardi, Michela Milano: Boosting Combinatorial Problem Modeling with Machine Learning. International Joint Conference on Artificial Intelligence IJCAI 2018: 5472-5478.

[C.21] Allegra De Filippo, Michele Lombardi, Michela Milano, Alberto Borghetti: Robust Optimization for Virtual Power Plants. AI*IA 2017: 17-30.

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[C.23] Thomas Bridi, Michele Lombardi, Andrea Bartolini, Luca Benini, Michela Milano: DARDIS: Distributed and Randomized Dispatching and Scheduling, AI*IA 2016: 493-507 ed ECAI 2016: 1598-1599.

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[C.40] Andrea Borghesi, Michela Milano, Marco Gavanelli, Tony Woods: *Simulation Of Incentive Mechanisms For Renewable Energy Policies*. European Conference on Modeling and Simulation ECMS 2013: 32-38

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[C.42] Alessio Bonfietti, Michele Lombardi, Luca Benini, Michela Milano: *Global Cyclic Cumulative Constraint*. Int. Conference on the Integration of Artificial Intelligence and Operations Research Techniques in Constraint Programming CPAIOR 2012: 81-96

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[C.64] Emiliano Dolif, Michele Lombardi, Martino Ruggiero, Michela Milano, Luca Benini: *Communication-aware stochastic allocation and scheduling framework for conditional task graphs in multi-processor systems-on-chip*. International Conference on Embedded Software, EMSOFT 2007: 47-56

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