

Anna Bernasconi

INFORMATION TECHNOLOGY

Department of Electronics, Information, and Bioengineering
Politecnico di Milano, Italy



Personal Information

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Scopus Page	https://www.scopus.com/authid/detail.uri?authorId=57195587336
Web of Science Page	https://www.webofscience.com/wos/author/rid/AAF-2594-2019

Areas of expertise

- Research area 1: Databases, conceptual modeling, data integration, knowledge management.
- Research area 2: Bioinformatics, human genomics, viral genomics, integrative data analysis.
- Research area 3: Data science, data mining, big data analysis, natural language processing.

Summary

I am Tenure-Track Researcher (RTT) with the Dipartimento di Elettronica, Informazione e Bioingegneria at the Politecnico di Milano, holding 09/H1 and 01/B1 national scientific habilitation (2nd category); I was a visiting researcher at Universitat Politècnica de València Jan-Jun 2022. I received my Ph.D. in Information Technology from Politecnico di Milano in Feb. 2021, with a thesis on genomic data integration that won three prizes (incl. the Dimitris N. Chorafas Foundation Award 2021).

At Politecnico di Milano, I co-taught the Doctoral course on Data Management and Analysis for Computational Biology. I teach the course "Databases" (in the Computer Engineering Bachelor Degree) and "Programming" (in the Master on Bioinformatics for Computational Genomics), and have been a Teaching Assistant in Programming/Database courses for eight years. I advised 5 and co-advised 8 master theses; I co-advised 6 PhD students (one at UPV) and I am currently supervising 3 postdocs.

My research interests lie at the intersection of Bioinformatics, Databases, and Data Science Methods, where I apply conceptual modeling, data integration, and knowledge engineering in several life sciences and other applied sciences domains, with a focus on building open-source tools and services. I authored 35 journal papers (including NatComm, NAR, SciData, GigaScience, Bioinformatics, and Briefings in Bioinformatics) and > 40 conference/workshop papers (including ACM SIGMOD, IEEE ICDE, ECML-PKDD, CAISE, ER), as well as 10 book chapters and 1 book. I collaborate with several scholars in national and international institutions and recently was awarded primary leadership of two research projects (to build – respectively – viral genomics early-warning systems and topic modeling web explorers).

I actively engage with the research community beyond my academic responsibilities. I participated in the conceptual modeling and database communities with several paper presentations, Programme Committees service, commitment as Program Chair, organization of two tutorials (ER and EDBT conferences), and three workshops respectively on conceptual models, web applications, and information systems for life sciences (ER, ICWE, and CAISE conferences). I am an academic editor in Plos One and BMC Bioinformatics, for which I also organized several special issues and I co-chair the RDA FAIRification of Genomic Annotations Working Group.

Academic and Industry Positions

- May 2024 - **Fixed-term (6 years) Tenure Track Researcher (RTT)** [art. 24, comma 3, Legge 31.12.2010, n. 240], present Politecnico di Milano, Dipartimento di Elettronica, Informazione e Bioingegneria
- Oct 2022 - **Research Fellow – RTDA with 0.4 PO (university-funded units)**, Politecnico di Milano, Dipartimento di Elettronica, Informazione e Bioingegneria
- Apr 2024
- Nov 2020 - **Post Doctoral Researcher (Assegnista di Ricerca)**, Politecnico di Milano, Topic: Evolution of genomic data and metadata repositories for supporting novel research applications
- Sep 2022
- Jan 2022 - **Post Doctoral Visiting Researcher**, Universitat Politècnica de València, Topic: Conceptual modeling and data management for genomics
- Jun 2022
- Apr 2021 - **Post Doctoral Visiting Researcher (remote status)**, Universitat Politècnica de València, Topic: Conceptual modeling and ontologies for representing the genome
- Dec 2021
- Mar 2016 - **Graduate Research Assistant**, Politecnico di Milano, Topic: Input and output data standardization for the GenoMetric Query Language
- Oct 2016
- Nov 2014 - **Junior Business Intelligence Consultant and Data Warehouse Architect**, Quantyca S.R.L., Monza, Italy, Topic: ETL/integration processes and web application development
- Feb 2016
- Nov 2013 - **Undergraduate Research Assistant**, University of Illinois at Chicago, Topic: Self-certifying compilers design
- Dec 2013

National Scientific Qualification

- Dec 2023 **Abilitazione Scientifica Nazionale, Settore: 01/B1**, Informatica, Associate Professor (Seconda Fascia)
- Jun 2023 **Abilitazione Scientifica Nazionale, Settore: 09/H1**, Sistemi di elaborazione delle informazioni, Associate Professor (Seconda Fascia)

Education

Politecnico di Milano

Milan, Italy

PHD IN INFORMATION TECHNOLOGY (CUM LAUDE)

Nov 2016 - Oct 2020

- Advisor: Prof. Stefano Ceri, Co-advisor: Prof. Alessandro Campi
- Thesis title: Model, Integrate, Search... Repeat: a Sound Approach to Building Integrated Repositories of Genomic Data
- Awards: Dimitris N. Chorafas Foundation, CINI Lab on Big Data, CAISE PhD Award

University of Illinois at Chicago

Chicago, Illinois, USA

MS IN COMPUTER SCIENCE

Mar 2013 - Dec 2015

- Advisor: Prof. Lenore D. Zuck
- Mark: 3.85/4.00

Politecnico di Milano

Milan, Italy

MS IN COMPUTER ENGINEERING

Sep 2012 - July 2015

- Advisor: Prof. Carlo Ghezzi, Co-advisors: Prof. Paola Spoletini, Dr. Claudio Menghi
- Thesis title: Building Deductive Proofs of LTL Properties for Iteratively Refined Systems
- Mark: 110/110

Politecnico di Milano

Milan, Italy

BS IN MATHEMATICAL ENGINEERING

Sep 2009 - Sep 2012

- Advisor: Prof. Alessandro Campi
- Mark: 100/110
- Extra: 9 months Erasmus Program at Universidad Autonoma de Madrid, Spain

Awards and Recognitions

- 2024 **Award from the Italian Chamber of Deputies, XIX Legislature**, for the LegisLab application, in the context of the “Manifestazione di interesse per la raccolta di proposte per l’utilizzo dell’intelligenza artificiale generativa per la Camera dei deputati”, Team: A. Colombo, **A. Bernasconi**, S. Ceri, P. Pinoli (Politecnico di Milano), L. Guiso and C. Michelacci (Istituto Einaudi per l’economia e la finanza)
- 2023 **CAiSE PhD Award 2023, 35th International Conference on Advanced Information Systems Engineering**, granted to an outstanding Ph.D. thesis in the field of Information Systems Engineering, co-sponsored by the CAiSE Steering Committee and Springer, reviewed by a standing committee of the CAiSE Advisory Committee, the CAiSE Steering Committee, and Program Committee
- 2022 **‘Runner Up Paper’ Award, 41st International Conference on Conceptual Modeling, ER 2022**, recognizing high-quality research work with future potential impact on conceptual modeling practices, granted by the ER 2022 Program Committee Chairs – the paper was invited for a Journal extension in Data & Knowledge Engineering Journal
- 2022 **Award for the Best Ph.D. Thesis on Big Data & Data Science 2022**, granted by CINI Lab on Big Data to excellent PhD theses based on originality and potential impact on the Big Data e Data Science community (https://www.itadata.it/2023/award_winners)
- 2021 **Chorafas Award 2021**, granted by the Dimitris N. Chorafas Foundation (Weizman Institute of Science and Feinberg Graduate School) in recognition of results obtained during the research activity pursued during my PhD – the foundation awards prizes in engineering/medicine/natural sciences where results can have a significant impact on future research and practical applications (<https://www.weizmann.ac.il/feinberg/about/dimitris-n-chorafas-prize/about-foundation-and-prize>)
- 2021 **Springer award**, for the PhD thesis, granted by PhD Board of professors, Politecnico di Milano

Leadership and Participation in Funded Research Projects

- Dec 2023 - May 2027 **Horizon Europe Framework Programme (HORIZON) project “BETTER: Better rEal-world healTh-daTa distributEd analytics Research platform”, grant agreement n. 101136262, Funding PoliMi Unit: 639K Euros** (total 3.5M Euros); Role: Proposal co-editor and Task Leader – 4.3: “Design and develop a unified schema repository for medical centres data and metadata integration” and 4.4: “FAIRification of medical centres datasets” *Politecnico di Milano*
- Dec 2023 - Nov 2025 **MUR PRIN PNRR 2022 project “SENSIBLE: Small-data Early warNing System for viral pathogens In puBLic hEalth”, project n. P2022CNN2J**, Research Units: Politecnico di Milano and Università degli Studi di Milano; **Funding PoliMi Unit: 186K Euros** (Total: 240K Euros); Role: Principal Investigator *Politecnico di Milano*
- Sep 2023 - Aug 2024 **Next Generation Internet (NGI) Search, 2nd open call, project “TETHYS: Topics Evolution That You See”, agreement n. SEARCH OC2_18, Funding: 150K Euros**; Role: Principal Investigator *Politecnico di Milano*
- Jan 2023 - Dec 2025 **NextGenerationEU program project “FAIR: Future Artificial Intelligence Research”, within the PNRR-PE-AI scheme (M4C2, Investment 1.3, Line on Artificial Intelligence), Funding: 4.9M Euros**; Role: Task Leader – 4.4.2: “Graph-based ML for Network Medicine” *Politecnico di Milano*
- Jul 2020 - Dec 2020 **EIT Digital “DATA against COVID-19” program, Innovation Activity ‘Virusurf’ n. 20663, Funding: 172K Euros**; Role: Task Leader – “User experience and interfaces” *Politecnico di Milano*
- Nov 2016 - Aug 2021 **Data-Driven Genomic Computing, ERC Advanced Investigator Grant n. 693174, Funding: 2.5M Euros**; Role: Work Package Leader – WP4: Integrated access to large data sources *Politecnico di Milano*

Standardization and community initiatives

- Ongoing **Memberships**, IEEE, 2020–2023; IEEE Women in Engineering Membership, 2020–2023; ACM Professional, 2022–present; ELIXIR-IIB (Italian Bioinformatics Infrastructure) Joint Research Unit Participant, 2023–present; Membership to GRUPPO DI INGEGNERIA INFORMATICA - GSD 09/IINF-O5, SSD IINF-05/A, 2022–present
- Sep 2023 - ongoing **Co-Chair of the Research Data Alliance (RDA) “FAIRification of Genomic Annotations” Working Group** (<https://www.rd-alliance.org/groups/fairification-genomic-annotations-wg>), Topic: Standardization of Genomic Annotations and FAIRification of related (meta)data and processing pipelines
- Apr 2020 - Jul 2021 **Team member in the “COVID-19 Host Genetics Initiative”** (<https://www.covid19hg.org/>), Topic: Design the clinical data dictionary for describing COVID-19 patients’ phenotype; our work was used in the Nature publication <https://doi.org/10.1038/s41586-021-03767-x> and adopted within ELIXIR-CONVERGE, as deemed appropriate as standardization guidelines (<https://doi.org/10.5281/zenodo.4893222>)

Research Collaborations

- Jul 2024 - ongoing **Prof. Luigi Guiso and Prof. Claudio Michelacci (Einaudi Institute for Economics and Finance, Italy)**, Topic: Building legislative text recommendation systems
- Mar 2024 - ongoing **Group of Prof. Elena Baralis (with Prof. Luca Cagliero), in the context of “Alta Scuola Politecnica” project**, Topic: Building conceptual maps for Large Language Models
- Feb 2024 - ongoing **Dr. Daniele Focosi (North-Western Tuscany Blood Bank, Pisa University Hospital), Fabrizio Maggi, and Cesare Gruber (INMI “L. Spallanzani” IRCCS)**, Topic: SARS-CoV-2 convergent evolution knowledge graphs
- Sep 2023 - ongoing **Chiara Leonardi (Independent Systemic Design Researcher)**, Topic: Complex systems dynamics represented with Causal Loop Diagrams
- Mar 2022 - ongoing **Dr. Luigi Bellomarini and Davide Magnanini (Banca d’Italia)**, Topic: Graph-based reactive systems
- Jun 2021 - **Prof. Matteo Chiara (Università degli Studi di Milano), Erika Ferrandi (Consiglio Nazionale delle Ricerche, Bari), Iliaria Capua (Johns Hopkins University), Shay Fleishon (Israel Central Virology Laboratory)**, Topic: Bioinformatic Methods for studying the evolution of SARS-CoV-2 and other viruses
- Sep 2022 - Jun 2023 **Prof. Giancarlo Guizzardi and Prof. Luiz Olavo Bonino da Silva Santos (University of Twente and Leiden University Medical Center)**, Topic: Ontologies for scientific datasets FAIRification
- Feb 2022 - Dec 2022 **Dr. Andrea Giacomelli, Dr. Valeria Micheli, and Prof. Giuliano Rizzardini (Azienda Ospedaliera Polo Universitario L. Sacco)**, Topic: SARS-CoV-2 viremia, variants, and COVID-19 mortality
- Mar 2021 - Nov 2023 **Group of Professor Oscar Pastor (with Prof. Giancarlo Guizzardi and Prof. Veda Storey), Universitat Politècnica de València - Research Center on Software Production Methods**, Topic: Conceptual modeling for biological and genomic information systems
- Apr 2020 - Dec 2022 **Prof. Silvia Grandi, University of Bologna - Dipartimento di Scienze Statistiche “Paolo Fortunati”**, Topic: Geospatial data perspective of clinical and genomic information on COVID-19
- Jan 2019 - Nov 2020 **Dr. Claudio Menghi (with Prof. Paola Spoletini and Dr. Alessandro Maria Rizzi), University of Luxembourg – Centre for Security Reliability and Trust**, Topic: Formal verification for partial models
- Sep 2017 - Mar 2020 **Group of Prof. Emanuel Weitschek, Italian National Research Council – Institute of Systems Analysis and Computer Science**, Topic: metadata integration on cancer data from Genomic Data Commons
- Jun 2019 - Sep 2019 **Group of Prof. Mario Cannataro, Università Magna Graecia**, Topic: integrative applications of GenoMetric Query Language using private and public datasets

Open source tools, products and services _____

Contribution to several open-source tools (all registered under the ELIXIR Italian node PoliMi, see bio.tools, related to corresponding journal publications).

HUMAN GENOMICS _____ Open-source tools to facilitate the work of cancer genomics researchers, clinicians, geneticists, molecular biologists:

OpenGDC (<http://www.bioinformatics.deib.polimi.it/opengdc>). Extraction and integration tool for cancer genomics data.

GenoSurf (<http://gmql.eu/genosurf>). Multi-ontology semantic search system that provides access to a consolidated collection of human genome datasets for bioinformatic tertiary analysis.

GeMI (<http://gmql.eu/gemi>). Interactive interface to annotate genomic samples exploiting a deep-learning-based prediction model, whose impact is to accelerate unstructured genomic metadata extraction into structured formats.

VarSum (<http://gmql.eu/popstudy>). API that returns summary statistics on user-defined populations and their variants, using the genomic data repository maintained in the group.

META-BASE (<https://github.com/DEIB-GECO/Metadata-Manager>). Tool that integrates and enriches heterogeneous biological and clinical data sources, exploiting several configurations to build a repository.

VIRAL GENOMICS Open-source tools to facilitate the work of experts in virology, phylogenetics, epidemiology, pathogenesis, immunology:

Virusurf (<http://gmql.eu/virusurf>). Search system for public viral sequences described by their metadata and exhibiting nucleotide and amino acid mutational patterns.

EpiSurf (<http://gmql.eu/epivirusurf>). Search system for evaluating the impact of viral mutational patterns on epitopes, i.e., areas of the virus recognized by the human immune system.

VirusViz (<http://gmql.eu/virusviz>). Visualization tool for comparing mutation distributions of selected viral populations.

VirusClust (<http://gmql.eu/virusclust>). Data analysis tool to perform temporal and spatial comparison of mutational patterns of SARS-CoV-2 sequences.

VariantHunter (http://gmql.eu/variant_hunter). Tool for fast detection of emerging SARS-CoV-2 (sub)variants.

CoV2K API (<http://gmql.eu/cov2k/api>). Knowledge base of SARS-CoV-2 sequence mutations, variants, and effects.

CoVEffect (<http://gmql.eu/coveffect>). Interactive web interface for deep learning-assisted curation of data annotation on the effects of SARS-CoV-2 mutations and variants.

INFORMATION RETRIEVAL _____ Open-source tools for the exploration of research literature:

GRAPH-SEARCH (<http://gmql.eu/graph-search>). Explorer of COVID-19-related literature using graph-based queries with shortest paths and sophisticated ranking.

CORToViz (<http://gmql.eu/cortoviz>). User-friendly visualizer for trends of topics extracted from COVID-19 scientific research abstracts, with easy-to-drive statistical testing. *This is the first prototype developed in the context of the NGI Search Program (TETYS project).*

TETYS (<http://gmql.eu/tetys>). Explorer of Sustainability Development Goals-related literature using a topic modeling pipeline and user-centered interfaces. *Mature product developed within NGI Search Program.*

Organization of Scientific Meetings

Oct 2025	44th International Conference on Conceptual Modeling (ER 2025) , Workshops co-chair	Poitiers, France
Jun 2025	International Workshop on Information Systems and AI for Life Sciences (iSAILS) , co-located with the CAiSE conference (Vienna, Austria in 2025), Chair and co-organizer	various locations
Sept 2024	The first girls@CSE event , held at Department of Electronics, Information, and Bioengineering, Politecnico di Milano, Co-organizer	Milan, IT
2022–2024	International Workshop on Web Applications for Life Sciences (WALS) for three editions , co-located with the ICWE conference (Bari, Italy in 2022, Alicante, Spain in 2023, Tampere, Finland in 2024), Chair and co-organizer	various locations
2020–2024	International Workshop on Conceptual Modeling for Life Sciences (CMLS) for four editions , co-located with the ER conference (online 2020–2022; Lisbon, Portugal in 2023; Pittsburgh, Pennsylvania, US in 2024), Chair and co-organizer	various locations
2023–2024	42nd edition (ER 2023, Lisbon, Portugal) and 43rd edition (ER 2024, Pittsburgh, US) of the International Conference on Conceptual Modeling , Publicity Chair	various locations
Jul 2023	9th IEEE International Conference on Big Data Computing Service and Machine Learning Applications (IEEE BigDataService 2023) , Program Chair	Athens, Greece
Aug 2022	8th IEEE International Conference on Big Data Computing Service and Machine Learning Applications (IEEE BigDataService 2022) , Chair of “Big Data and Analytics for Healthcare” Track and Proceedings Chair	San Francisco Bay Area, USA

Additionally, I served (or I am currently serving) as **Review Board Member** for PVLDB Volume 18 and **Program Committee Member** for RCIS 2025, CIKM 2024, CAiSE 2024 and 2025, Demo Track SIGMOD/PODS 2024 and 2025, FNA@BIBM 2023, KDIR 2023, KEOD 2023, ER 2023 and 2024, ER Forum 2023 and 2024, EmpER@ER 2023, HiDA@ADBIS 2023, NPAHI@IEEE ICHI 2023, CAiSE 2023 Project Exhibition, FNA@BIBM 2022, DALIS@ECML-PKDD 2022, IWBBIO 2022 and 2023, CIBB 2021 and 2023.

Participation in Funding Committees and Editorial Boards

In 2024 I was a reviewer for funding proposals for 1) the Research Infrastructure - National Consortia (RI programme) by the Dutch Research Council (NWO); and 2) the UK Research and Innovation (UKRI), Medical Research Council.

Editorial Review Board Member of Journal of Data and Information Quality (ISSN: 1936-1955, Publisher: ACM) – since April 2024 (<https://dl.acm.org/journal/jdiq/reviewers-board>)

Editorial Board Member of BMC Bioinformatics (ISSN 1471-2105, Publisher: Springer Nature) – since May 2022 (<https://bmcbioinformatics.biomedcentral.com/about/editorial-board>)

Academic Editor of Plos ONE (ISSN 1932-6203, Publisher: Public Library of Science) – since Feb 2023 (<https://journals.plos.org/plosone/static/editorial-board>)

Guest Editorial Service

Guest Editor for the Journal of Data and Information Quality (ISSN: 1936-1955, Publisher: ACM), Special Issue on “Data quality dimensions in Data FAIRification design and processes”. Guest editors: Bernasconi, A., Cirillo, S., García S., A., Harmouch, H.

Guest Editor for BMC Bioinformatics (ISSN: 1471-2105, Publisher: Springer Nature), Collection “Big data management in biological domains”. Guest editors: Bernasconi, A., Ferraro Petrillo, U., Rombo, S.E.

Guest Editor for the Future Generation Computer Systems (ISSN: 0167-739X, Publisher: Elsevier), Special Issue “Special Issue on Big Data Computing Service and Machine Learning Applications”: Guest editors: Potika, K., Eirinaki, M., Vitali, M., Bernasconi, A., Fujioka, H.

Supplement Editor for BMC Medical Informatics and Decision Making (ISSN: 1472-6947, Publisher: Springer Nature), Supplement “Selected articles on Web Applications and Conceptual Modeling for Life Sciences (WALS 2022 and CMLS 2022

workshops)". Guest editors: Bernasconi, A. et al.

Guest Associate Editor for Research Topic "Identification of phenotypically important genomic variants" on *Frontiers in Bioinformatics* (ISSN: 2673-7647, Publisher: Frontiers Media S.A.). Topic editors: Heron, E., Bernasconi, A., Valle, G.

Guest Editor for the *BioTech Journal* (EISSN 2673-6284, Publisher: MDPI), Special Issue "Bioinformatics: Present and Future challenges". Guest editors: Pinoli, P. and Bernasconi, A.

Supplement Editor for *BMC Bioinformatics* (ISSN: 1471-2105, Publisher: Springer Nature) and *BMC Medical Informatics and Decision Making* (ISSN: 1472-6947, Publisher: Springer Nature), joint Supplement "Selected articles on Conceptual Modeling for Life Sciences (CMLS 2021 workshop and ER 2021 conference)". Guest editors: Bernasconi, A., Canakoglu, A., Chicco, D., Pinoli, P., and Reyes Román, J.F.

Supplement Editor for *BMC Bioinformatics* (ISSN: 1471-2105, Publisher: Springer Nature) and *BMC Medical Informatics and Decision Making* (ISSN: 1472-6947, Publisher: Springer Nature), joint Supplement "Selected articles from the 17th International Conference on Computational Intelligence Methods for Bioinformatics and Biostatistics (CIBB 2021)". Guest editors: Chicco, D., Bernasconi, A. et al.

Supplement Editor for *BMC Bioinformatics* (ISSN: 1471-2105, Publisher: Springer Nature), Supplement "Selected articles from the 1st International Workshop on Conceptual Modeling for Life Sciences (CMLS 2020)". Guest editors: Bernasconi, A., Canakoglu, A., Chicco, D., Leon Palacio, A., and Reyes Román, J.F.

I also acted as Volume Editor for three Springer Proceedings volume (linked to the ER 2024, ICWE 2022, and CIBB 2021 conferences). Overall, I acted as **editor for more than 35 journal manuscripts and as a reviewer for more than 60 journal manuscripts from 30 different journals** (including *Applied Clinical Informatics Journal*; *Briefings in Bioinformatics*; *Genomics, Proteomics & Bioinformatics*; *GigaScience*; *ACM Journal of Data and Information Quality*; *International Journal of Medical Informatics*; *Machine Learning*; *npj Digital Medicine*, and *Scientific Data*) – see WoS profile <https://www.webofscience.com/wos/author/rid/AAF-2594-2019>.

Talks and Seminars at National and International Events

Dec 2024	Invited Speaker , <i>The Horizon Europe BETTER project: brief remarks on a success story</i> . Presentation at the Shift-Hub open innovation Workshop, with Dr Bregonzio, M. and Dr. Gronke, A.	Cologne, Germany and online
Jun 2024	Panel Speaker , <i>AI Ink: Should we let generative technology transform academic writing?</i> . Panel discussion at the CAiSE 2024 conference	Limassol, Cyprus
May 2024	Lightning Talk , <i>Building Integrated and FAIR Repositories for Genomic Data</i> . For the Research Data Alliance 22nd Plenary meeting (VP22), Working Group: FAIRification of Genomic Annotations – metadata harmonisation at scale	(online)
Sep 2023	Interview , <i>Building a metadata model for COVID-19</i> . For CSC – IT Center for Science Ltd, administered by the Finnish Ministry of Education and Culture (https://youtu.be/wkLebyoQz54)	(online)
Sep 2022	Invited Seminar , <i>Data-driven SARS-CoV-2 understanding and hunting</i> . At Information Sciences Institute - University of Southern California (https://www.isi.edu/events/2966/data-driven-sars-cov-2-understanding-and-hunting/)	(online)
Sep 2022	Award-recipient Talk , <i>Model, Integrate, Search... Repeat: a Sound Approach to Building Integrated Repositories of Genomic Data</i> . At the 1st Italian Conference on Big Data and Data Science (ITADATA2022)	(Milan, Italy)
Sep 2022	Invited Keynote Talk , <i>Data analysis for unveiling the SARS-CoV-2 evolution</i> . At the First International Workshop on Data Analysis for Life Science (DAL@ECML-PKDD2022)	(online)
Jul 2022	Invited Seminar , <i>Data-bases-driven research on viral genomes and SARS-CoV-2</i> . At Universidade Eduardo Mondlane, Maputo, Mozambique	(online)
Jan 2022	Seminar , <i>Data-driven SARS-CoV-2 understanding and hunting (searching for the new Omicron)</i> . At Politecnico di Milano and Universitat Politècnica de València	(online)
Nov 2021	Invited Webinar , <i>Modeling, integrating, and searching processed genomic datasets</i> . At "Integrating Diverse Datasets Webinar Series" by Front Line Genomics	(online)

Mar 2019	Invited talk , <i>Metadata Integration Framework for Genomic Datasets</i> . At “Challenges in Data-Driven Genomic Computing” Workshop	Como, Villa del Grumello
Feb 2019	Invited Seminar , <i>Data-Driven Genomic Computing: Making Sense of the Signals from the Genome through systematic application design and open data repository</i> . At EPFL	Lausanne, Switzerland
Jul 2017	Invited Seminar , <i>Metadata Management for Genomics</i> . At ETH and IBM Research Lab (with Stefano Ceri and Pietro Pinoli)	Zurich, Switzerland
Jan 2017	Seminar , <i>Metadata Modeling for Genomics</i> . Seminar for researchers of the IEO-IIT research institute	Milan, Italy

Additionally, I gave **2 tutorials** on “Conceptual models and databases for searching the genome” at the ER 2021 and the EDBT 2022 conferences, and **19 paper presentations** (2017–2024) at the conferences CAiSE 2024, SWAT4HCLS2024, SIGMOD 2024, ICDE 2024, ER 2023, IEEE SOSE 2023, CAiSE 2023, ER 2022, SWAT4HCLS 2022, ICC 2022, ER 2021, REFSQ 2021, ER 2020, ER 2019, SWAT4HCLS 2018, ER 2017, and at the workshops EmpER@ER2019, DTMBio@CIKM2018.

Teaching Activities

2024/25 - present	Basi di Dati, 5 CFU (Bachelor Degree, Engineering of Computing Systems) , Lecturer	Politecnico di Milano
2022/23 - present	Programming, 6 CFU (Master Degree, Bioinformatics for Computational Genomics) , Lecturer	Politecnico di Milano
2021/22 - 2023/24	Basi di Dati, 5 CFU (Bachelor Degree, Engineering of Computing Systems) , Teaching Assistant	Politecnico di Milano
2021/22 - 2023/24	Data Bases, 6 CFU (Master Degree, Bioinformatics for Computational Genomics) , Teaching Assistant	Politecnico di Milano
2016/17 - 2021/22	Informatica A, 10 CFU (Bachelor Degree, Mathematical Engineering) , Teaching Assistant	Politecnico di Milano
Jan 2023	Data Management and Analysis for Computational Biology , Professor – Ph.D. School of Information Technology (2 CFUs)	Politecnico di Milano
Jun 2022	Ontological Unpacking: a Conceptual Model of the Human Genome , Guest Lecturer for an intensive course of the Master ‘Systèmes d’Information et de Connaissance’ – The University Paris 1 Pantheon-Sorbonne (5 hours)	Universitat Politècnica de València
Apr 2022	UML and OntoUML modeling languages and ontological unpacking applications to the genomics domain , Guest Lecturer in Bachelor/Master courses of Engineering of Computing Systems (10 hours)	Universitat Politècnica de València

Supervision Responsibilities

At Politecnico di Milano, I am currently an advisor of 3 Post-doc researchers, 3 PhD candidates, and 5 Master Thesis students. I am also a Member of the Doctoral Committee of a PhD candidate at the University of Milan.

Since 2017, I have been co-advisor of the following successfully defended theses: 3 PhD level (2 at Politecnico di Milano and 1 at Universitat Politècnica de Valencia), 8 Master level (Politecnico di Milano; two students started their PhD under my supervision), 7 bachelor/post-graduate level projects (Politecnico di Milano and University of Milan).

Since 2022, I have been a Member of the Interuniversity Teaching Board for the Master “Bioinformatics for Computational Genomics” (Politecnico di Milano & University of Milan).

Since 2023, I have been a Member of the Scientific Committee of the Honours Program, Computer Science and Engineering Track (Data, web, and society), Politecnico di Milano.

Feb 2024 - Jan 2026	Post-Doc: Tommaso Alfonsi , “Viral genomics warning systems for public healthcare”	<i>Politecnico di Milano</i>
Apr 2024 - July 2025	Post-Doc: Nelly Barret , “Data FAIRification for distributed analytics healthcare platforms”	<i>Politecnico di Milano</i>
Feb 2024 - Jan 2025	Post-Doc: Boris Bikbov , “Methodologies for data interoperability for distributed analytics healthcare platforms”	<i>Politecnico di Milano</i>
May 2022 - Apr 2025	PhD candidate: Andrea Colombo , “Legal text analysis driven by NLP and graph-based techniques ”	<i>Politecnico di Milano</i>
Nov 2023 - Oct 2026	PhD candidate: Francesco Cambria , “Reactive Knowledge Management”	<i>Politecnico di Milano</i>
Feb 2023 - Jan 2026	PhD candidate: Francesco Invernici , “Knowledge management techniques for exploring data corpora on biomedical research” PhD candidate: Tommaso Alfonsi , “Methods and Tools for Data Integration and Knowledge Discovery in Viral Genomics” – Graduated <i>cum Laude</i> , April 19th, 2024.	<i>Politecnico di Milano</i>
Nov 2020 - Jan 2024	Tommaso started his postdoc in our group in the PRIN PNRR 2022 SENSIBLE (Small-data Early warNing System for viral pathogens In puBLic hEalth) project. For his Doctoral dissertation, he was awarded the prestigious Dimitri N. Chorafas Foundation Award in 2024	<i>Politecnico di Milano</i>
Nov 2020 - Jan 2024	PhD candidate: Ruba Al Khalaf , “Knowledge Modeling and Data Analysis Methods for Understanding The Viral Genome Evolution” – Graduated <i>cum Laude</i> , April 19th, 2024. Ruba started her postdoc in the Cancer Epigenetics group at Istituto Europeo di Oncologia, Milano, Italy	<i>Politecnico di Milano</i>
Nov 2018 - Dec 2022	PhD candidate: Alberto S. García , “Understanding the Code of Life: Holistic Conceptual Modeling of the Genome” – Graduated <i>cum Laude</i> , December 2022. Alberto started his postdoc in the UPV VRAIN Group led by Professor Oscar Pastor	<i>Universitat Politecnica de Valencia</i>

Publications

BIBLIOMETRICS

Refereed international journals	36
Editorial articles, Consortium papers, and National journal articles	4
Refereed international conferences	25
Refereed international workshops, posters, or national conferences	14
Refereed international books and book chapters	11

	H-index	Publications	Citations	Co-authors
Web of Science ¹	12	50	916	> 100
Scopus ²	14	88	1,153	3,629
Google Scholar ³	18	100	1,772	-

¹ <https://www.webofscience.com/wos/author/rid/AAF-2594-2019>, queried on 30/01/2025,

² <https://www.scopus.com/authid/detail.uri?authorId=57195587336>, queried on 30/01/2025,

³ <https://scholar.google.com/citations?user=rCn19L4AAAAJ>, queried on 30/01/2025

INTERNATIONAL JOURNALS

Publications where A.B. is the corresponding author, are marked with *

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- [J26] Serna Garcia, G., Al Khalaf, R., Invernici, F., Ceri, S., & **Bernasconi, A.*** (2023). CoVEffect: Interactive Deep Learning-based SARS-CoV-2 Mutations and Variants Effect Extraction. *GigaScience*, 12, giad036. <https://doi.org/10.1093/gigascience/giad036>
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