

PERSONAL INFORMATION

Antonio Vetrò



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Sex M | Date of birth 10/05/1984 | Nationality Italian

WORK EXPERIENCE

16 March 2024 - Present

Associate Professor

Politecnico di Torino, Department of Control and Computer Engineering

Research topics: experimental methods for improving the quality of software systems and the quality of data. Responsible designing of software systems.

16 Febr. 2019 – 16 March 2024

Assistant Professor (on tenure track from 16 March 2021)

Politecnico di Torino, Department of Control and Computer Engineering

- Research topics: societal implications of data driven automated decision-making systems; empirical methodologies for software quality and data quality; knowledge graphs for scientific literature analysis.

1 Apr. 2018 – 15 Febr. 2019

Postdoctoral researcher

Politecnico di Torino, Department of Control and Computer Engineering

- Research topics: methods and tools for digital twins in urban contexts; data bias and algorithm fairness; methods for software quality and data quality; scalable distributed ledger technologies.

1 Sept. 2017 – 31 Jan. 2018

Research Programs Manager

ORS S.r.l.

- Coordination of the company's research strategy and funding activities on blockchain and artificial intelligences technologies, also in the context of smart cities.

16 Nov. 2015 – 31 Aug. 2017

Postdoctoral researcher

Politecnico di Torino, Department of Control and Computer Engineering

- Coordination of the operational activities of the Nexa Center for Internet & Society; Research topics: novel methods for software and data quality; Internet of Things, distributed ledger technologies.

1 Sept. 2013 – 31 Aug 2015

Postdoctoral researcher

Technische Universität München (GERMANY), Chair Software and Systems Engineering

- Research topics: empirical assessment of the effectiveness of the technology transfer in model driven development; data analytics for the improvement of agile processes; novel methods for software quality improvement; software reuse; data quality;

May 2013 – June 2013

Adjunct Professor

Turin Polytechnic University in Tashkent (UZBEKISTAN)

- Teaching Object Oriented Programming (6 ECTS credits); Additional lecturer for Database course (6 ECTS credits); set up of a fully automatic approach to the assessment of programming assignments.

Apr. 2011- Nov. 2011

Junior Scientist

Fraunhofer Center For Experimental Software Engineering (USA)

- Research topics: identification and management of Software Technical Debt.

Jan. 2010- Aug. 2013 **PhD Student and Researcher**

Politecnico di Torino

- Research topics: automatic static analysis of source code.

Nov. 2006 - Dec. 2009 **Research Assistant**

Politecnico di Torino, Department of Control and Computer Engineering

- Research topics: static analysis of source code, green software.

EDUCATION AND TRAINING

2013 **PhD - Information and System Engineering**

Politecnico di Torino

- Empirical assessment of the impact of using automatic static analysis on code quality.

2009 **M.Sc. – Computer Engineering**

Politecnico di Torino

2006 **B.Sc. – Business Organization Engineering**

Politecnico di Torino

ADDITIONAL INFORMATION

Publications

More than 80 publications on international journals and conferences. The full list is available at

https://iris.polito.it/browse?type=author&authority=rp12842&sort_by=2&order=DESC

ORCID profile: <https://orcid.org/0000-0003-2027-3308>

Herein it is reported only a selection of journal articles published in the last 5 years:

- 2022 Mecati, Mariachiara; Vetrò, Antonio; Torchiano, Marco, *Detecting Risk of Biased Output with Balance Measures*, ACM JOURNAL OF DATA AND INFORMATION QUALITY, Association for Computing Machinery, pp. 7, 2022, ISSN: 1936-1955, DOI: 10.1145/3530787
- 2021 Conoscenti, Marco; Vetrò, Antonio; De Martin, Juan Carlos, *CLoTH: A Lightning Network Simulator*, SOFTWAREX, Elsevier BV, pp. 10, 2021, Vol. 15, ISSN: 2352-7110, DOI: 10.1016/j.softx.2021.100717
- 2021 Vetro', Antonio; Torchiano, Marco; Mecati, Mariachiara, *A data quality approach to the identification of discrimination risk in automated decision making systems*, GOVERNMENT INFORMATION QUARTERLY, Elsevier, pp. 17, 2021, Vol. 38, ISSN: 0740-624X, DOI: 10.1016/j.giq.2021.101619
- 2020 Futia, Giuseppe; Vetrò, Antonio; De Martin, Juan Carlos, SeMi: *A Semantic Modeling machine to build Knowledge Graphs with graph neural networks*, SOFTWAREX, Elsevier, pp. 10, 2020, Vol. 12, ISSN: 2352-7110, DOI: 10.1016/j.softx.2020.100516
- 2019 Conoscenti, M.; Besner, V.; Vetro, A.; Fernandez, D. M., *Combining data analytics and developers feedback for identifying reasons of inaccurate estimations in agile software development*, THE JOURNAL OF SYSTEMS AND SOFTWARE, Elsevier Inc., pp. 10, 2019, Vol. 156, ISSN: 0164-1212, DOI: 10.1016/j.jss.2019.06.075
- 2019 Wagner, Stefan; Fernández, Daniel Méndez; Felderer, Michael; Vetrò, Antonio; Kalinowski, Marcos; et al., *Status quo in requirements engineering: A theory and a global family of surveys*, ACM TRANSACTIONS ON SOFTWARE ENGINEERING AND METHODOLOGY, Association for Computing Machinery, pp. 48, 2019, Vol. 28, ISSN: 1049-331X, DOI: 10.1145/3306607
- 2019 Vetrò, Antonio; Santangelo, Antonio; Beretta, Elena; De Martin, Juan Carlos, *AI: from rational agents to socially responsible agents*, DIGITAL POLICY, REGULATION AND GOVERNANCE, Emerald Group Publishing Ltd., pp. 14, 2019, Vol. 21, ISSN: 2398-5038, DOI: 10.1108/DPRG-08-2018-0049

Projects

Projects with leadership role:

- 2019 Analysis and study for the comparative technical and economic evaluation of the acquisition and reuse of software for public administrations, in support of the Agency for Digital Italy (AGID) (40K€)
- 2016 "Power Aware - Lights off, brains on", Research Grant 2016 from University of California, Berkeley

Foundation, in collaboration with Siebel Energy Institute (50K\$)

- 2013 "Power Aware", Smart Cities and Communities and Social Innovation 2013, Ministry of Education and Research (500K€, then suspended due to red tape delays and subsequent partnership withdraw)

Projects with scientific coordination responsibilities:

- 2023 Artificial Intelligence and the Responsibilities of Developers, Vendors, and Users (TIM, 30K€)
- 2022 Metaverse and virtual worlds: is the future of the digital? (TIM, 30K€)
- 2021 European digital strategy in data management and regulation and comparison considerations with the U.S. (TIM, 35K€)
- 2020 Distributed architectures for private and efficient data management (TIM, 35K€)
- 2019 Artificial intelligence in TLC: ethical and privacy issues and guidance on the concept of fairness (TIM, 35 K€)
- 2018 Artificial Intelligence, Ethics, Privacy and Regulatory Evolutions: impact in TLCs (TIM, 30K€)

Projects with participation as researcher of a local unit:

- 2016-2017: OpenMED A bottom-up approach for opening up education in South- Mediterranean countries (European Commission, Erasmus+)
- 2016-2017: PASTEUR4OA Open Access Policy Alignment Strategies for European Union Research (European Commission, FP7)
- 2013-2015: SPES: Software Platform Embedded Systems "XT" (German Ministry of Education and Research – BMBF)
- 2011: Measuring and Monitoring Technical Debt (US National Science Foundation)
- 2009-2010: PICO "Piattaforme di COntrollo e delivery di servizi in reti convergenti" (Ministry of university and research, FIRB 2007-2010)

PhD supervision:

- Co-supervisor of two doctoral theses at Politecnico di Torino, PhD Computer and Control Engineering
 - *Responsible AI: from principles to practices (XXVIII cycle)*
 - *Effects of Data Quality on Software Application Bias and Identification of Mitigation and Remediation Strategies, Techniques and Tools (XXV cycle)*
- Operational tutor of three doctoral theses at Politecnico di Torino, PhD Computer and Control Engineering
 - *Algorithms for Social Good: A Study of Fairness and Bias in Automated Data-Driven Decision-Making Systems (XXXIII cycle)*
 - *Neutral Networks for Building Semantic Models and Knowledge Graphs (XXXII cycle)*
 - *Capabilities and Limitations of Payment Channel Networks for Blockchain Scalability (XXXI cycle)*
- 2022/3 External reviewer for the doctoral thesis "Algorithmic Fairness Datasets: Curation, Selection, and Applications", University of Padova (Department of Information Engineering)

Conferences

Invited speaker at:

- 18.11.2022 –National event "3° Evento Metrico 2022 GUFPI-ISMA", Rome. Speech title: "Automated Assessment of Open Government Data Based on ISO 25024 Quality Measures".
- 2.12.2021 – International conference "Impact of Technological Advances on Individuals: Interaction of Law & Informatics", SOCAI Centre for Social Implications of Artificial Intelligence, Julius-Maximilians-Universität of Würzburg. Speech title: "Imbalanced data as risk factor of discriminating automated decisions: A measurement-based approach"
- 30.10.2019 – National event "Tavola Rotonda ISO 25000", Università Salesiana di Roma, within the interim meeting ISO/IEC JTC1 SC7/WG6. Speech title: "Measuring software & data bias with SQUARE"
- 7.5.2019 - Focus on Open Science – Chapter XIII, Torino. Speech title: "Broad Research Data Commons: the example of the Digital Open Urban Twin at the Future Urban Legacy Lab"
- 28.3.2019 - International Workshop: "Connecting Policy Developers and Decision Makers With the DigitranScope experiments", European Commission Joint Research Center for Advanced Studies, Ispra, Italy. Speech title: "Digital Open Urban Twins"
- 4.10.2018 - 5th IEEE International Conference on Data Science and Advanced Analytics Trends & Controversy Panel "Yes, most Machine Learning applications are opaque and unfair. Now what?",
- 30.5.2016 "OpenAIRE. A platform to support Open Science in Europe", Rome. Speech title: "Open Access Policy Alignment: the Pasteur4OA project and Italian OA practices"

Organizer, co-organizer or chair role at the following conferences ad workshop:

- 2021 Chair of Journal-first track 22nd International Conference on Product-Focused Software Process Improvement (PROFES 2021)
- 2020 Chair of Journal-first track 21st International Conference on Product-Focused Software Process Improvement (PROFES 2020)
- 2017 Director Track "Open Access" International Conference for E-Democracy and Open Government
- 2016 Co-organizer Regional Workshop for Research Organisations of South.Western Europe countries "Working Together to Promote Open Access Policy Alignment in Europe", Turin
- 2016 Director Track "Open Access" International Conference for E-Democrarcy and OpenGovernment

- 2015 Co-organizer of Int. Workshop: ODQ2015 Open Data Quality: from Theory to Practice, München
- 2015 Co-organizer 2nd IFIP International Workshop on Emerging Ideas and Trends in Engineering of Cyber-Physical Systems, Seattle
- 2015 Co-organizer of "The Green Lab: Experimentation in Software Energy Efficiency" - technical brief at the International Conference on Software Engineering (ICSE), Florence
- 2014 Proceedings Chair 8th ACM/IEEE International Symposium on Empirical Software Engineering and Measurement
- 2013 Web Chair 13th International conference on Software Reuse

Served as reviewer:

- in the program committee of several conferences, among which: Empirical software Engineering and Measurement, International Conference on Product-Focused Software Process Improvement, Evaluation and Assessment in Software Engineering, International Conference on Software Engineering, International Conference on eDemocracy & eGovernment, International Conference on Agile Software Development, International Conference on Information Management and Big Data.
- for several international journals, among which: Springer Empirical Software Engineering, Elsevier Government Information Quarterly, Elsevier Journal of System and Software, IEEE Software, Elsevier Future Generation Computer Systems, IEEE Transactions on Emerging Topics in Computing, Springer Artificial Intelligence Review, Elsevier Expert systems with applications, Elsevier Information Fusion, Springer Software Quality Journal.

Honours and awards

Awards:

- 2020 Best paper award at EGOV-2020 "Identifying risks in datasets for automated decision-making" in category "The most innovative research contribution or case study".
- 2012 Admitted to the finals of ACM Student Research Competition, International Conference on Software Engineering (Zurich, Switzerland, 2-9 June 2012)
- 2010 Best paper award: IDOESE 2010 - 5th International Doctoral Symposium on Empirical Software Engineering, 15 September 2010, Bolzano, ITALY

Memberships

Editorial board:

- May 2020 – present: International Journal of Technoethics (IJT; ISSN 1947-345).
- March 2019 - March 2021: MDPI Information (ISSN 2078-2489).

Scientific boards:

- May 2024 – present: Member of the scientific committee of the Pico Foundation. The PICO Foundation is a Digital Innovation Hub that was created with the aim of supporting cooperative digital transformation.
- Dec. 2023 – March 2024 : Expert monitor (reviewer) for the European Commission - European Climate, Infrastructure and Environment Executive Agency
- Nov. 2023 – present: member of the scientific committee of the University Master's degree program "HumanAlze: the human and social sciences for artificial intelligence" organized by the Polytechnic University of Turin and the University of Turin External
- 2019 - present: member of ISO/IEC JTC1 SC7/WG6 Software and System Engineering - Software Product and System Quality
- Apr. 2019 – Sept. 2023: member of the scientific board of Scienza Nuova - Italian Institute for Advanced Studies in Torino "Umberto Eco"
- 2016 - present : member of Standardization Commission UNI CT504 – Software Engineering
- 2018-2021: member of the scientific board of the interdepartmental center "Future Urban Legacy Lab"
- 2016- 2017: member of the scientific committee of Big Data Accademy Intesa Sanpaolo
- 2014- 2015 member of European Network of Excellence in Internet Science (EINS)
- 2014 –2015: collaborator of the International Software Engineering Research Network (ISERN)

Courses

Teaching: all details on courses held are listed at the official page of Politecnico di Torino:

<https://www.polito.it/en/staff?p=antonio.vetro#didattica>

Here are reported only the courses held as main teacher:

- 2024 "Information Business Systems" 8 CFU, M.Sc. in Management Engineering
- 2023 "Data Ethics and Data Protection" 6 CFU, M.Sc. in Data Science And Engineering
- 2022, 2024 "Digital Culture" 3 CFU, Master of Journalism "Giorgio Bocca", University of Turin
- 2020 "Evolutionary dynamics of science and technology", 3 CFU, Master of Journalism "Giorgio Bocca", University of Turin
- 2013 "Data Base", Bachelor IT Engineering, Turin Polytechnic University in Tashkent (Uzbekistan)

Certifications

Qualifications:

- 2019 National Academic Qualification as Associate Professor – sector 09/H1 (Information Processing Systems)
- 2011 National certification in the profession Information Engineer – sector 35/S (Computer engineering)

According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV