

Andrea Bombarda, Ph.D.

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🏠 April 10th, 1994
📍 Via per Curnasco, 51 - 24127, Bergamo (BG), Italy



Employment

- 2023 – Now **Junior Assistant Professor (RTD-A)** in Software Engineering
Institution: University of Bergamo, Bergamo (Italy)
- 2022 – 2023 **Postdoctoral Researcher** in Software Engineering
Prof. Angelo Gargantini
Institution: University of Bergamo, Bergamo (Italy)
- 2019 **Scientific Animator**
Institution: University of Bergamo, Bergamo (Italy)
- Research Fellow** in Software Engineering
Prof. Angelo Gargantini
Institution: University of Bergamo, Bergamo (Italy)
- 2014 – 2019 **Software Developer and Database Administrator**
Institution: PLM Impianti Srl, Almè (Italy)
- 2013 **Scientific Animator**
Institution: ITIS P. Paleocapa - Bergamo Scienza, Bergamo (Italy)
- 2012 **Internship - Software Developer**
Institution: Nuovo Istituto Italiano d'Arti Grafiche, Bergamo (Italy)
- Scientific Animator**
Institution: ITIS P. Paleocapa - Bergamo Scienza, Bergamo (Italy)
- 2010 – 2011 **Scientific Animator**
Institution: ITIS P. Paleocapa - Bergamo Scienza, Bergamo (Italy)







Teaching Experience

- 2024 **Professor (Ph.D. Course)**
Introduction to Software Testing
Institution: University of Bergamo, Bergamo (Italy)
- Professor (M.Sc. Course)**
Mobile App Lab
Institution: University of Bergamo, Bergamo (Italy)
- 2023 **Adjunct Professor (M.Sc. Course)**
Mobile App Lab
Institution: University of Bergamo, Bergamo (Italy)
- Teaching Assistant (4 hours)**
Fundamentals Of Networks And Telecommunications (B.Sc. Course)
Prof. Giuseppe Federico Rossi
Institution: University of Bergamo, Bergamo (Italy)
- 2022 **Teaching Assistant (12 hours)**
Informatics IIIB (M.Sc. Course)
Prof. Patrizia Scandurra
Institution: University of Bergamo, Bergamo (Italy)
- Teaching Assistant (12 hours)**
Artificial Intelligence (M.Sc. Course)
Prof. Mario Verdicchio
Institution: University of Bergamo, Bergamo (Italy)





Employment (continued)

- 2021
 - **Teaching Assistant (12 hours)**
Informatics IIIA - Advanced Programming (M.Sc. Course)
Prof. Angelo Gargantini
Institution: University of Bergamo, Bergamo (Italy)
 - **Teaching Assistant (18 hours)**
Software Engineering (B.Sc. Course)
Prof. Angelo Gargantini
Institution: University of Bergamo, Bergamo (Italy)
 - **Teaching Assistant (12 hours)**
Software Testing and Verification (M.Sc. Course)
Prof. Angelo Gargantini
Institution: University of Bergamo, Bergamo (Italy)
 - **Teaching Assistant (12 hours)**
Informatics II - Object Oriented Programming (B.Sc. Course)
Prof. Patrizia Scandurra
Institution: University of Bergamo, Bergamo (Italy)
 - **Teaching Assistant (12 hours)**
Informatics IIIB (M.Sc. Course)
Prof. Patrizia Scandurra
Institution: University of Bergamo, Bergamo (Italy)
 - **Teaching Assistant (23 hours)**
Informatics II - Object Oriented Programming (B.Sc. Course)
Prof. Angelo Gargantini
Institution: University of Bergamo, Bergamo (Italy)
 - **High School Professor**
Emerging Technologies
Institution: iSchool, Bergamo (Italy)
 - **Teaching Assistant (24 hours)**
Informatics II - Operating Systems (B.Sc. Course)
Prof. Patrizia Scandurra
Institution: University of Bergamo, Bergamo (Italy)
 - **Teaching Assistant (12 hours)**
Software Testing and Verification (M.Sc. Course)
Prof. Angelo Gargantini
Institution: University of Bergamo, Bergamo (Italy)
- 2020
 - **Teaching Assistant (12 hours)**
Data Science and Automation (M.Sc. Course)
Prof. Mirko Mazzoleni
Institution: University of Bergamo, Bergamo (Italy)
 - **Teaching Assistant (12 hours)**
Informatics IIIB (M.Sc. Course)
Prof. Patrizia Scandurra
Institution: University of Bergamo, Bergamo (Italy)
 - **Teaching Assistant (23 hours)**
Informatics II - Operating Systems (B.Sc. Course)
Prof. Patrizia Scandurra
Institution: University of Bergamo, Bergamo (Italy)
 - **Teaching Assistant (9 hours)**
Informatics II - Object Oriented Programming (B.Sc. Course)
Prof. Angelo Gargantini
Institution: University of Bergamo, Bergamo (Italy)
 - **Teaching Assistant (6 hours)**
Software Testing and Verification (M.Sc. Course)
Prof. Angelo Gargantini
Institution: University of Bergamo, Bergamo (Italy)




Employment (continued)

- 2019-2020  **Professor**
Internet of Things
Institution: Fondazione “Istituto Tecnico Superiore per le nuove tecnologie e per il made in Italy”, San Paolo d’Argon (Italy)
-  **Professor**
Software Architecture
Institution: Fondazione “Istituto Tecnico Superiore per le nuove tecnologie e per il made in Italy”, San Paolo d’Argon (Italy)
- 2019  **Teaching Assistant (12 hours)**
Informatics IIIB (M.Sc. Course)
Prof. Patrizia Scandurra
Institution: University of Bergamo, Bergamo (Italy)
-  **Teaching Assistant (36 hours)**
Informatics IIIA (M.Sc. Course)
Prof. Angelo Gargantini
Institution: University of Bergamo, Bergamo (Italy)
-  **Professor**
PLC Programming (Summer School)
Institution: Università degli Studi di Napoli Federico II, Napoli (Italy)
- 2018  **Teaching Assistant (12 hours)**
Industrial automation (M.Sc. Course)
Prof. Michele Ermidoro
Institution: University of Bergamo, Bergamo (Italy)

Education

- 2019 – 2022  **Ph.D. in Engineering and Applied Sciences (excellent)**
Institution: University of Bergamo, Bergamo (Italy)
Thesis title: *Software Quality Assurance for Medical Systems*
Supervisor: Prof. Angelo Gargantini
- 2016 – 2018  **Master of Engineering in Computer Engineering (110/110 cum laude)**
Institution: University of Bergamo, Bergamo (Italy)
Thesis title: *Design and implementation of the BGenome database for genomic data management.*
Supervisor: Prof. Fabio Previdi
- 2013 – 2016  **Bachelor of Engineering in Computer Engineering (108/110)**
Institution: University of Bergamo, Bergamo (Italy)
Thesis title: *Development of a system for the estimation of the trajectory of a Foucault Pendulum by means of inertial measurements.*
Supervisor: Prof. Fabio Previdi
- 2008 – 2013  **High School Diploma: Information Systems Technician (100/100)**
Institution: ITIS P. Paleocapa, Bergamo (Italy)
Thesis title: *Development of an Arduino-based embedded system for the tracking of GPS data, inertial data, and temperature, to be used during motorbike riding.*

Summer School Attendance

- 2024  **TAROT Summer School**
Institution: University of Bergamo, Bergamo (Italy) - Held in Bergamo (Italy)
July 08-12, 2024
- 2022  **TAROT Summer School**
Institution: Complutense University of Madrid, Madrid (Spain) - Held in Ávila (Spain)
July 05-08, 2022
- 2021  **International Summer School on Software Engineering 2021**
Institution: Free University of Bozen, Bolzano (Italy) - Virtual
September 28-29, 2021

Summer School Attendance (continued)

- 2020  **International Summer School on Software Engineering 2020**
Institution: Free University of Bozen, Bolzano (Italy) - Virtual
July 01-03, 2020
- 2020  **Reasoning Web Summer School**
Institution: University of Oslo, Oslo (Norway) - Virtual
June 24-26, 2020
- 2020  **TAROT Summer School**
Institution: University of Porto, Porto (Portugal) - Virtual
October 19-23, 2020


Visiting

- 2024  **Visiting Researcher**
Institution: National Institute of Informatics, Tokyo (Japan)
Associate Prof. Fuyuki Ishikawa
August 2024
- 2022  **Visiting Ph.D. Student**
Institution: University of Texas at Arlington, Arlington - TX (USA)
Prof. Yu Lei
August-September 2022
- 2022  **Visiting Ph.D. Student**
Institution: University of Texas at Arlington, Arlington - TX (USA)
Prof. Yu Lei
January 2022
- 2020  **Visiting Ph.D. Student**
Institution: University of Texas at Arlington, Arlington - TX (USA)
Prof. Yu Lei
February 2020
- 2019  **Visiting Researcher**
Institution: University of Texas at Arlington, Arlington - TX (USA)
Prof. Yu Lei
August-September 2019

Membership



- 2023 – Now  **Responsible of the communication with the Industry Committee**
Institution: Formal Methods Europe (FME) - Communication Committee

Invited Talks and Panel Discussions

- 2023  **Developing a prototype of a mechanical ventilator controller from requirements to code with ASMETA**
Dagstuhl Seminar - Integrated Rigorous Analysis in Cyber-Physical Systems Engineering
<https://www.dagstuhl.de/23041>
January 22-27, 2023

Research Publications

Journal Articles

- 1 A. Bombarda, S. Bonfanti, M. De Sanctis, *et al.*, “Evaluation framework for autonomous systems: The case of programmable electronic medical systems,” *IEEE Transactions on Software Engineering*, vol. 50, no. 4, pp. 995–1014, 2024.  DOI: 10.1109/TSE.2024.3374382.
- 2 A. Bombarda and A. Gargantini, “Design, implementation, and validation of a benchmark generator for combinatorial interaction testing tools,” *Journal of Systems and Software*, vol. 209, p. 111 920, Mar. 2024, ISSN: 0164-1212.  DOI: 10.1016/j.jss.2023.111920.

- 3 M. Leithner, A. Bombarda, M. Wagner, A. Gargantini, and D. E. Simos, "State of the cart: Evaluating covering array generators at scale," *International Journal on Software Tools for Technology Transfer*, May 2024, ISSN: 1433-2787. [DOI: 10.1007/s10009-024-00745-2](https://doi.org/10.1007/s10009-024-00745-2).
- 4 A. Bombarda, S. Bonfanti, C. Galbiati, *et al.*, "Guidelines for the development of a critical software under emergency," *Information and Software Technology*, p. 107 061, Sep. 2022. [DOI: 10.1016/j.infsof.2022.107061](https://doi.org/10.1016/j.infsof.2022.107061).
- 5 A. Bombarda, S. Bonfanti, A. Gargantini, Y. Lei, and F. Duan, "RATE: A model-based testing approach that combines model refinement and test execution," *Software Testing, Verification and Reliability*, Dec. 2022. [DOI: 10.1002/stvr.1835](https://doi.org/10.1002/stvr.1835).
- 6 A. Abba, C. Accorsi, P. Agnes, *et al.*, "The novel mechanical ventilator milano for the COVID-19 pandemic," *Physics of Fluids*, vol. 33, no. 3, p. 037 122, Mar. 2021. [DOI: 10.1063/5.0044445](https://doi.org/10.1063/5.0044445).
- 7 A. Bombarda, S. Bonfanti, A. Gargantini, P. Pelliccione, and E. Riccobene, "Il successo di mvm, un progetto sociale internazionale per realizzare un ventilatore polmonare," *Il giornale dell'ingegnere*, vol. 5, p. 13, Jun. 2021, ISSN: 1974-7144. [DOI: http://hdl.handle.net/10446/202112](http://hdl.handle.net/10446/202112).

Conference Proceedings

- 1 A. Bombarda, S. Millefiori, M. Penzo, L. Novelli, and A. Gargantini, "An android app for training new doctors in mechanical ventilation," in *Proceedings of the 17th International Joint Conference on Biomedical Engineering Systems and Technologies*, SCITEPRESS - Science and Technology Publications, 2024. [DOI: 10.5220/0012323900003657](https://doi.org/10.5220/0012323900003657).
- 2 W. Essbai, A. Bombarda, S. Bonfanti, and A. Gargantini, "A framework for including uncertainty in robustness evaluation of bayesian neural network classifiers," in *Proceedings of the 5th IEEE/ACM International Workshop on Deep Learning for Testing and Testing for Deep Learning*, ser. DeepTest '24, Lisbon, Portugal: Association for Computing Machinery, 2024, pp. 25–32, ISBN: 9798400705748. [DOI: 10.1145/3643786.3648026](https://doi.org/10.1145/3643786.3648026).
- 3 A. Bombarda, S. Bonfanti, and A. Gargantini, "Formal MVC: A pattern for the integration of asm specifications in ui development," in *Rigorous State-Based Methods*, U. Glässer, J. Creissac Campos, D. Méry, and P. Palanque, Eds., Cham: Springer Nature Switzerland, 2023, pp. 340–357, ISBN: 978-3-031-33163-3. [DOI: 10.1007/978-3-031-33163-3_25](https://doi.org/10.1007/978-3-031-33163-3_25).
- 4 A. Bombarda, S. Bonfanti, and A. Gargantini, "On the reuse of existing configurations for testing evolving feature models," in *Proceedings of the 27th ACM International Systems and Software Product Line Conference - Volume B*, ACM, Aug. 2023. [DOI: 10.1145/3579028.3609017](https://doi.org/10.1145/3579028.3609017).
- 5 A. Bombarda and A. Gargantini, "Incremental generation of combinatorial test suites starting from existing seed tests," in *2023 IEEE International Conference on Software Testing, Verification and Validation Workshops (ICSTW)*, IEEE, Apr. 2023. [DOI: 10.1109/ICSTW58534.2023.00044](https://doi.org/10.1109/ICSTW58534.2023.00044).
- 6 A. Bombarda, A. Gargantini, and A. Calvagna, "Multi-thread combinatorial test generation with smt solvers," in *Proceedings of the 38th ACM/SIGAPP Symposium on Applied Computing*, ser. SAC '23, Tallin, Estonia: Association for Computing Machinery, 2023, ISBN: 9781450395175. [DOI: 10.1145/3555776.3577703](https://doi.org/10.1145/3555776.3577703).
- 7 P. Arcaini, A. Bombarda, S. Bonfanti, A. Gargantini, D. Gamba, and R. Pedercini, "Robustness assessment and improvement of a neural network for blood oxygen pressure estimation," in *2022 IEEE Conference on Software Testing, Verification and Validation (ICST)*, IEEE, Apr. 2022. [DOI: 10.1109/icst53961.2022.00040](https://doi.org/10.1109/icst53961.2022.00040).
- 8 A. Bombarda, S. Bonfanti, and A. Gargantini, "Automatic test generation with ASMETA for the mechanical ventilator milano controller," in *Testing Software and Systems*, Springer International Publishing, 2022, pp. 65–72. [DOI: 10.1007/978-3-031-04673-5_5](https://doi.org/10.1007/978-3-031-04673-5_5).
- 9 A. Bombarda, S. Bonfanti, M. D. Sanctis, *et al.*, "Towards an evaluation framework for autonomous systems," in *2022 IEEE International Conference on Autonomic Computing and Self-Organizing Systems Companion (ACSOS-C)*, IEEE, Sep. 2022. [DOI: 10.1109/acsosc56246.2022.00025](https://doi.org/10.1109/acsosc56246.2022.00025).
- 10 A. Bombarda and A. Gargantini, "Parallel test generation for combinatorial models based on multivalued decision diagrams," in *2022 IEEE International Conference on Software Testing, Verification and Validation Workshops (ICSTW)*, IEEE, Apr. 2022. [DOI: 10.1109/icstw55395.2022.00027](https://doi.org/10.1109/icstw55395.2022.00027).
- 11 P. Arcaini, A. Bombarda, S. Bonfanti, and A. Gargantini, "Efficient computation of robustness of convolutional neural networks," in *2021 IEEE International Conference on Artificial Intelligence Testing (AITest)*, IEEE, Aug. 2021. [DOI: 10.1109/aitest52744.2021.00015](https://doi.org/10.1109/aitest52744.2021.00015).

- 12 P. Arcaini, A. Bombarda, S. Bonfanti, and A. Gargantini, "ROBY: A tool for robustness analysis of neural network classifiers," in *2021 14th IEEE Conference on Software Testing, Verification and Validation (ICST)*, IEEE, Apr. 2021. [DOI: 10.1109/icst49551.2021.00057](https://doi.org/10.1109/icst49551.2021.00057).
- 13 A. Bombarda, S. Bonfanti, C. Galbiati, *et al.*, "Lessons learned from the development of a mechanical ventilator for COVID-19," in *2021 IEEE 32nd International Symposium on Software Reliability Engineering (ISSRE)*, IEEE, Oct. 2021. [DOI: 10.1109/issre52982.2021.00016](https://doi.org/10.1109/issre52982.2021.00016).
- 14 A. Bombarda, S. Bonfanti, A. Gargantini, and E. Riccobene, "Developing a prototype of a mechanical ventilator controller from requirements to code with asmeta," Nov. 16, 2021. [DOI: 10.4204/EPTCS.349.2](https://doi.org/10.4204/EPTCS.349.2). arXiv: <http://arxiv.org/abs/2111.08204v1> [cs.FL].
- 15 A. Bombarda, S. Bonfanti, A. Gargantini, and E. Riccobene, "Extending ASMETA with time features," in *Rigorous State-Based Methods*, Springer International Publishing, 2021, pp. 105–111. [DOI: 10.1007/978-3-030-77543-8_8](https://doi.org/10.1007/978-3-030-77543-8_8).
- 16 A. Bombarda, E. Crippa, and A. Gargantini, "An environment for benchmarking combinatorial test suite generators," in *2021 IEEE International Conference on Software Testing, Verification and Validation Workshops (ICSTW)*, IEEE, Apr. 2021. [DOI: 10.1109/icstw52544.2021.00021](https://doi.org/10.1109/icstw52544.2021.00021).
- 17 P. Arcaini, A. Bombarda, S. Bonfanti, and A. Gargantini, "Dealing with robustness of convolutional neural networks for image classification," in *2020 IEEE International Conference On Artificial Intelligence Testing (AITest)*, IEEE, Aug. 2020. [DOI: 10.1109/aitest49225.2020.00009](https://doi.org/10.1109/aitest49225.2020.00009).
- 18 A. Bombarda and A. Gargantini, "An automata-based generation method for combinatorial sequence testing of finite state machines," in *2020 IEEE International Conference on Software Testing, Verification and Validation Workshops (ICSTW)*, IEEE, Oct. 2020. [DOI: 10.1109/icstw50294.2020.00036](https://doi.org/10.1109/icstw50294.2020.00036).
- 19 A. Bombarda, S. Bonfanti, and A. Gargantini, "Developing medical devices from abstract state machines to embedded systems: A smart pill box case study," in *Software Technology: Methods and Tools*, Springer International Publishing, 2019, pp. 89–103. [DOI: 10.1007/978-3-030-29852-4_7](https://doi.org/10.1007/978-3-030-29852-4_7).
- 20 A. Bombarda, S. Bonfanti, A. Gargantini, M. Radavelli, F. Duan, and Y. Lei, "Combining model refinement and test generation for conformance testing of the IEEE PHD protocol using abstract state machines," in *Testing Software and Systems*, Springer International Publishing, 2019, pp. 67–85. [DOI: 10.1007/978-3-030-31280-0_5](https://doi.org/10.1007/978-3-030-31280-0_5).






Books and Chapters

- 1 P. Arcaini, A. Bombarda, S. Bonfanti, A. Gargantini, E. Riccobene, and P. Scandurra, "The ASMETA approach to safety assurance of software systems," in *Logic, Computation and Rigorous Methods*, Springer International Publishing, 2021, pp. 215–238. [DOI: 10.1007/978-3-030-76020-5_13](https://doi.org/10.1007/978-3-030-76020-5_13).








Reviewer Service

- | | |
|------|---|
| 2024 | <ul style="list-style-type: none"> 📖 <i>International Journal of Electrical and Computer Engineering (IJECE)</i> 📖 <i>International Symposium on Software Reliability Engineering (ISSRE)</i> 📖 <i>ACM Transactions on Software Engineering and Methodology (TOSEM)</i> 📖 <i>International Conference on Rigorous State-Based Methods (ABZ)</i> 📖 <i>International Conference on Software and Computing Technologies (ICSCT)</i> 📖 <i>ACM International Conference on the Foundations of Software Engineering (FSE)</i> 📖 <i>International Workshop on Combinatorial Testing (IWCT)</i> 📖 <i>SN Springer Nature Computer Science (SNCS)</i> 📖 <i>Journal of Systems and Software (JSS)</i> |
| 2023 | <ul style="list-style-type: none"> 📖 <i>International Workshop on Combinatorial Testing (IWCT)</i> 📖 <i>Wiley IET Software</i> 📖 <i>International Symposium on Software Reliability Engineering (ISSRE)</i> 📖 <i>International Conference on Software Engineering (ICSE)</i> 📖 <i>International Journal of Electrical and Computer Engineering (IJECE)</i> |
| 2022 | <ul style="list-style-type: none"> 📖 <i>International Workshop on Combinatorial Testing (IWCT)</i> 📖 <i>Springer Computing</i> |

Reviewer Service (continued)

- 2021  *Symposium On Applied Computing (SAC)*
-  *International Workshop on Combinatorial Testing (IWCT)*
-  *IEEE International Conference On Artificial Intelligence Testing (AiTest)*
-  *International Workshop on Cyber-Security and Functional Safety in Cyber-Physical Systems (IWCF)*
- 2019  *IFIP International Conference on Testing Software and Systems (ICTSS)*

PC Membership

- 2024  **International Symposium on Software Reliability Engineering (ISSRE)**
Member of the Program Committee - <https://issre.github.io/2024/>
-  **International Conference on Software and Computing Technologies (ICSCT 2024)**
Member of the Program Committee - <https://www.icsct.org/>
-  **International Conference on Rigorous State Based Methods (ABZ 2024)**
Web Chair - <https://abz-conf.org/site/2024/>
-  **International Workshop on Combinatorial Testing (IWCT 2024)**
Organizer of the CT-Competition, a competition among tools for generating combinatorial test suites - <https://fmse-lab.github.io/ct-competition/results/2024/index2024.html>
-  **International Workshop on Combinatorial Testing (IWCT 2024)**
Member of the Program Committee - <https://conf.researchr.org/home/icst-2024/iwct-2024>
- 2023  **International Workshop on Combinatorial Testing (IWCT 2023)**
Organizer of the CT-Competition, a competition among tools for generating combinatorial test suites - <https://fmse-lab.github.io/ct-competition/results/2023/index2023.html>
- 2022  **International Workshop on Combinatorial Testing (IWCT 2022)**
Organizer of the CT-Competition, a competition among tools for generating combinatorial test suites - <https://fmse-lab.github.io/ct-competition/results/2022/index2022.html>

Supervision / Co-Supervision of Individuals

- 2024  **Fabio Assolari: *Design and development of an application for automatic annotation of Variant Call Format files***
Bachelor thesis
Institution: University of Bergamo, Bergamo (Italy)
-  **Nico Pellegrinelli: *Automatic Generation of Test Cases for Statecharts in Itemis CREATE***
Master thesis, Co-supervised with Prof. Angelo Gargantini
Institution: University of Bergamo, Bergamo (Italy)
-  **Simone Ronzoni: *Design and development of an application for automatic annotation of Variant Call Format files***
Bachelor thesis
Institution: University of Bergamo, Bergamo (Italy)
-  **Paolo Zanotti: *Automatic filtering of clinical text: A Comparative Analysis of structure-based, Ontology-based, and LLM-based Approaches***
Bachelor thesis
Institution: University of Bergamo, Bergamo (Italy)
-  **Matteo Soldini: *Metamorphic Testing of the MUSICA Algorithm for X-Ray Image Processing***
Bachelor thesis
Institution: University of Bergamo, Bergamo (Italy)

Supervision / Co-Supervision of Individuals (continued)

- **Marco Guzzi: *Design of an Architecture for a System for Speeding Up the Diagnosis Process of Rare Genetic Diseases***
Bachelor thesis
Institution: University of Bergamo, Bergamo (Italy)
- **Benedetta Lenuzza: *Development of an Ontology for a Genetic Laboratory***
Master thesis, Co-supervised with Prof. Domenico Fabio Savo
Institution: University of Bergamo, Bergamo (Italy)
- 2023 ■ **Leonardo Rebutini: *Tackling the configuration space problem using Multivalued Decision Diagrams***
Master thesis, Co-supervised with Prof. Angelo Gargantini
Institution: University of Bergamo, Bergamo (Italy)
- **Wasim Essbai: *Evaluating the Robustness of Bayesian Neural Networks by Exploiting Uncertainty Estimation***
Master thesis, Co-supervised with Prof. Angelo Gargantini and Silvia Bonfanti
Institution: University of Bergamo, Bergamo (Italy)
- 2022 ■ **Simona Piazzzi: *INSPIRE - Development of a respiratory system digital twin for mechanical ventilators testing***
Master thesis, Co-supervised with Prof. Angelo Gargantini and Silvia Bonfanti
Institution: University of Bergamo, Bergamo (Italy)
- **Luca Parimbelli: *Coevolution of test cases for Software Product Lines with evolving Feature Models***
Master thesis, Co-supervised with Prof. Angelo Gargantini and Silvia Bonfanti
Institution: University of Bergamo, Bergamo (Italy)
- **Federico Modica: *Implementation of a monitoring system for minors during internet use***
Master thesis, Co-supervised with Prof. Angelo Gargantini and Silvia Bonfanti
Institution: University of Bergamo, Bergamo (Italy)
- **Alberto Gambarara: *Design and implementation of an evolutionary algorithm for the nesting problem***
Master thesis, Co-supervised with Prof. Angelo Gargantini
Institution: University of Bergamo, Bergamo (Italy)
- 2021 ■ **Leonardo Rebutini: *Introducing Continuous Integration for the ASMETA framework***
Bachelor thesis, Co-supervised with Prof. Angelo Gargantini
Institution: University of Bergamo, Bergamo (Italy)
- **Valerio Sabato: *Robustness analysis for artificial neural networks for the diagnosis of COVID-19***
Master thesis, Co-supervised with Prof. Angelo Gargantini and Silvia Bonfanti
Institution: University of Bergamo, Bergamo (Italy)
- **Matteo Casino: *Internet use in minors: issues, risks, and mitigation techniques***
Bachelor thesis, Co-supervised with Prof. Angelo Gargantini and Silvia Bonfanti
Institution: University of Bergamo, Bergamo (Italy)
- **Andrea Belotti: *Translation of time functions from ASMETA to C++ and application to the MVM case study***
Master thesis, Co-supervised with Prof. Angelo Gargantini and Silvia Bonfanti
Institution: University of Bergamo, Bergamo (Italy)

Supervision / Co-Supervision of Individuals (continued)

- 2020
- **Giorgio Brugali: *Automatic translation of the light and speed control system for cars, from ASMETA to C++ for Arduino***
Bachelor thesis, Co-supervised with Prof. Angelo Gargantini and Silvia Bonfanti
Institution: University of Bergamo, Bergamo (Italy)

 - **Alessandro Gaiti: *Modeling and validation of the MVM ventilator using Abstract State Machines***
Master thesis, Co-supervised with Prof. Angelo Gargantini, prof. Elvinia Riccobene, and Silvia Bonfanti
Institution: University of Bergamo, Bergamo (Italy)

 - **Rita Pedercini: *Robustness evaluation of the estimation provided by a Multilayer Perceptron***
Master thesis, Co-supervised with Prof. Angelo Gargantini and Silvia Bonfanti
Institution: University of Bergamo, Bergamo (Italy)

 - **Edoardo Crippa: *A benchmarking environment for algorithms generating combinatorial tests***
Master thesis, Co-supervised with Prof. Angelo Gargantini
Institution: University of Bergamo, Bergamo (Italy)

 - **Giacomo Del Prato: *Design and Implementation of a web-app for the control of vehicles' data***
Bachelor thesis, Co-supervised with Prof. Angelo Gargantini
Institution: University of Bergamo, Bergamo (Italy)

 - **Michele Piffari: *Techniques for monitoring, using a neural network artificial, respiration during mechanical ventilation***
Master thesis, Co-supervised with Prof. Angelo Gargantini and Silvia Bonfanti
Institution: University of Bergamo, Bergamo (Italy)

 - **Federico Russo: *Design and Implementation of a web-app for the control of companies' data***
Bachelor thesis, Co-supervised with Prof. Angelo Gargantini
Institution: University of Bergamo, Bergamo (Italy)

 - **Elia Davide Suardi: *Automatic implementation of a Smart Pillbox in Arduino using Abstract State Machines***
Bachelor thesis, Co-supervised with Prof. Angelo Gargantini and Silvia Bonfanti
Institution: University of Bergamo, Bergamo (Italy)
- 2019
- **Sergio Fabiani: *Robustness analysis of a neural network for the diagnosis of the pneumothorax***
Bachelor thesis, Co-supervised with Prof. Angelo Gargantini
Institution: University of Bergamo, Bergamo (Italy)

 - **Danilo Bertocchi: *Design and implementation of a cloud-based tool for the robustness analysis of neural networks***
Master thesis, Co-supervised with Prof. Angelo Gargantini
Institution: University of Bergamo, Bergamo (Italy)

Skills

- Languages
- **English**
 - Speaking: B2
 - Listening: C1
 - Reading: C1
 - Writing: C1

Skills (continued)

French

- Speaking: A1
- Listening: A1
- Reading: A1
- Writing: A1

Italian - Native language

Coding	Java, Python, VBA, VB.NET, C++, IEC 61131 norm (Ladder, SFC, Structured Text), Android App Development, Arduino, SQL, XML, json, Scala, \LaTeX , Keras.
Databases	MySQL, PostgreSQL, SQLite, Microsoft SQL Server.
OSs	Microsoft Windows, MacOS, iOS, Android, Linux (including shell bash programming).
Web Dev	HTML, CSS, JavaScript, Apache Web Server, Tomcat Web Server, Django, PHP, Ajax, SpringBoot, gRPC, REST.
General	Software versioning with GIT and SVN, Software Testing (JUnit, PyTest, Combinatorial Testing, Model-based Testing), Matlab, Software Architectural Patterns, UML, Formal Methods (Abstract State Machines, Theorem Provers, Model Checkers, LTL, CTL), Machine Learning.

Projects and Awards




Awards and Achievements

- 2024 **Candidate Best Poster Award**, 17th International Conference on Health Informatics (HEALTHINF 2024), Rome, Italy
- 2021 **Candidate Best Paper Award**, 32nd IEEE International Symposium on Software Reliability Engineering (ISSRE 2021), Wuhan, China.
- 2020 **Best Paper on AI-Based Testing**, 2nd IEEE International Conference on Artificial Intelligence Testing (AiTest 2020), Oxford University, UK.
- 2019 **Best Student Paper Award**, TOOLS 50+1: Technology of Object-Oriented Languages and Systems (TOOLS 50+1), Innopolis, Russia, EUR 300.00.
- Distinguished Paper Award**, TOOLS 50+1: Technology of Object-Oriented Languages and Systems (TOOLS 50+1), Innopolis, Russia.




Projects and Collaborations with Industrial and External Partners

- 2023 – 2026 **ANTHEM: AdvANced Technologies for Human-centrEd Medicine**
The project aims at developing medical devices and digital technologies for gathering data supporting personalized medicine, and developing systems used for patient monitoring and remote healthcare. *Institution: University of Bergamo, Bergamo (Italy)*
- 2022 – 2023 **PAMON**
A parental monitoring mobile app, designed to consider youngs' needs and especially focused on preventing dangerous social challenges.
Institution: University of Bergamo, Bergamo (Italy)
- 2020 – 2021 **FISR 2020 IP_05310 MVM-Adapt: Adaptive Mechanical Ventilator Milano under Uncertainty**
The project aims at increasing operability and robustness of the MVM by exploiting the paradigm of Self Adaptive Software.
Institution: University of Bergamo, University of Milan, Gran Sasso Science Institute - Funded by the Italian Ministry of University and Research (MUR)
- Mechanical Ventilator Milano**
Software tester and software certification supporter for the MVM (Mechanical Ventilator Milano) project, developed for use in the intensive care unit during the COVID-19 pandemic.
Institution: MVM Consortium
<https://vexos.com/mvm-ventilator/>

Projects and Awards (continued)

- 2019 – 2020  **Web-application for Construction sites management**
Web application commissioned by the “Carabinieri” Italian police force
Institution: Arma dei Carabinieri (Italy)
- 2019  **BGenome**
Development of BGenome, a web-app for managing genometical data of the local hospital’s patients.
Institution: Ospedale Papa Giovanni XXIII, Bergamo (Italy)
<https://cal.unibg.it/projects/bgenome/>
- 2014-2019  **DBPLM**
Development of the business software for the company, managing customers, offers, products, and including reporting tools.
Institution: PLM Impianti Srl, Almé (Italy)

Additional personal information

- Driving licenses  A, B.
- Organizational skills  Team-working, Ability to organize the work to get it done within assigned deadlines.
- Interpersonal skills  I gained very good communication and interpersonal skills through my experience as a professor and teaching assistant at university, conferences, and other courses.

Bergamo, Italy
August 21, 2024

Andrea Bombarda