University Academic Curriculum Vitae of Floriano Zini

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Languages: Italian (native speaker), English (C1 - Cambridge), German (B1.1 - Free University of Bozen-Bolzano)

EDUCATION

2001: Ph.D. in Computer Science from the University of Genova, Italy
1993: Degree in Computer Science from the University of Torino, Italy, grade: 108/110

CURRENT POSITION

From 12/2024 Researcher, Free University of Bozen-Bolzano, Italy, Faculty of Engineering
I work for Smart Data Factory (SDF), the Knowledge and Technology Transfer (KTT) laboratory in Computer Science of the Faculty at the NOI Techpark. My main responsibilities in SDF include coordinating and participating in training, basic and applied research projects, proposal writing, dissemination activities and networking.

PREVIOUS POSITIONS

- *03/2022 - 11/2024* Technologist, Free University of Bozen-Bolzano, Italy, Faculty of Computer Engineering
  I conducted R&D, Knowledge and Technology Transfer (KTT), dissemination, and training activities.
- *03/2019 - 02/2022* Researcher, Free University of Bozen-Bolzano, Italy, Faculty of Computer Science
  I conducted R&D, Knowledge and Technology Transfer (KTT), dissemination, and training activities.
- *12/2015 - 02/2019* Research associate, University of Bologna, Italy, Department of Computer Science and Engineering
  I was the principal investigator of a multidisciplinary R&D project where a computerized system for cognitive rehabilitation of multiple sclerosis patients was designed, implemented, and evaluated with real users.
- *03/2010 - 09/2015* Researcher, research associate, and adjunct professor, Free University of Bozen-Bolzano, Italy, Faculty of Computer Science
  I coordinated or participated in several research projects in medical informatics. I was a lecturer or teaching assistant in bachelor's and master's degree courses.
- *11/2007 - 03/2010* Software analyst and developer, Cogito, Language Technology – Expert System Group
  I worked for the R&D department of the company, a leader in information retrieval and natural language processing.

- *07/2006* Visiting Researcher, University of Karlsruhe, Germany, Dep. of Business Economics and Engineering
  I conducted research in data management in the framework of the European CATNETS project.
- *05/2000 - 10/2007* Researcher, IRST, the Centre for Scientific and Technological Research of Fondazione Bruno Kessler, Trento, Italy
  I conducted research on cooperation in societies of artificial software agents, and on optimization of data access and replication in data grids. I coordinated or participated in many local and European projects.
- *05/1999 - 07/1999* Visiting Researcher, The University of Melbourne, Australia, Department of Computer Science and Software Engineering
  I worked on the specification of knowledge bases for autonomous software agents.
- *03/1996 - 02/2001* PhD student, University of Genova, Italy, Department of Computer Science
  I conducted research on the use of logic programming and multi-agent systems for rapid prototyping of distributed software applications.
- *10/1993 - 06/1994* Research associate, University of Turin, Italy, Department of Computer Science
  I conducted research on inductive machine learning using genetic algorithms.

RESEARCH INTERESTS IN THE LAST 15 YEARS

I am a researcher with over 15 years of experience in the field of information technology for personalised healthcare, specialising in artificial intelligence (AI) and human-computer interaction (HCI). I hold a Ph.D. in computer science and have authored about 60 scientific papers on e-health, personalized information systems, grid computing, multiagent systems and evolutionary computing. According to Google Scholar, my h-index is 22. My most important research projects in the field of health informatics are:

- Since November 2024, I have been participating in a project, funded by the South Tyrolean Fund for the Promotion of Scientific Research, that combines artificial intelligence and radiomics to predict the outcome of prostate cancer, in collaboration with the South Tyrolean Healthcare Service (Dr. Mohsen Farsad) and the Paracelsus Medical University in Salzburg.
- Since May 2022, I have been involved in the "BAGEL" (BrAin Glucose mEtaboLism) project, in collaboration with the South Tyrolean Healthcare Service (Dr. Mohsen Farsad), aimed at identifying the mapping of brain metabolism kinetics.
- From December 2015 to January 2019, I was the principal investigator of a multidisciplinary research project aimed at the design, implementation, and evaluation with real users of MS-rehab, a system for computerized cognitive rehabilitation of multiple sclerosis patients. Since 2019, research on MS-rehab has focused on the definition of mechanisms that automatically adapt the difficulty of rehabilitation exercises to the patient's performance. An approach based on Reinforcement Learning was developed, evaluated and proven effective. An informal collaboration with the South Tyrolean Healthcare Service (Prof. Andreas Conca) has been recently established to evaluate whether the approach is applicable to the specific category of ADHD patients.
- From 2010 to 2015, I was involved in several e-health research projects (for some of which I was the principal investigator). In collaboration with other researchers and students, I developed various technologies and applications:
    - In the MOBAS project, funded by the Autonomous Province of Bozen-Bolzano, I developed a solution to support day-hospital patients. This system, called "Ospedale Amico", was able to monitor the patients' location in the hospital, detect at what stage of the day-hospital workflow the patients were in, and inform them, via a smartphone, about the activities they would need to perform. This system was later extended to support the patients in accessing information about their illness; I contributed to the development of an adaptive technology, based on Reinforcement Learning, able to learn the right amount of the most effective information to show to the patient.

- In a research project funded by Stallergenes (an international pharmaceutical company specializing in allergy treatment), I researched and developed techniques and an application to monitor the status of patients with allergic rhinitis and provide them with support for better therapy management. This research also led to the development of the Android mobile application "Smart Allergy Taming."
- In the LiloPAS project, funded by the Free University of Bozen/Bolzano, and the MAGELLANO project, funded by EDP Projects, I developed a technology to collect and aggregate life-logging data from wearable activity trackers and mobile phones. The collected data was used to calculate and show the user indicators of their health status and quality of life in an Android mobile application, which was evaluated in a live study.

MOST IMPORTANT SCIENTIFIC RESULTS

1. Principal investigator or WP leader of 10 international, national, and local basic and applied research projects.
    a. "Artificial intelligence and radiomics for prostate cancer outcome prediction (AIRFRAME)", Fondo per la promozione della ricerca altoatesina (SPFR), Bando SPFR 2021-2022
    b. “Job mAtching Recommender (JAR)”, Commissioned research by itConcept S.r.l.
    c. "Realizzazione di ambiente integrato per la riabilitazione cognitiva nella sclerosi multipla” - Funded by Università di Bologna e Fondazione Del Monte
    d. "Magellano" - Commissioned research by EDP Progetti Bozen-Bolzano
    e. "Life-logging for Proactive Advisory Systems (LiloPAS)" - Funded by Free University of Bozen-Bolzano
    f. "Monitoraggio e supporto di pazienti affetti da rinite allergica" - Commissioned research by Stallergenes
    g. “Context-Aware Music Retrieval and Adaptation (CAMuRA)” - Funded by Free University of Bozen-Bolzano
    h. "Evaluation of the Catallaxy paradigm for decentralized operation of dynamic application networks (CATNETS)" - Funded by the European Union, ISTFP6-003769
    i. "DataGRID", Funded by the European Union, IST-2000-25182
    j. "Kicker" - Funded by FS. S.p.A.
2. Participation in 8 international, national, and local basic and applied research projects.
    a. "Artificial Intelligence Laboratory (AI-Lab)", ERDF 2021-2027
    b. "BrAin Glucose mEtaboLism) (BAGEL)", Contract for research contributions
    c. "Sensors and data for sports activity analysis (SALSA)" ERDF 2014-2020
    d. “Mobile Analytical Services for Medical Data Warehouse (MOBAS)”, funded by Provincia Autonoma di Bolzano
    e. "MIRVAC", funded by Provincia Autonoma di Trento
    f. "Formal techniques for the specification, analysis, verification, synthesis, and transformation of software systems", funded by MURST
    g. "Models, methods, and languages for software design", funded by Università di Genova
    h. "S.T.E. Tools for analysis, software engineering techniques, concurrency constraints and object-oriented programming", funded by CNR
3. Organization of five editions of Data4SmartHealth, an event for promoting cooperation between companies, health authorities and research and technology transfer actors to develop innovative solutions based on Artificial Intelligence in healthcare.
4. Organization of 22° Congresso Nazionale ASSOCIAZIONE ITALIANA DI TELEMEDICINA ED INFORMATICA MEDICA.
5. Sponsorship chair of CHItaly 2021 - Frontiers of HCI.
6. Sponsorship chair of 23rd International Conference of the Italian Association for Artificial Intelligence.
7. Member of the program committee of about 20 international and national conferences.

8. Participation in dozens of scientific events with presentations on artificial intelligence, e-health, personalized information systems, grid computing, multiagent systems, and evolutionary computing.
9. Reviewer for about 10 international scientific journals.
10. Design and implementation or essential contribution to seven software systems used in my research activities.

SELECTED SCIENTIFIC PUBLICATIONS

1. B. Moret, A. B. Kolasinska, M. Nucci, G. Campana, F. Zini, M. Gaspari, and F. Stablum. 2023. Cognitive benefits of the attentional vs exergame training in older adults. Aging & Mental Health, 28(3), 531–541. https://doi.org/10.1080/13607863.2023.2228220
2. M. Andrić, F. Ricci and F. Zini. 2022. Sensor-Based Activity Recognition and Performance Assessment in Climbing: A Review. IEEE Access, 10, 108583-108603. https://doi.org/10.1109/ACCESS.2022.3213683
3. F. Zini, F. Le Piane, and M. Gaspari. 2022. Adaptive Cognitive Training with Reinforcement Learning. ACM Trans. Interact. Intell. Syst., 12 (1), Article 3, 29 pages. https://doi.org/10.1145/3476777
4. M. Gaspari, F. Zini, and S. Stecchi. 2020. Enhancing cognitive rehabilitation in multiple sclerosis with a disease-specific tool. Disability and Rehabilitation: Assistive Technology, 18(3), 313–326. https://doi.org/10.1080/17483107.2020.1849432
5. W. Streitberger, S. Hudert, T. Eymann, B. Schnizler, F. Zini, and M. Catalano. 2008. On the Simulation of Grid Market Coordination Approaches. Journal of Grid Computing, 6, 349-366. https://doi.org/10.1007/s10723-007-9092-6
6. D.G. Cameron, R. Carvajal-Schiaffino, C. Nicholson, K. Stockinger, F. Zini, A.P. Millar, and L. Serafini. 2006. Formal Analysis of an Agent-based Optimisation Strategy for Data Grids. Multiagent And Grid Systems, 2(2), 149-162. https://doi.org/10.3233/MGS-2006-2205
7. T. Eymann, M. Reinicke, W. Streitberger, O. Rana, L. Joita, D. Neumann, B. Schnizler, D. Veit, O. Ardaiz, P. Chacin, I. Chao, F. Freitag, L. Navarro, M. Catalano, M. Gallegati, G. Giulioni, R. Carvajal-Schiaffino, and F.Zini. 2005. Catallaxy-based grid markets. Multiagent and Grid Systems 1(4), 297-307. https://doi.org/10.3233/MGS-2005-1407
8. D. G. Cameron, A. P. Millar, C. Nicholson, R. Carvajal-Schiaffino, K. Stockinger, and F. Zini. 2004. Analysis of Scheduling and Replica Optimisation Strategies for Data Grids Using OptorSim. J Grid Computing, 2, 57–69. https://doi.org/10.1007/s10723-004-6040-6
9. W.H. Bell. D.G. Cameron. A.P. Millar. L. Capozza, K. Stockinger, and F. Zini. 2003. A Grid Simulator for Studying Dynamic Data Replication Strategies. The International Journal of High Performance Computing Applications, 17(4), 403-416. https://doi.org/10.1177/10943420030174005
10. A. Giordana, L. Saitta, and F Zini. 1994. Learning Disjunctive Concepts by Means of Genetic Algorithms. In W.W. Cohen and H. Hirsh (eds). Machine Learning Proceedings 1994, 96-102. https://doi.org/10.1016/B978-1-55860-335-6.50020-9

The full list of my publications is available on Google Scholar.

TEACHING

- Teaching tutor, School of Economics, Management and Statistics, University of Bologna, AA 2016-2017.
- Teaching assistant for the course "Internet and Mobile Services", Bachelor in Computer Science and Engineering, Free University of Bozen-Bolzano, AA 2014-2015.
- Lecturer for the course "Advanced Algorithms", Master in Computer Science, Free University of Bozen-Bolzano, AA 2013-2014.
- Teaching assistant for the course "Introduction to Programming", Bachelor in Computer Science and Engineering, Free University of Bozen-Bolzano, AA 2012-2013.

- Lecturer for the course "Machine Learning: Algorithms and Applications", Master in Computer Science, Free University of Bozen-Bolzano, AA 2011-2012.
- Teaching assistant for the course "Introduction to Programming", Bachelor in Computer Science and Engineering, Free University of Bozen-Bolzano, AA 2011-2012.
- Teaching assistant for the course "Linguaggi Formali e Compilatori", degree in Computer Science, University of Trento, AA 2005-2006.
- Teaching assistant for the course "Linguaggi di Programmazione: Implementazione", degree in Computer Science, University of Trento, AA 2003-2004.
- Teaching assistant for the course "Linguaggi di Programmazione: Implementazione", degree in Computer Science, University of Trento, AA 2002-2003.
- Teaching assistant for the course "Linguaggi di Programmazione", degree in Computer Science, University of Genova, AA 1997-1998.
- Teaching assistant for the course "Strutture Informative", degree in Computer Science, University of Genova, AA 1996-1997.

- Supervisor of the student Fabio Le Piane, title of the thesis: "Training cognitivo adattativo mediante Reinforcement Learning"', School of Sciences, Master in Computer Science, University of Bologna, 2018.
- Supervisor of the student Margherita Donnici, title of the thesis: "Weekend in Rome, a Cognitive Training Exercise based on Planning", School of Sciences, Master in Computer Science, University of Bologna, 2018.
- Supervisor of the student Elena Maria Bressan, title of the thesis: "Uno studio di usabilità per un sistema computerizzato di riabilitazione cognitiva nella Sclerosi Multipla", Master in Applied Cognitive Psychology, University of Padova, 2017.
- Supervisor of the student Daniele Baschieri, title of the thesis: "Riabilitazione cognitiva delle funzioni esecutive nella Sclerosi Multipla: un approccio basato sul planning", School of Sciences, Master in Computer Science, University of Bologna, 2017.
- Supervisor of the student Thai Son Nguyen, title of the thesis: "Mobile Life-logging For Allergic Rhinitis Management", Master in Computer Science, Free University of Bozen-Bolzano, 2014.
- Supervisor of the student Maria Ximena Gutierrez Vasques, title of the thesis: "Quantifying Determiners from the Distributional Semantics View", Erasmus Mundus European Master in Language & Communication Technologies, Free University of Bozen-Bolzano, 2012.
- Supervisor of the student Laura Napolitano, title of the thesis: "Implementation and evaluation of a multi-device enabled web application for clinical questionnaires", Bachelor in Applied Computer Science, Free University of Bozen-Bolzano, 2012.
- Supervisor of the student Patrick Lamber, title of the thesis: "MobiDay: a Personalized Context-Aware Mobile Service for Day Hospital Workflow Support", Master in Computer Science, Free University of Bozen-Bolzano, 2011.
- Supervisor of the student Matteo Tonazzoli, title of the thesis: "Valutazione sperimentale di tecniche per la prioritarizzazione di informazione tematica", Master in Computer Science, University of Bologna, 2005.
- Supervisor of the student Simone Marini, title of the thesis: "Specifica di Sistemi Multi-Agente Eterogenei", Master in Computer Science, University of Genova, 1999.
- Supervisor of the student Marco De Pedrini, title of the thesis: "CaseLP Visualizer: un Tool di Visualizzazione per Sistemi Multi-Agente Logici", Master in Computer Science, University of Genova, 1998.
- Supervisor of the student Giovanni Persano, title of the thesis: "Gestione Distribuita di Informazioni Mediche Mediante Tecniche Multi-Agente", Master in Computer Science, University of Genova, 1998.

THIRD MISSION ACTIVITIES IN THE LAST FIVE YEARS

As part of my overall contribution to SDF's mission, I have conducted the following KTT activities.

1. Participation in about 90 networking meetings with research institutes, companies, and public/private organizations (either local, national, or international).
2. Coordination or participation in 4 training projects for companies:
    a. Level-up Courses 2023 - Faculty of Computer Science (LUCS2023)
    b. Level-up Courses 2022 - Faculty of Computer Science (LUCS2022)
    c. Smart Enterprise Qualification Program (SEQP) - ESF
    d. Digital Innovation: a Window on the Internet of Things and Big Data - Contract for Teaching
3. As for dissemination activities, participation with a presentation in 14 events:
    a. Festival Informatici senza frontiere 24-26 October 2024
    b. Seminar at ITIS “C. ZUCCANTE”, Mestre (VE), titled “Intelligenza Artificiale: uno yin o uno yang per i Diritti Umani?
    c. Presentation at Bachelor day 2 March 2024
    d. Science Live. Get Curious!, 06/10/2023, Free University of Bozen-Bolzano
    e. Comunicare l'intelligenza artificiale, 14/06/2023, Università Cà Foscari Venezia
    f. Onde Vagabonde, a radio program broadcasted by RAI Alto Adige, 09/02/2023
    g. AI: usiamola a salvaguardia dei diritti umani, article in "Academia", the popular science journal published by Free University of Bozen-Bolzano and Eurac Research, 30/01/2023
    h. Intelligenza Artificiale e diritti umani, 23/11/2022, Unibz insight podcast
    i. Finding Outliers in your Data, 03/11/2022, Software Developer's Thursday - NOI Techpark
    j. Intelligenza artificiale: uno yin o uno yang per i diritti umani?, 13/10/2022, Invited talk, Speck&Tech #46 - Tech without borders
    k. Toward Flexible Digital Health Ecosystems: Challenges and Opportunities from International Experience, 04/10/2022, panel at EDOC 2022
    l. Tailored computer-based cognitive training with reinforcement learning, 12/11/2021, SFSCon 2021
    m. “Zeppelin”, a radio program broadcasted by RAI Alto Adige, 17/12/2020
    n. MS-rehab: a web-accessible system for AI-supported cognitive training, 13/11/2020, SFSCon 2020.
4. Creation of a catalog of R&D services and a catalog of training services that SDF provides to its stakeholders.
5. Organization and teaching of the course “Innovazione digitale: una finestra su Internet of Things e Big Data”, in collaboration with lvh.apa – Confartigianato imprese, Bozen-Bolzano.
6. Organization and teaching of three editions of a course for South Tyrolean companies on Artificial Intelligence for the management of business data.
7. Organization the course "GESTIRE E SFRUTTARE I DATI CON L'INTELLIGENZA ARTIFICIALE" to be offered in the framework of the European Digital Innovation Hub at NOI

Place and date

Bolzano-Bozen, 30th November 2024

Signature

(I declare, pursuant to art. 76 of Presidential Decree 445/2000, that the information is true. I authorize the processing of my personal data in accordance with Legislative Decree 30 June 2003, n. 196 "Code for the protection of personal data" and the GDPR 679/16 - "European Regulation on the protection of personal data".)