

CURRICULUM VITAE

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Emanuele Farinini was born in Genoa (Italy) on October 31, 1994.

In July 2018, he graduated in Pharmacy and Industrial Pharmacy the Department of Pharmacy of the University of Genova (110/110); experimental thesis: "Innovative lycopene extraction and biological evaluation of the extract" across several departments (DIFAR, DICCA, DISC of the University of Genoa) with publication in ChERD (Chemical Engineering Research and Design, principal international journal in chemical engineering) and patent of the extraction process (Design and Solid-Liquid multiVariable Extractor - SoLVE, patent number WO2021090250A1). He was also involved as a student representative and member of the Executive Committee of the Department of Pharmacy and Pharmaceutical Chemistry and Technology.

In March 2024, he received his PhD in Sciences and Technologies of Chemistry and Materials, with a specialization in Pharmaceuticals, Cosmetic, and Food Sciences; doctoral thesis "Use of Experimental Design and Multivariate Analysis for solving industrial problems". He conducted his research in the Analytical Chemistry and Chemometrics Research Group in collaboration with manufacturing industries and international research groups.

From August 2018 to December 2019, he worked as an R&D scientist in Early Product Development (EPD) and the Chemical Manufacturing and Control (CMC) department at Chiesi Limited UK, located in Chippenham, Wiltshire, UK. Following this, he began a professional career as a chemometric consultant in collaboration with Professor Riccardo Leardi, a role he continues to hold.

His research and consultancy focus on solving industrial problems using chemometric techniques. These techniques include experimental design, process optimization, multivariate process monitoring, and multivariate quality control. His expertise extends to data fusion calibration approaches exploiting all sources of information in industrial-scale production processes and image analysis.

His technical expertise includes full-stack web development, demonstrated through the creation of the ChemometricSolutions website (<https://chemometricsolutions.com>), and the development of interactive Python web applications for client demonstrations and training. His programming portfolio includes custom analytical tools and data visualization dashboards, showcasing his unique ability to bridge chemometric theory with modern software implementation for industrial applications.

Building on these programming capabilities, he is developer of PyCAT software (Python Chemometric Agile Tool) at <https://chemometricsolutions.com/software>. He is co-developer of CAT software (Chemometric Agile Tool) and also co-developer of BasiCAT, both freely downloadable from <http://gruppochemiometria.it/index.php/software>. He maintains an active YouTube channel containing tutorials and demonstrations to facilitate CAT software adoption and chemometrics dissemination.

He co-authored 17 peer-reviewed papers, 1 book chapter, and 19 communications at national and international conferences. In collaboration with Professor Riccardo Leardi, he was invited to give talks and courses in several industries and research centers: Biofer S.p.A., Bracco, Cambrex Profarmaco Milano SRL, Center of Food and Fermentation Technologies (TFTAK) Tallinn, Centro Sportivo Remiero di Sabaudia - Marina Militare, Chiesi Farmaceutici, Ferrero, Istituto Italiano di Tecnologia (IIT), Innovhub, Istituto Zooprofilattico Sperimentale, Mozarc Medical, Merck Serono, Lavazza, Olon S.p.A, Procos S.p.A., Roquette Italia S.p.A., University of Genoa, University of Modena, University of Basilicata.

He has been a teacher in the school “Chemometric Tools for Process Monitoring” at the University of Modena. He taught a PhD course of Experimental Medicine (DiMes) titled “Experimental design and multivariate analysis” (2020-2025). He taught at the two schools of Chemometrics (Multivariate Analysis; Experimental Design), each held twice a year at the University of Genoa (2020-2023).

He has been co-author of the chapter "Statistical Experimental Design" of the book "Basic Chemometrics for Analytical Chemists", published by World Scientific Publishing (<https://www.amazon.it/Basic-Chemometrics-Analytical-Chemists-0/dp/1800616813>).

He is a reviewer of [Chemometrics and Intelligent Laboratory Systems](#).

He is a multi-award-winning athlete (two CONI Bronze Medals for Athletic Value), finalist (9th place) at the Coastal Rowing World Championships (2024), seven-time Italian Rowing Champion (2015-2025).

He is also passionate about applying his professional skills to his personal passions, from sports to optimizing culinary recipes. He collaborated with Francesco Cattaneo, head technical director of the Italian Rowing Federation, with the goal of improving the performance of Italian Olympic rowing athletes in preparation for Tokyo 2020. Additionally, he optimized a traditional pesto-sauce recipe using pestle and mortar, which led him to become a top-ten finalist at the "IX Genova Pesto World Championship" competing among 100 semi-finalists from around the world. His statistical analysis of the historical data from all editions of the world championship was presented at Palazzo della Regione Liguria (Genoa), in collaboration with Ben Thuriaux-Alemán, partner at Arthur D. Little.

He speaks the following languages fluently: Italian, English; basic knowledge: German.

CONSULTANCIES

Since 2020 he started his activity of chemometric consultancy in collaboration with Professor Riccardo Leardi. This is the list of some of their clients:

- Agras Delic (Italy): application of multivariate analysis to pet food products;
- Biofer S.p.A. (Italy): course of chemometrics, application of chemometrics for optimization and process monitoring;
- Bracco (Italy): course of chemometrics;
- Cambrex Profarmaco (Italy): course of chemometrics, application of experimental design and multivariate analysis to pharmaceutical products, process monitoring by NIR probe;
- Cementi Rossi S.p.A. (Italy): course of chemometrics, multivariate quality control, multivariate process monitoring;
- Center of Food and Fermentation Technologies (TFTAK) Tallinn (Estonia): course of experimental design;
- Chiesi Farmaceutici (Italy): course of chemometrics, application of experimental design and multivariate analysis to Chemical Manufacturing and Control department;
- Federazione Italiana di Canottaggio – FIC (Italy): multivariate monitoring of telemetry data of the Olympic men's quadruple sculls and men's eight, aimed at improving the performance of Italian Olympic rowing athletes in preparation for Tokyo 2020;
- Ferrero (Italy): course of chemometrics, process monitoring and experimental design applied to several industrial products;
- Fileni (Italy): multivariate analysis on data about poultry;
- HA Italia: course of chemometrics, application of experimental design and multivariate analysis to products for foundries;
- Innovhub (Italy): course of chemometrics;
- Istituto Italiano di Tecnologia - IIT (Italy): course of chemometrics;
- J. M. Smucker (USA): multivariate calibration, data-fusion and SOPLS, N-way PCA and analysis of sensory data in coffee;
- Lavazza (Italy): course of chemometrics, application of experimental design and multivariate analysis to coffee;
- Merck Serono (Italy): course of chemometrics;
- Mozarc Medical (Italy): course of chemometrics, application of experimental design and multivariate analysis to medical devices;

- Olon S.p.A. (Italy): statistical analysis on quality control data; course of chemometrics; experimental designs for organic synthesis and analytical methods;
- Perkin-Elmer (USA): experimental design applied to a chromatographic column;
- Procos SPA (Italy): course of chemometrics, application of experimental designs;
- Roquette Italia S.P.A. (Italy): course of chemometrics, process monitoring.

SCIENTIFIC PUBLICATIONS

1. Monteleone, L.; Speciale, A.; Valenti, G. E.; Leardi, R.; **Farinini, E.**; Traverso, N.; Ravera, S.; Garbarino, O.; Domenicotti, C (2021). “PKC α Inhibition as a Strategy to Sensitize Neuroblastoma Stem Cells to Etoposide by Stimulating Ferroptosis”. *Antioxidants*, 10(5), 691. DOI: [10.3390/antiox10050691](https://doi.org/10.3390/antiox10050691)
2. Marengo, B.; Pulliero, A.; Corrias, M. V.; Leardi, R.; **Farinini, E.**; Fronza, G.; Domenicotti, C. (2021). “Potential Role of miRNAs in the Acquisition of Chemoresistance in Neuroblastoma”. *Journal of personalized medicine*, 11(2), 107. DOI: [10.3390/jpm11020107](https://doi.org/10.3390/jpm11020107).
3. Forni, F.; **Farinini, E.**; Leardi, R.; Rinaldo, A. (2021). “Effects of visual training on motor performance in young tennis players using FitLight Trainer”. *The Journal of sports medicine and physical fitness*. DOI: [10.23736/S0022-4707.21.12145-0](https://doi.org/10.23736/S0022-4707.21.12145-0)
4. Turrini, F.; **Farinini, E.**; Leardi, R.; Grasso, F.; Orlandi, V.; Boggia, R. (2022). “A Preliminary Color Study of Different Basil-Based Semi-Finished Products during Their Storage”. *Molecules* 2022, 27(7), 2059. DOI: [10.3390/molecules27072059](https://doi.org/10.3390/molecules27072059)
5. Mara, A.; Deidda, S.; Caredda, M.; Ciulu, M.; Deroma, M.; **Farinini, E.**; Floris, I.; Langasco, I.; Leardi, R.; Pilo, M.I.; Spano, N.; Sanna, G. (2022). “Multi-Elemental Analysis as a Tool to Ascertain the Safety and the Origin of Beehive Products: Development, Validation, and Application of an ICP-MS Method on Four Unifloral Honeys Produced in Sardinia, Italy”. *Molecules*, 27(6). DOI: [10.3390/molecules27062009](https://doi.org/10.3390/molecules27062009)
6. Mameli, V.; Sanna Angotzi, M.; **Farinini, E.**; Leardi, R.; Lugliè, C.; Cannas, C. (2023). “Intra-source provenance study on Monte Arci (Sardinia) obsidian by pXRF: Role of the data acquisition and analysis tools”. *Heliyon*, vol. 9, no. 3. DOI: [10.1016/j.heliyon.2023.e13958](https://doi.org/10.1016/j.heliyon.2023.e13958)
7. Garbarino, O.; Valenti, G. E.; Monteleone L.; Pietra, G.; Mingari, M. C.; Benzi, A.; Santina Bruzzzone, S.; Ravera, S.; L., Leardi, R.; **Farinini E.**; Vernazza, S.; Grottoli, M.; Marengo, B.; Domenicotti, C. (2023). “PLX4032 resistance of patient-derived melanoma cells: crucial role of oxidative metabolism”. *Front Oncol*, vol. 13. DOI: [10.3389/fonc.2023.1210130](https://doi.org/10.3389/fonc.2023.1210130)
8. Ferreira, B.; **Farinini, E.**; Leardi, R.; Andrade, J. (2023). “Supervised classification combined with genetic algorithm variable selection for a fast identification of polymeric microdebris using infrared reflectance”. *Marine Pollution Bulletin*. DOI: <https://doi.org/10.1016/j.marpolbul.2023.115540>
9. Marchianò, V.; Tricase, A.; Caputo, M.; **Farinini, E.**; Leardi, R.; Imbriano, A.; Leech, D.; Kidayaveetil, R.; Gentile, L.; Torsi, L.; Macchia, E.; Bollella, P. (2023). “Tailoring Water-based Graphite Conductive Ink Formulation for Enzyme Stencil-Printing: Experimental Design to

Enhance Wearable Biosensors Performance". *Chemistry of Materials*. DOI: <https://doi.org/10.1021/acs.chemmater.3c02229>

10. Minuto, F.; **Farinini, E.**; Leardi, R.; Solokha, P.; Basso, A. (2023) "Two photons are better than one: continuous flow synthesis of β -lactones through a doubly photochemically-activated Paternò Büchi reaction". *Journal of Flow Chemistry*. DOI: <https://doi.org/10.1007/s41981-023-00297-7>
11. Forni, F.; **Farinini, E.**; Leardi, R.; Rinaldo, A. (2023). "Experimental Design approach applied to the removal of personal care products from urban wastewater through γ -cyclodextrin polymers". *Journal of Environmental Management*.
12. Donno, D.; Turrini, F.; **Farinini E.**; Mellano M.G.; Boggia R.; Beccaro G.L.; Gamba G. (2024). "Chestnut Episperm as a Promising Natural Source of Phenolics from Agri-Food Processing by-Products: Optimisation of a Sustainable Extraction Protocol by Ultrasounds". *Agriculture*. DOI: <https://doi.org/10.3390/agriculture14020246>
13. Ascensão, G.; **Farinini, E.**; Ferreira, V.M.; Leardi, R. (2024). "Development of Eco-efficient Limestone Calcined Clay Cement (LC3) Mortars by a Multi-step Experimental Design". *Chemometrics and Intelligent Laboratory Systems Journal*. DOI: [10.1016/j.chemolab.2024.105195](https://doi.org/10.1016/j.chemolab.2024.105195)
14. Cirignano, M., Roshan, H., **Farinini, E.**, Di Giacomo, A., Fiorito, S., Piccinotti, D., Khabbazabkenar, S., Di Stasio, F., Moreels, I. (2024). "Blue CdSe/CdS core/crown nanoplatelet light-emitting diodes obtained via a design-of-experiments approach". *Nanoscale*. DOI: [10.1039/D4NR03461A](https://doi.org/10.1039/D4NR03461A)
15. **Balbi, M.**; Torazza, C.; Altosole, T.; Ravera, S.; **Farinini, E.**; Tessitore, S.; Bacchetti, F.; Rosso, F.; Musante, I.; Alfei, S.; Cerminara, M.; Puliti, A.; Filaci, G.; Fenoglio, D.; Leardi, R.; Fedele, E.; Bonanno, G.; Milanese, M.; Bonifacino, T. (2025). "The complex phenotype and function of spinal cord microglia during ALS progression and the impact of metabotropic glutamate receptor type 5 down-regulation in SOD1G93A mice". *Neurobiology of Disease*.
16. **Ascensão, G.**; **Farinini, E.**; Paiva, H.; Ferreira, V.M.; Leardi, R. (2025). "Chemometric Optimization of Cemented Paste Backfill solutions". *CEES - Construction, Energy, Environment and Sustainability*.
17. R. Leardi, E. Farinini, "Statistical Experimental Design", in "**Basic Chemometrics for Analytical Chemists**", London, World Scientific Publishing Europe Ltd., 77-149, book chapter (2025).

COMMUNICATIONS AT CONFERENCES

1. Venezia, E.; Ricci, M.; Salimi, P.; Farinini, E.; Zaccaria, R.P. "Linking the performance of lithium sulfur batteries to electrode composition and electrolyte formulation through mixture process design of experiments"; The International Conference on Lithium-Sulfur Batteries (ICLSB); June 28 – July 1, 2021
2. Farinini, E.; Leardi R. "Characterization of a raw material through analytical profiles and data fusion", XVIII Chemometrics in Analytical Chemistry (CAC), July 20-21, 2021
3. Farinini, E.; Leardi R. "Characterization of a raw material through analytical profiles and data fusion", XXVII Congresso Nazionale della Società Chimica Italiana (SCI), September 14-23, 2021
4. Farinini, E.; Leardi R. "Product monitoring and exploratory analysis of historical data", International Conference on NIR (ICNIRS), October 17-21, 2021
5. Cavagnero, C.; Micera, M.; Destefano, R.; Farinini, E.; Botto, A.; Leardi, R.; Viscardi, G.; "Optimization of supercritical CO₂ oil extraction from waste of tomatoes paste production"; Merck Young Chemists' Symposium 2021; Rimini (IT), November 22-24, 2021
6. Cavagnero, C.; Farinini, E.; Gueguen, V.; Leardi, R.; Pavon-Djavid, G.; Botto, A.; Viscardi, G. "NLC synthesis optimization process of lycopene enriched S-CO₂ extract"; First Symposium for YouNg Chemists: Innovation and Sustainability (SYNC2022); Rome (IT), June 20-23, 2022
7. Cardellicchio, F.; Farinini, E.; Malegori, C.; Leardi, R.; Salvi, A.M.; Olivieri, P. "A chemometric approach for the development of a new cleaning strategy of iron stains on Carrara marbles and its evaluation through image analysis"; XIX Congresso Nazionale della Divisione di Chimica dell'Ambiente e dei Beni Culturali; Turin (IT), June 20-23, 2022
8. Balbi, M.; Bonifacino, T.; Ravera, S.; Fenoglio, D.; Altosole, T.; Filaci G.; Leardi, R.; Farinini, E.; Cerminara, M.; Puliti, A.; Milanese, M.; Bonanno, G. "Partial deletion of mGluR5 affects microglia inflammatory phenotype, bioenergetic characteristics, and red-ox state during ALS progression in SOD1G93A mice"; Federation European Neuroscience Society (FENS) Forum Congress; Paris (FR), July 9-13, 2022
9. Buccioli, M.; Farinini, E.; Leardi, R.; Moro, A.; Basso, A. "Experimental Design: study of an industrial reductive amination reaction"; XXII Congresso Nazionale Divisione Chimica Industriale; Catania (IT), November 7-8, 2022
10. Ferreira, B.; Andrade, J.M.; Leardi, R.; Farinini, E. "Supervised classification combined with genetic algorithm variable selection for microplastics measured by infrared spectrometry"; XXVI Encontro Galego-Portugués de Química; Santiago De Compostela (ES); November 16-18, 2022

11. Leardi, R.; Farinini, E. "Analytical Chemistry and Chemometrics Group of Genova: Focus on CAT Software"; Analytical Chemistry Workshop; L'Aquila (IT), 2022
12. Farinini, E.; Leardi, R.; Ascensão, G. "Development of eco-efficient cements by a multi-step Experimental Design"; PhD day; Genova (IT), February 16, 2023
13. Minuto, F.; Farinini, E.; Leardi, R.; Solokha, P.; Basso, A. "Study of a doubly photochemically activated Paternò-Büchi Reaction through Design of Experiments"; XLVII "A. Corbella" International Summer School on Organic Synthesis (ISOS2023); Gargnano (IT), June 18-23, 2023
14. Farinini, E.; Leardi, R.; Ascensão, G. "Development of eco-efficient cements by a multi-step Experimental Design"; Colloquium Chemometricum Mediterraneum XI (CCMXI); Padova (IT), June 27-30, 2023
15. Cirignano, M.; Roshan, H.; Di Giacomo, A.; Piccinotti, D.; Fiorito, S.; Khabbazabkenar, S.; Farinini, E.; Leardi, R.; Prato, M.; Di Stasio, F.; Moreels, I. "Blue-emitting CdSe/CdS core-crowned nanoplatelets: the power of Design of Experiments on optical performances and LED fabrication"; 14th International Conference on Optical Probes of Organic and Hybrid Semiconductors (OP2023); Como (IT), September 10-15, 2023
16. Amata, C.; Panizzi, S.; Farinini, E.; Lavagna, L.; Pavese, M. "Functionalized carbon nanomaterials in cement, a multivariate approach"; European Conference on Composite Materials ECCM21; Nantes (FR), July 2-5, 2024
17. Leardi, R.; Farinini, E. "Chemometrics and Industry: Application Examples with Focus on Main Challenges in Industrial Consulting"; Workshop on Industrial Applications; Ravenna (IT), 2024
18. Coniglio, C.; Calvano, C. D.; Farinini, E.; Cataldi, T.R.I.; Patruno, A.; Carriglia, M.; Longobardi, F. "Optimizing a sustainable approach: green extraction of anthocyanins from Apulian pigmented wheat landraces"; XXVIII Congresso Nazionale della Società Chimica Italiana; Milano (IT), August 26-30, 2024
19. Buccioli, M.; Farinini, E.; Leardi, R.; Moro, A.; Maes, B.; Basso, A. "From batch to flow chemistry: study of an industrial reductive amination reaction"; Ischia Advanced School of Organic Chemistry 2024 - IASOC24; Ischia, September 19-23, 2024

BOOK CHAPTER

Leardi, R.; **Farinini, E.** (2025). "Statistical Experimental Design". In "Basic Chemometrics for Analytical Chemists", World Scientific Publishing Europe Ltd., 77-149.