CURRICULUM VITAE

Francesco Simone



Academic roles

11/2024 - Ongoing Postdoctoral Researcher at Sapienza University of Rome, Faculty of Civil and Industrial Engineering, Department of Mechanical and Aerospace Engineering. On the research project entitled "Resilience management in complex industrial socio-technical systems"

- 11/2021 10/2024 Ph.D. Candidate in Industrial and Management Engineering, at Sapienza University of Rome, Faculty of Civil and Industrial Engineering, Department of Mechanical and Aerospace Engineering
- 07/2021-09/2021 Research Assistant, at Sapienza University of Rome, Faculty of Civil and Industrial Engineering, Department of Mechanical and Aerospace Engineering. On the research project entitled "Support for data modeling and artificial intelligence algorithms applied to logistics processes"

Education

2018 - 2020	Ph.D. in Industrial and Management Engineering at Sapienza University of Rome, Italy
2018 - 2020	MSc in Mechanical Engineering – Industrial Production (110/110) at Sapienza University of Rome, Italy
2014 - 2017	BSc in Mechanical Engineering (92/110) at Sapienza University of Rome, Italy

Teaching activities

- 11/2021 Ongoing Teaching assistant at Sapienza University of Rome, Italy, for the courses of: "Operations Management" (in English and in Italian), "Industrial Plants" (in Italian), and "Quality Management" (in Italian); at the Faculty of Civil and Industrial Engineering for the MSc and BSc in Mechanical Engineering
- 11/2021 Ongoing Teaching assistant at Sapienza University of Rome, Italy, for the courses "Operations Management" (in English and in Italian), "Industrial Plants" (in Italian), "Quality Management" (in Italian), and "Smart Factory" (in Italian); at the Faculty of Information Engineering, Informatics, and Statistics for the MSc and BSc in Management Engineering
- 12/2022 02/2023 Adjunct tutor at Sapienza University of Rome. Italy, for the course "Business Models and Tools for Entrepreneurship" (in Italian) at the Faculty of Information Engineering, Informatics, and Statistics for the MSc in Management Engineering

Professional experiences

09/2023 - 09/2024	Specialized consultant for quantitative and documentary analyses at Sapienza University of Rome, Italy	
	Support the activities of the research team of the RE-SET project funded under the BRIC 2022 funding scheme.	
07/2023 - 07/2023	Business models analysist at Sapienza University of Rome, Italy	
	Analysis and evaluation of business models for new entrepreneurial initiatives.	
11/2022 – 12/2022	Risk assessment analyst at aiComply s.r.l., Italy	
	Support an Air Navigation Service Providers in performing the risk assessment for new developments in airport design.	
01/2022 - 04/2022	Business Intelligence analyst at Sanienza University of Rome. Italy	

01/2022 – 04/2022 Business Intelligence analyst at Sapienza University of Rome, Italy

Design and implementation of Business Intelligence report to create an interactive platform to support strategic decision making for a pharma enterprise for an activity named "Predisposizione di modelli di analisi tramite strumenti di Business Intelligence, attraverso la realizzazione di data model, ETL e relative visual" at University of Rome "La Sapienza".

03/2019 – 06/2019 Business consultant at Wuerth Phoenix s.r.l., Italy

ERP systems consultant for production environments with a focus on production control data management and visualization, and operations scheduling and planning.

Projects

Responsible

11/2023 - 11/2024 Hardware-in-the-loop simulations to assess cyber resilience in critical industrial plants

The project aims to investigate the use of Human-in-the-Loop simulations to measure cyber resilience in the context of industrial plants related to critical infrastructures.

Team member/associate

09/2023 – Ongoing **RESIST (RESilience management to Industrial Systems Threats)**, collaboration between Department of Mechanical and Aerospace Engineering (Sapienza University of Rome), University of Bologna, and University Politecnica delle Marche

Research project funded under the Research Projects of National Interest (PRIN) 2022 programme. The project aims to develop a Digital Twin simulation environment for assessing the resilience of industrial socio-technical plants against cyber-attacks. During the project, a simulation methodology to explore Cyber-Socio-Technical Systems (CSTS) resilience will be developed. Beyond methodological development, validation in a real-world plant will offer recommendations for adapting the methodology to diverse industrial domains.

05/2023 – Ongoing **RE-SET (Resilience Engineering for Safe Energy Transition)**, collaboration between Department of Mechanical and Aerospace Engineering (Sapienza University of Rome), INAIL, and University of Messina

Research funded under the INAIL-BRIC 2022 (Call for Collaborative Research) programme "Integrated and Resilient Safety Management of Workers, Materials and Installations for Seveso Plants in the Energy Transition". The project involves the development of analysis and evaluation tools to assist companies in the Seveso sector in the energy transition, identifying intervention priorities and improvement actions. This aim will be realized through the System-Theoretic Accident Model and Process (STAMP) technique, then converted into a Knowledge Graph, in turn fed and validated by empirical results obtained through laboratory tests.

10/2023 – Ongoing **AI4ES (Artificial Intelligence for Emergencies Services)**, collaboration between ISED s.p.a., Geosystems s.r.l., and Department of Mechanical and Aerospace Engineering (Sapienza University of Rome)

Research funded under the Regional Programme FESR Lazio 2021-2027, Ambito 4, Modello 1 "RIPOSIZIONAMENTO COMPETITIVO RSI". The project aims to develop a decision support tool based on Artificial Intelligence to assist the management of logistics in medical emergency-urgency scenarios, and, in turn, the management and resolution of requests for assistance.

05/2024 – 07/2024 Analysis of production system layout for Istituto Poligrafico e Zecca dello Stato s.p.a. collaboration between Istituto Poligrafico e Zecca dello Stato s.p.a. and Department of Mechanical and Aerospace Engineering (Sapienza University of Rome)

Research involving the analysis of the layout of the production system, and the revision of a project meant to merge production lines of Zecca and Officina Carte Valori towards the Polo Salario production site.

11/2023 – 02/2024 **Reconfiguration of internal logistic and warehouse design for A.S. Roma**, collaboration between Department of Mechanical and Aerospace Engineering (Sapienza University of Rome) and A.S. Roma

Evaluate different solutions for the internal logistic of A.S. Roma retail. The project consisted in updating the warehouses' design and performing the related analysis of costs to support the business in the best choice for logistic management.

11/2022 – 12/2022 **Risk assessment for new airport design**, collaboration between Department of Mechanical and Aerospace Engineering (Sapienza University of Rome) and aiComply s.r.l.

Perform the risk assessment for the design phase of a new control tower at the airport to support the Air Navigation Service Provider in the implementation of changes.

01/2022 – 04/2022 Business Intelligence and Business Analytics for product and organization management, collaboration between Department of Mechanical and Aerospace Engineering (Sapienza University of Rome) and aiComply s.r.l.

Design and implementation of Business Intelligence interactive dashboards to support decision making by the top management of a pharmaceutical company.

09/2021 - 10/2021 Business Intelligence reporting and dashboards design for 15th Conference on Naturalistic Decision Making and 9th Symposium on Resilience Engineering, collaboration between Department of Mechanical and Aerospace Engineering (Sapienza University of Rome) and Resilience Engineering Association (REA)

Design and development of Business Intelligence dashboards and reports to explore and to disseminate data from the 15th Conference on Naturalistic Decision Making and 9th Symposium on Resilience Engineering organized by REA. The report is freely available at: https://www.resilience-engineering-association.org/symposium/

04/2021 - 09/2021 Key Performance Indicator analysis and Business Intelligence reporting for aerodrome weather forecasting, collaboration between Department of Mechanical and Aerospace Engineering (Sapienza University of Rome) and aiComply s.r.l.

> Design and implementation of a platform to perform analysis on weather forecasting accuracy and support Air Navigation Service Providers in guaranteeing correct and safe aerodrome management. Design and implementation of advanced Business Intelligence interactive dashboards to extract knowledge from historical weather data applying ETL to properly parse information inside report strings.

Publications

SCOPUS	Google Scholar
h-index: 5	h-index: 5
Documents: 16	Documents: 27
Total citations: 69	Total citations: 97

International journals (8)

- 1. Lombardi M., Sladek D., **Simone F.**, Patriarca R. (2025). *No more flying blind: Leveraging weather forecasting for clear-cut risk-based decisions*, Transportation Research Interdisciplinary Perspectives, 30, 101349
- 2. Patriarca R., Lovaglio L., **Simone F.** (2025). *Functional resonance analysis via a genetic algorithm to ensure cost-effective maintenance planning*, International Journal of Production Economics, 109516
- 3. Patriarca R., **Simone F.**, Artime O., Saurin T. A., Fogliatto F. S. (2024) *Conceptualization of a Functional Random Walker for the analysis of socio-technical systems*, Reliability Engineering and System Safety 251, 110341
- 4. **Simone F.**, Ansaldi S.M., Agnello P., Di Gravio G., Patriarca R., (2023). *Knowledge in graphs: investigating the completeness of industrial near miss reports*, Safety Science, 168, 106305
- 5. Simone F., Nakhal Akel A. J., Di Gravio G., Patriarca R. (2023), *Thinking in systems, sifting through simulations: a way ahead for cyber resilience assessment*, IEEE Access, 1, 11430-11450
- 6. **Simone F.**, Ansaldi S.M., Agnello P., Patriarca R. (2023), *Industrial safety management in the digital era: constructing a knowledge graph from near misses*, Computers in Industry, 146, 103849
- 7. Patriarca R., **Simone F.**, Di Gravio G. (2023), Supporting weather forecasting performance management at aerodromes through anomaly detection and hierarchical clustering, Expert Systems with Applications, 213, 119210
- 8. Patriarca R., **Simone F.**, Di Gravio G. (2022), *Modelling cyber resilience in a water treatment and distribution system*, Reliability Engineering and System Safety, 226, 108653

International conference proceedings (16)

- Nakhal Akel A. J., Simone F., Stefana E., Fedele L., Patriarca R., (2024). System-theoretic analysis for the identification of emerging risk in Cyber-Physical systems. International Conference on Industry 4.0 and Smart Manufacturing (ISM 2024). 13-15 November 2024 Prague, Czech Republic
- Nakhal Akel A. J., Simone F., Stefana E., Patriarca R. (2024) Knowledge graphs to convert large Safety Control Structures of modern industrial establishments, European STAMP Workshop and Conference ESWC 2024, 2-4 October 2024 – Alexandroupolis, Grece – extended abstract
- 3. Simone F., Nakhal Akel A. J., Lombardi M., Di Gravio G., Patriarca R. (2024) *Human-Hardware in the Loop (HHIL)* STAMP-based simulations to model cyber-physical complexity in experimental high-risk plants, European STAMP Workshop and Conference ESWC 2024, 2-4 October 2024 – Alexandroupolis, Grece – extended abstract
- 4. Nakhal Akel A. J., **Simone F.**, Lombardi M., Costantino F., Di Gravio G., Tronci M., Bortolini M., Mazzuto G., Patriarca R., (2024). *Dealing with 15.0 complexity: cyber-socio-technical systems modelling and analysis*. XXIX SUMMER SCHOOL "Francesco Turco" Industrial Systems Engineering. 11-13 September 2024 Otranto, Italy.
- Simone F., Artime O., Saurin T. A., Fogliatto F. S., Patriarca R. (2024). Walking "randomly": how to tract intractable FRAM models. FRAMily-2024 & Safety-II in practice Workshops 2024 – Book of Abstracts, 3 – 7 June 2024, Lund, Sweden – extended abstract

- 6. Nakhal Akel A. J., **Simone F.**, Stefana E., Di Gravio G., Patriarca R., (2023). *System theoretic model checking for safety management in industrial plants*. Proceedings of XXVIII Summer School "Francesco Turco": "Blue, Resilient & Sustainable Supply Chain: the Role of Industrial Plants in Procurement, Production and Distribution", 6-8 September 2023, Genova, Italy
- 7. Simone F., Nakhal Akel A. J., Alvino A., Ansaldi S. M., Agnello P., Milazzo M. F., Di Gravio G., Patriarca R., (2023). *Extending safety control structures: a knowledge graph for STAMP*, Proceedings of 33rd European Safety and Reliability Conference (ESREL 2023). 03 - 08 September 2023, Southampton, United Kingdom
- 8. Patriarca R., **Simone F.** (2023) *A graph with a thousand edges: rummaging in complex work varieties*, 10th Symposium on Resilience Engineering (REA Symposium 2023). 26 30 June 2023, Sophia Antipolis, France extended abstract
- 9. **Simone F.**, Di Gravio G., Patriarca R., Bortolini M., Galizia F.G., Gamberi M., (2023). *Managing industrial automation: How knowledge graphs can boost production*, Proceedings of CARV-MCPC 2023, 19-24 June 2023 Bologna, Italy
- 10. Simone F., Cilli C., Di Gravio G., Patriarca R., (2023) *A data-driven cyber resilience assessment for industrial plants*, Proceedings of WorldCist'23 - 11st World Conference on Information Systems and Technologies, 03-06 April 2023, Pisa, Italy
- 11. **Simone F.**, Di Gravio G., Patriarca R. (2022). *Performance-based analysis of aerodrome weather forecasts*, Proceedings of New Trends in Civil Aviation 2022, 26-27 October 2022, CIIRC CTU in Prague, Czech Republic
- 12. Simone F., Nakhal Akel A. J., Di Gravio G., Patriarca R. (2022) System-Theoretic Process Analysis for Security with Simulations (STPA-Sec/S): Combining STPA-Sec with simulation-based resilience assessment, 10th European STAMP Workshop and Conference ESWC 2022, 29-30 October 2022, Gdynia, Poland extended abstract
- 13. Simone F., Nakhal Akel A. J., Patriarca R. (2022). Supporting warehouse management through Machine Learning, Proceedings of XXVII Summer School "Francesco Turco": "Unconventional Plants: Technologies, tools and Methodologies for emerging domains", 7-9 September 2022, Riviera dei Fiori, Italy
- 14. Simone F., Patriarca R. (2022). A simulation-driven cyber resilience assessment for water treatment plants, Proceedings of 32nd European Safety and Reliability Conference (ESREL 2022). 28 August 1 September 2022, Dublin, Ireland
- Simone F., (2021). A Model-Based Assessment of Cyber-Resilience Evaluation for Water Purification Plants with Societal Impact, Abstract for Poster Competition at 4th European Conference on Industrial Engineering and Operations Management (IEOM 2021). 2-5 August 2021, Rome, Italy. Online – extended abstract
- Simone F., (2021). An Integrated Simulation Model for Water Purification and Distribution, Abstract for Simulation Competition at 4th European Conference on Industrial Engineering and Operations Management (IEOM 2021). 2-5 August 2021, Rome, Italy. Online – extended abstract

National journals (1)

1. **Simone F.**, Patriarca R., Di Gravio G. (2024) *Analisi dei costi attraverso modelli parametrici*, Logistica Management nº 342, Marzo 2024

National conference proceedings (2)

- 1. **Simone F.**, Agnello P., Ansaldi S. M., Di Gravio G., Patriarca R., Tronci M. (2023) *Analisi della completezza dei report di quasi-incidente nella Direttiva Seveso*, SAFAP 2023. 22 24 November, Brescia, Italy
- 2. Nakhal A.J., **Simone F.**, Franzoni V., Alvino A., Ansaldi S. M., Vallerotonda M. R., Milazzo M. F., Patriarca R. (2023) *Un approccio sistemico per rappresentare la Direttiva Seveso III*, SAFAP 2023. 22 24 November, Brescia, Italy

Others (3)

- 1. Nakhal Akel A. J., **Simone F.**, Stefana E., Patriarca R. (2024) *How to navigate into the complicated world of modern industrial establishments*, NODES 2024. 7 November 2024 online
- 2. Simone F., Patriarca R. (2023) Unleashing Safety Insights: Harnessing Near Misses Through Knowledge Graphs, NODES 2023. 26 October 2023 online
- 3. Patriarca R., **Simone F.** (2023) *Studying cyber resilience in a water network: by using Simulink and MATLAB it becomes our cup of... water*, MATLAB Academic Forum Research and Teaching. 28 September 2023 online

Awards and recognitions

2024

Best Work in Progress Presentation Award. Awarded by the Conference Organizing Committee at the European STAMP Workshop and Conference ESWC 2024, held in Alexandroupolis, Grece on October 2-4,

2024, for the research work entitled "Human-Hardware In the Loop (HHIL) STAMP-based simulations to model cyber-physical complexity in experimental high-risk plants"

- 2023 **Resilience Engineering Association (REA) Young Talent**. Award for the best young researchers in the field of Resilience Engineering, in the Young Talents in Resilience Engineering Program, managed by the Resilience Engineering Association (REA) for the REA Symposium 2023.
- 2022IEOM Outstanding Student Leadership Award. Awarded by the Industrial Engineering and Operations
Management Society during the 5th IEOM European Conference, 26-28 July 2022 Rome, Italy
- 2021 Winner of ESRA (European Safety and Reliability Association) scholarship for the continuing education course on "Advanced Quantitative Risk and Resilience Assessment" organized by the Department of Energy – Politecnico di Milano, 12 October - 18 November 2021
- 2021 **IEOM Outstanding Student Leadership Award**. Awarded by the Industrial Engineering and Operations Management Society during the 4th IEOM European Conference, 2-5 August 2021 – Rome, Italy
- 2021IEOM Poster Competition Award (2nd place). Awarded by the Industrial Engineering and Operations
Management Society during the 4th IEOM European Conference, 2-5 August 2021 Rome, Italy
- 2021IEOM Simulation Competition Award (2nd place). Awarded by the Industrial Engineering and OperationsManagement Society during the 4th IEOM European Conference, 2-5 August 2021 Rome, Italy

Scientific board/committee memberships

2025 Scientific committee member MICRADS'25 - 2025 Multidisciplinary International Conference of Research Applied to Defense and Security, 24 to 26 July 2025 – Orlando, FL, USA since 2024 Member of IEA (International Ergonomics & Human Factors Association) Technical Committee on **Resilience Engineering** 2024 International scientific committee member ISM 2024 - International Conference on Industry 4.0 and Smart Manufacturing, 13 to 15 November 2024 - Prague, Czech Republic (to be held) Technical committee member NEESSC 2024 - New Energy and Energy Storage System Control Summit 2024 Forum, 29 to 31 August 2024 - Hohhot, China (to be held) Technical committee and reviewers member 5th IEOM South American Conference on Industrial 2024 Engineering & Operations Management, 7 to 9 May 2024 - Bogota, Colombia Editorial review board member of Journal of Artificial Intelligence (AI) in Business and Management (IGI since 2023 Global)

Reviewing activities

since 2025	Machine Learning with Applications (Elsevier)
since 2025	Journal of Production Economics (Elsevier)
since 2024	Journal of Loss Prevention (Elsevier)
since 2024	Scientific Reports (Springer Nature)
since 2024	Journal of Hydrology (Elsevier)
since 2024	Ciência & Saúde Coletiva (Assoção Brasileira de Saude Coletiva)
2024	ISM 2024 – International Conference on Industry 4.0 and Smart Manufacturing, 13 to 15 November 2024 – Prague, Czech Republic
2024	5 th IEOM South American Conference, on Industrial Engineering & Operations Management, 7-9 May 2024 – Bogota, Colombia
since 2024	Environmental Science: Water Research & Technology (Royal Society of Chemistry)
since 2024	Computers in Industry (Elsevier)
2024	AHFE 2024 – 14 th International Conference on Applied Human Factors and Ergonomics, July 24-27, 2024 – Université Côte d'Azur, Nice, France
since 2024	Applied Ergonomics (Elsevier)
since 2024	The Journal of Supercomputing (Springer Nature)

since 2024	International Journal of Reconfigurable and Embedded Systems (IAES)
since 2024	Expert Systems with Applications (Elsevier)
since 2024	Archives of Advanced Engineering Science (BonView Press Publishing)
since 2024	Qeios
since 2023	Science Progress (Sage)
since 2023	Processes (MDPI)
2023	ESREL 2023 – European Conference on Safety And Reliability (ESREL), 03-08 September 2023 – Southampton, United Kingdom
since 2023	Electronics (MDPI)
since 2023	Sustainability (MDPI)
2023	MICRADS'23 – Multidisciplinary International Conference of Research Applied to Defense and Security, 06- 08 July 2023 – Bogotá, Colombia
2023	AHFE 2023 – 14 th International Conference on Applied Human Factors and Ergonomics, 20-24 July 2023 – San Francisco, California, USA
2023	IFKAD – International Forum on Knowledge Asset Dynamics, 7-9 June 2023 – Matera, Italy
2022	5 th IEOM European Conference, 26-28 July 2022 – Rome, Italy

Memberships of scientific societies

since 2022	Student Member, IEEE (Institute of Electrical and Electronics Engineers)
since 2021	Junior Member, AIDI (Italian Association of Operations Management Professors)
2020 - 2022	Member, PMI (Project Management Institute)

Technical skills

2D/3D Computer Aided Design (CAD) (AutoCAD, SolidWorks)	Intermediate (self-assessed)
Business Intelligence/Analytics (Power BI, Orange)	Advanced (self-assessed)
Coding (C/C++)	Basic (self-assessed)
Coding (Python)	Advanced (self-assessed)
Diagramming and vector graphics design (Visio)	Advanced (self-assessed)
Digital Audio Workstation (DAW) (Logic Pro, Cubase)	Intermediate (self-assessed)
Graph database management (Neo4j)	Advanced (self-assessed)
Office software suites (Microsoft Office, Google Suite, iWork)	Advanced (self-assessed)
Ontology design and knowledge management (Protégé)	Intermediate (self-assessed)
System modelling and simulation (MATLAB/Simulink)	Advanced (self-assessed)

Languages

Italian	Mother tongue
English	B2 (Trinity GESE Grade 9)

Francesco Simone

Per la destinazione ai fini della pubblicazione in ottemperanza al D. Lgs. 33/2013