Stefano Demarchi

Contact Information

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github.com/sdemarch

Employment and Experience

Università degli Studi di Genova
Ph.D student and Post-Doc Researcher 2019 - Present
Study and development of AI techniques for the formal verification of Neural Networks, main developer of the **NeVerTools** software suite.

Advisor 2025 - Present
Part of the advisory board in the ESA project "Verification and validation methods for machine learning algorithms".

Adjunct Professor | Professore a Contratto 2023 - 2025
B. Sc. "56760 - Informatica per l' Ingegneria Industriale" (6 CFU)
B. Sc. "101448 - Fondamenti di Informatica" (7 CFU)

Università degli Studi di Sassari | Athena Sardegna
Research Engineer 2018 - 2019
Development of a backend framework for a commercial platform (**PILOW**), research and design of optimization algorithms for logistics.

AI-Lift
R&D collaborator 2017 - 2019
Part of the development team of **LiftCreate**, a tool for the design of elevator systems enabled by AI techniques.

Education

Università degli Studi di Genova, Genova, IT
Ph.D in Computer Science, May 2023
Experimenting with Constraint Programming Techniques in AI: Automated System Design and Verification of Neural Networks
M.Sc. in Computer Engineering, October 2018

Universitè de Technologie de Compiègne, Compiègne, FR
European Master in Complex Systems in Interaction, September 2018
Double-degree program in collaboration with Università degli Studi di Genova
A, **mention**

Programming and Software

Programming:	Python, Java, C
Database:	RDBMS, mySQL
Frameworks:	PyQt, SPRING Java, Vaadin
Markup:	LaTeX, HTML5, CSS
Environments:	Microsoft Windows, Ubuntu Linux, Microsoft Office Suite, Microsoft Visual Studio, JetBrains, GitHub

Languages

Italian:	Mothertongue		
English:	Fluent	B1 (certificate)	C1 estimated
French:	Fluent	B1 (certificate)	C1 estimated

Publications

S. Demarchi, D. Guidotti, L. Pulina and A. Tacchella, *NeVer2: Learning and Verification of Neural Networks*, in Soft Computing 28, 11647 - 11665, 2024

S. Demarchi, A. Gimelli and A. Tacchella, *Improving Abstract Propagation for Verification of Neural Networks*, in International Conference on Modelling and Simulation, ECMS 2024, Cracow, Poland, June 4-7, 2024, Proceedings, 2024.

S. Demarchi, D. Guidotti, L. Pulina and A. Tacchella, *Supporting Standardization of Neural Networks Verification with VNN-LIB and CoCoNet*, in Workshop on Formal Methods for ML-Enabled Autonomous Systems, FoMLAS 2023, Paris, France, July 17-18, 2023.

S. Demarchi, *Experimenting with Constraint Programming Techniques in Artificial Intelligence: Automated System Design and Verification of Neural Networks*, PhD Thesis, 2023.

D. Guidotti, S. Demarchi, *Counter-Example Guided Abstract Refinement for Verification of Neural Networks*, in Cyber-Physical Systems Summer School workshop, CPSWS 2022, Pula, Italy, September 19, 2022, Proceedings, 2022.

S. Demarchi, D. Guidotti, A. Pitto and A. Tacchella, *Formal Verification of Neural Networks: a Case Study about Adaptive Cruise Control*, in International Conference on Modelling and Simulation, ECMS 2022, Aalesund, Norway, May 30th-June 3rd, 2022, Proceedings, 2022.

G. Cicala, S. Demarchi, M. Menapace, L. Annunziata and A. Tacchella, *A Comparison of Declarative AI Techniques for Computer Automated Design of Elevator Systems*, in Intelligenza Artificiale 16 (1), 131-150, 2022

S. Demarchi, M. Menapace and A. Tacchella, *Automated Design of Elevator Systems: Experimenting with Constraint-Based Approaches*, in International Conference of the Italian Association for Artificial Intelligence, AIxIA 2021, Online, Proceedings, 2022.

S. Demarchi, M. Menapace and A. Tacchella, *Automating Elevator Design with Satisfiability Modulo Theories*, in IEEE International Conference on Tools with Artificial Intelligence, ICTAI 2019, Portland, Oregon, November 4-6, 2019, Proceedings, 2019.

S. Demarchi, *Automated Design of Complex Systems with Constraint Programming Techniques*, in Cyber-Physical Systems Summer School workshop, CPSWS 2019, Alghero, Italy, September 23, 2019, Proceedings, 2019.

Roles

Reviewer, CILC (2025)
Reviewer, PeerJ Computer Science (2024)
Sub-reviewer, ICAPS (2023)

Honors and Awards

Best Paper award, ECMS 2022 Conference
Best "Creative Lab Idea" award, CPS 2022 Summer School