Luca Di Stefano

Curriculum vitae August 2021

Personal information

E-mail: luca.di-stefano@inria.fr

Work address: 655 avenue de l'Europe, 38334 Montbonnot, France

Web page: convecs.inria.fr/people/Luca.Di-Stefano/

Research interests

My research mainly concerns the formal modelling and analysis of multi-agent and collective systems. This entails, on one hand, the development of formally defined high-level languages to concisely describe the features of individual agents, and on the other hand the application of state-of-the-art verification techniques to check the collective behaviour of the system. Keywords associated with my interests include:

Modelling: Multi-agent systems, collective adaptive systems, Agent-based modelling, Stigmergic interaction, Process algebras, Structural operational semantics, Attribute-based communication, Domain-specific languages.

Analysis: Explicit-state and symbolic model checking, Bounded model checking, Temporal logics, Software verification.

Education

Gran Sasso Science Institute

L'Aquila, Italy

PhD in Computer Science

November 2016 – October 2020

Thesis: Modelling and Verification of Multi-Agent Systems via Sequential Emulation

Advisors: Rocco De Nicola, Omar Inverso **URL**: hdl.handle.net/20.500.12571/10181

Other activities: Student representative in the academic senate (2018–2020).

University of L'Aquila

L'Aquila, Italy

MSc in Computer Science and Systems Engineering¹

March 2014 – October 2016

Thesis: Design of a reactive system for autonomous UAV navigation in unknown environments²

Advisors: Eliseo Clementini, Enrico Stagnini

Final grade: 110/110, cum laude

Experience

CONVECS, Inria/LIG

Grenoble, France

Post-doctoral researcher

November 2020 – Present time

- Model checking temporal properties of collective adaptive systems;
- o Compositional verification of multi-agent systems.

IMT Lucca Lucca, Italy

Grant holder

December 2019 – October 2020

Research grant on "Verification of Emerging Properties in Collective Adaptive Systems", awarded by the SysMA research unit.

CONVECS, Inria/LIG

Grenoble, France

Visiting PhD student March – July 2019

- \circ Encoding of multi-agent systems in the LNT specification language;
- Verification of multi-agent systems through model checking.

¹Official degree name: *Ingegneria Informatica e Automatica*.

²Original title: Progettazione di un sistema reattivo per la navigazione autonoma di un drone in ambienti sconosciuti.

Teaching

Modelling and Verification

Paris, France

Polytech Paris-Saclay

April – May 2021

36-hour course for Master students in Computer Science Engineering, *filière apprentissage*. Held remotely as a supply teacher (*intervenant vacataire*).

- o Concurrent systems. Communicating automata. Behavioural equivalences.
- o Real-time systems. Timed automata.
- o Process algebras: CCS, LNT.
- \circ Modal and temporal logics: HML, μ -calculus, MCL. Model checking.
- o Model-based testing. Input-output conformance. Test case generation.

Other academic activities

Reviewing activity.....

Invited as reviewer or sub-reviewer for the following conferences:

- o International Conference on Autonomous Agents and Multiagent Systems (AAMAS)
- o International Symposium on Formal Methods (FM)
- International Conference on Software Technologies (ICSOFT)
- International Conference on Software Engineering and Formal Methods (SEFM)
- Theoretical Aspects of Software Engineering Conference (TASE)

Participation to PhD schools.....

1st VMCAI Winter School

Lisbon, Portugal

January 2019

- Computing with SAT oracles;
- Abstract interpretation;
- Modeling and verification of distributed protocols.

Publications

Journal articles

Rocco De Nicola, Luca Di Stefano, and Omar Inverso. 2020. "Multi-Agent Systems with Virtual Stigmergy". In: *Sci. Comput. Program.* 187.

Rocco De Nicola, Luca Di Stefano, and Omar Inverso. 2018. "Toward Formal Models and Languages for Verifiable Multi-Robot Systems". In: *Front. Robot. AI* 5. (Visited on 09/05/2018).

Peer-reviewed conference papers.....

Luca Di Stefano, Frédéric Lang, and Wendelin Serwe. 2020. "Combining Sliver with CADP to Analyze Multi-agent Systems". In: *COORDINATION*.

Rocco De Nicola, Luca Di Stefano, and Omar Inverso. 2018. "Multi-Agent Systems with Virtual Stigmergy". In: *STAF Workshops*.

Citation indices

Accessed on Scopus on August 13, 2021.

Citations: 15 *h*-index: 3