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Luca Negrini

Nationality: Italian (+39) 3495128700 **Date of birth:** 30/09/1993

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WORK EXPERIENCE

Software Engineer and Research Scientist

Corvallis Srl (previously JuliaSoft Srl) [03/04/2018 – Current]

- https://corvallis.it/

City: Verona

Country: Italy

- Development of the Julia Static Analyzer (now part of CodeSonar by GrammaTech, Inc.): software development and engeneering in Java and C#
- Research topics: static analysis of object oriented software, tools for static analysis, abstract interpretation

EDUCATION AND TRAINING

PhD Internship

INRIA Paris, Team ANTIQUE [02/01/2022 – 02/04/2022]

Address: 45 Rue d'Ulm, 75005 Paris (France)

https://team.inria.fr/antique/

Static analysis for Data Science: analyzing Jupyter Notebooks
Supervisor: Caterina Urban

PhD in Computer Science

Università Cà Foscari Venezia [08/2019 – Current]

Address: Dorsoduro 3246, 30123 Venezia (Italy)

https://www.unive.it/

Level in EQF: EQF level 8

Design and implementation of a modular multi-language static analyzer
Supervisor: Agostino Cortesi

Master Degree in Computer Science

Università degli Studi di Verona [08/2015 – 03/2018]

Address: Via S. Francesco 22, 37129 Verona (Italy)

https://www.univr.it/

Final grade : 110/110 cum laude – **Level in EQF:** EQF level 7

Bachelor Degree in Computer Science

Università degli Studi di Verona [08/2012 – 03/2016]

Address: Via S. Francesco 22, 37129 Verona (Italy)

https://www.univr.it/

Final grade : 90/110 – **Level in EQF:** EQF level 6

High School diploma in IT

ITIS Guglielmo Marconi [08/2007 – 06/2012]

Address: Piazzale R. Guardini 1, 37138 Verona (Italy)

https://www.marconiverona.edu.it/

Final grade : 93/100 – **Level in EQF:** EQF level 4

PUBLICATIONS

Ensuring Determinism in Blockchain Software with GoLiSA: An Industrial Experience Report

[2022]

https://dl.acm.org/doi/10.1145/3520313.3534658

Authors: L. Olivieri, F. Tagliaferro, V. Arceri, M. Ruaro, L. Negrini, A. Cortesi, P. Ferrara, F. Spoto, E. Tallin.

In: Proceedings of the 11th ACM SIGPLAN International Workshop on the State Of the Art in Program Analysis.

Conference: SOAP 2022, Online, June 14, 2022

Static analysis for dummies: experiencing LiSA

[2021]

https://dl.acm.org/doi/10.1145/3460946.3464316

Authors: P. Ferrara, L. Negrini, V. Arceri, A. Cortesi.

In: Proceedings of the 10th ACM SIGPLAN International Workshop on the State Of the Art in Program Analysis.

Conference: SOAP 2021, Online, June 22-23, 2021

Twinning Automata and Regular Expressions for String Static Analysis

[2021]

https://link.springer.com/chapter/10.1007/978-3-030-67067-2_13

Authors: L. Negrini, V. Arceri, P. Ferrara, A. Cortesi.

In: Proceedings of the 22nd International Conference on Verification, Model Checking, and Abstract Interpretation.

Conference: VMCAI 2021, Online, January 17-22, 2021

SARL: OO Framework Specification for Static Analysis

[2020]

https://link.springer.com/chapter/10.1007/978-3-030-63618-0_1

Authors: P. Ferrara, L. Negrini.

In: Software verification. Springer, Cham, 2020. PP. 3-20.

Conference: VSTTE 2020, Virtual conference, July 20-21, 2020

SARL: Framework Modeling for Static Analysis

[2018]

https://staticanalysis.org/tapas2018/abstracts/TAPAS_2018_Negrini_Ferrara.pdf

Authors: L. Negrini, P. Ferrara.

In: Proceedings of the 9th Workshop on Tools for Automatic Program Analysis (TAPAS2018).

Conference: TAPAS 2018, Freiburg im Breisgau, Germany, August 28, 2018

TALKS AND SEMINARS

Modular Multi-language analysis in LiSA

[19/01/2022] INRIA Paris, ANTIQUE internal seminar, Online

Modular Multi-language analysis in LiSA

[30/06/2021] Università Cà Foscari Venezia, Online seminar

Twinning Automata and Regular Expressions for String Static Analysis

[18/01/2021] VMCAI 2021, Virtual conference

SARL: OO Framework Specification for Static Analysis

[20/07/2020] VSTTE 2020, Virtual conference

SARL: Framework Modeling for Static Analysis

[28/08/2018] TAPAS 2018, Freiburg im Breisgau, Germany

TEACHING

Lectures (4 hours) and online tutoring

[Mar - May 2022] Università Cà Foscari Venezia, "Software Correctness, Security and Reliability" course

Online tutoring

[Sept 2021 - Jan 2022] Università Cà Foscari Venezia, "Programmazione ad Oggetti - Mod. 1" course

Lectures (4 hours) and online tutoring

[Mar - May 2021] Università Cà Foscari Venezia, "Software Correctness, Security and Reliability" course

Online tutoring

[Mar - May 2020] Università Cà Foscari Venezia, "Software Correctness, Security and Reliability" course

COMMUNITY SERVICES

Artifact Evaluation Committee Member

SAS 2022 - The 29th Static Analysis Symposium

Technical Program Committee Member

VALID 2022 - The Fourteenth International Conference on Advances in System Testing and Validation Lifecycle

Technical Program Committee Member

VALID 2021 - The Thirteenth International Conference on Advances in System Testing and Validation Lifecycle

TOOLS AND SOFTWARE

LiSA

As part of my PhD research project, I started the development of LiSA, together with the Software and System Verification group @ Ca' Foscari University of Venice, Italy. LiSA (Library for Static Analysis) eases the creation and implementation of static analyzers based on the Abstract Interpretation theory. LiSA provides an analysis engine that works on a generic and extensible control flow graph representation of the program to analyze. Abstract

interpreters in LiSA are built for analyzing such representation, providing a unique analysis infrastructure for all the analyzers that will rely on it.

Building an analyzer upon LiSA boils down to writing a parser for the language that one aims to analyze, translating the source code or the compiled code towards the control flow graph representation of LiSA. Then, simple checks iterating over the results provided by the semantic analyses of LiSA can be easily de- fined to translate semantic information into warnings that can be of value for the final user.

LiSA is distributed under the MIT license, and is available on GitHub.

https://unive-ssv.github.io/lisa/

Tarsis

Tarsis is a new abstract domain for string values based on finite state automata. Standard finite state automata abstract domain has been shown to provide precise abstractions of string values when all the components of such strings are known, but with high computational cost. Instead of considering standard finite automata built over an alphabet of single characters, Tarsis considers automata that are built over an alphabet of strings, comprising a special value to represent statically unknown strings. Tarsis is maintained by the Software and System Verification group @ Ca' Foscari University of Venice, Italy, and it is available on GitHub.

MASTER THESIS

Automatic Application Splitting

Supervisor: Prof. Fausto Spoto

Co-supervisor: Pietro Ferrara, PhD

Design and implementation of advanced algorithms and application of machine learning to obtain automatic application splitting for scaling up interprocedural static analyses to industrial software. Implementation and experimental evaluation have been performed with the Julia Static Analyzer for Java and C#.

LANGUAGE SKILLS

Mother tongue(s): **Italian**

Other language(s):

English

LISTENING B2 **READING** B2 **WRITING** B2

SPOKEN PRODUCTION B2 **SPOKEN INTERACTION** B2