Emilio Coppa

Personal details

Website: ecoppa.github.io
GitHub: ercoppa

Employment

2023 – 2034	**National Scientific Qualification as Associate Professor** Disciplinary fields: 09/H1, 01/B1
2024 – present	**Tenure-Track Assistant Professor (RTT)** LUISS Guido Carli University
2020 – 2024	**Assistant Professor (RTD-A)** Sapienza University of Rome Department of Computer, Control and Management Engineering (DIAG)
2016 – 2020	**Postdoctoral Researcher** Sapienza University of Rome SEASON Lab (Software Analysis and Optimization Laboratory) Research Center of Cyber Intelligence and Information Security (CIS Sapienza)
2019 - 2020	Supervisor: Prof. Camil Demetrescu
2018	Supervisor: Prof. Camil Demetrescu | Partially funded by CyberChallenge.IT
2017	Supervisor: Prof. Roberto Baldoni
2016	Supervisor: Prof. Camil Demetrescu
2012 – 2015	**Ph.D. in Computer Science**, Sapienza University of Rome
2015	**Visiting scholar at TU Darmstadt.** Research fellow in the group of Prof. Patrick Eugster (peugster@cs.purdue.edu)

Education

2012 – 2015	**Ph.D. in Computer Science**, Sapienza University of Rome Dissertation title: Input-sensitive Performance Analysis of Software Systems Advisor: Prof. Irene Finocchi (finocchi@di.uniroma1.it)
2015	**Visiting scholar at TU Darmstadt.** Research fellow in the group of Prof. Patrick Eugster (peugster@cs.purdue.edu)
2010 – 2012	**M.Sc. in Engineering in Computer Science**, Sapienza University of Rome | Taught in English | Final grade: 110/110 summa cum laude GPA: 29.6/30 | Dissertation title: Input-Sensitive Profiling Advisor: Prof. Camil Demetrescu (demetres@diag.uniroma1.it)
2007 – 2010	**B.Sc. in Engineering in Computer Science**, Sapienza University of Rome | Final grade: 110/110 | GPA: 26.7/30 Dissertation title: Adaptive Allocators Advisor: Prof. Camil Demetrescu (demetres@diag.uniroma1.it)

Research interests

Vulnerability detection, software fuzzing, symbolic execution, malware analysis, reverse engineering, program analysis.

Publications

2023 Silvia Bonomi, Emilio Coppa, and Stefano Cappai. **On the Efficacy of Smart Contract Analysis Tools**. Proceedings of the 34th IEEE Int. Symposium on Software Reliability Engineering (**ISSRE 2023**), 2023.

2023 **Emilio Coppa**, Alessio Izzillo, Riccardo Lazzeretti, and Simone Lenti. **FuzzPlanner: Visually Assisting the Design of Firmware Fuzzing Campaigns**. Proceedings of the 20th IEEE Symposium on Visualization for Cyber Security (**VIZSEC 2023**), 2023.

2022 Luca Borzacchiello, **Emilio Coppa**, and Camil Demetrescu. SENinja: A symbolic execution plugin for Binary Ninja. Elsevier SoftwareX (**Elsevier SoftX**), 2022.

2022 Luca Borzacchiello, **Emilio Coppa**, , Davide Maiorca, Andrea Columbu, Camil Demetrescu, and Giorgio Giacinto. **Reach Me if You Can: On Native Vulnerability Reachability in Android Apps**. Proceedings of the 27th European Symposium on Research in Computer Security (**ESORICS 2022**).

2022 **Emilio Coppa**, Heng Yin, and Camil Demetrescu. **SymFusion: Hybrid Instrumentation for Concolic Execution**. Proceedings of the 37th IEEE/ACM International Conference on Automated Software Engineering (**ASE 2022**), 2022.

2022 Marcel Blocher, **Emilio Coppa**, Pascal Kleber, Patrick Eugster, William Culhane, and Masoud Saeida Ardekani. **ROME: All Overlays Lead to Aggregation, but Some Are Faster than Others**. ACM Transactions on Computer Systerms (**ACM TOCS**), 2022.

2022 Luca Borzacchiello, **Emilio Coppa**, and Camil Demetrescu. **Handling Memory-Intensive Operations in Symbolic Execution**. Proceedings of the 15th Innovations in Software Engineering Conference (**ISEC'22**), 2022. **Best paper Award**.

2021 Luca Borzacchiello, **Emilio Coppa**, and Camil Demetrescu. **FUZZOLIC: mixing fuzzing and concolic execution**. Elsevier Computers & Security (**Elsevier COSE**), 2021.

2021 Pietro Borrello, **Emilio Coppa**, and Daniele Cono D'Elia. **Hiding in the Particles: When Return-Oriented Programming Meets Program Obfuscation**. Proceedings of the 51st Annual IEEE/IFIP International Conference on Dependable Systems and Networks (**DSN'21**), 2021.

2021 Luca Borzacchiello, **Emilio Coppa**, and Camil Demetrescu. **Fuzzing Symbolic Expressions**. Proceedings of the 43rd International Conference on Software Engineering (**ICSE'21**), 2021.

2020 Andrea Fioraldi, Daniele Cono D'Elia, **Emilio Coppa**. **WEIZZ: Automatic Grey-box Fuzzing for Structured Binary Formats**. 2020 ACM SIGSOFT International Symposium on Software Testing and Analysis (**ISSTA'20**), 2020.

2020 Daniele Cono D'Elia, **Emilio Coppa**, Federico Palmaro, Lorenzo Cavallaro. **On the Dissection of Evasive Malware**. IEEE Transactions on Information Forensics and Security (**IEEE TIFS**), pp 2750-2765, 2020.

2019 Luca Borzacchiello, **Emilio Coppa**, Daniele Cono D'Elia, Camil Demetrescu. **Memory Models in Symbolic Execution: Key Ideas and New Thoughts**. Journal of Software Testing, Verification and Reliability (**STVR**), 2019.

2019 Marco Angelini, Graziano Blasilli, Luca Borzacchiello, **Emilio Coppa**, Daniele Cono D'Elia, Camil Demetrescu, Simone Lenti, Simone Nicchi, Giuseppe Santucci. **SymNav: Visually Assisting Symbolic Execution**. 16th IEEE Symposium on Visualization for Cyber Security (**VizSec'19**), 2019.

2019 Daniele Cono D'Elia, **Emilio Coppa**, Simone Nicchi, Federico Palmaro, and Lorenzo Cavallaro. **SoK: Using Dynamic Binary Instrumentation for Security (And How You May Get Caught Red Handed)**. 14th ACM ASIA Conference on Computer and Communications Security (**ASIACCS'19**), 2019.

2019 Luca Borzacchiello, **Emilio Coppa**, Daniele Cono D'Elia, and Camil Demetrescu. **Reconstructing C2 Servers for Remote Access Trojans with Symbolic Execution**. Cyber Security Cryptography and Machine Learning (**CSCML'19**), 2019.

2019 Pietro Borrello, **Emilio Coppa**, Daniele Cono D'Elia, and Camil Demetrescu. **The ROP Needle: Hiding Trigger-based Injection Vectors via Code Reuse**. 34th ACM/SIGAPP Symposium On Applied Computing - Security Track (**SAC'19 SEC**), 2019.

2019 Daniele Cono D'Elia, **Emilio Coppa**, Andrea Salvati, and Camil Demetrescu. **Static Analysis of ROP Code**. 12th European Workshop on Systems Security (**EuroSec'19**), 2019.

2018 Marco Angelini, Graziano Blasilli, Pietro Borrello, **Emilio Coppa**, Daniele Cono D'Elia, Serena Ferracci, Simone Lenti, Giuseppe Santucci. **ROPMate: Visually Assisting the Creation of ROP-based Exploits**. 15th IEEE Symposium on Visualization for Cyber Security (**VizSec'18**), 2018. **Best paper Award**.

2018 Roberto Baldoni, **Emilio Coppa**, Daniele Cono D'Elia, Camil Demetrescu, Irene Finocchi. **A Survey of Symbolic Execution Techniques**. ACM Computing Surveys (**ACM CSUR**), 51(3), 2018.

2018 **Emilio Coppa**, Irene Finocchi, and Renan Leon Garcia. **Counting cliques in parallel without a cluster: Engineering a fork/join algorithm for shared-memory platforms**. **Information Sciences**, 2018.

2017 **Emilio Coppa**, Daniele Cono DElia, Camil Demetrescu. **Rethinking Pointer Reasoning in Symbolic Execution**. 32nd IEEE/ACM International Conference on Automated Software Engineering (**ASE'17**).

2017 Roberto Baldoni, **Emilio Coppa**, Daniele Cono D'Elia, Camil Demetrescu. **Assisting Malware Analysis with Symbolic Execution: a Case Study**. 2017 International Symposium on Cyber Security Cryptography and Machine Learning (**CSCML'17**).

2015 **Emilio Coppa** and Irene Finocchi. **On data skewness, stragglers, and MapReduce progress indicators.** 2015 ACM Symposium on Cloud Computing (**SoCC'15**), pp 139-152, 2015.

2015 **Emilio Coppa**. **An interactive visualization framework for performance analysis.** Journal **EAI Endorsed Transactions on Future Internet**, 15(7): e5, 2015.

2014 **Emilio Coppa**, Camil Demetrescu, and Irene Finocchi. **Input-Sensitive Profiling.** IEEE Transactional on Software Engineering (**IEEE TSE'14**), 40(12), pp 1185-1205, 2014.

2014 **Emilio Coppa**. **An interactive visualization framework for performance analysis.** 8th International Conference on Performance Evaluation Methodologies and Tools (**VALUETOOLS'14**), pp 159-164, 2014.

2014 **Emilio Coppa**, Camil Demetrescu, Irene Finocchi, and Romolo Marotta. **Estimating the Empirical Cost Function of Routines with Dynamic Workloads.** 12th IEEE/ACM International Symposium on Code Generation and Optimization (**CGO'14**), pp 230-239, 2014.

2012 **Emilio Coppa**, Camil Demetrescu, and Irene Finocchi. **Input-Sensitive Profiling**. 33nd ACM SIGPLAN conference on Programming Language Design and Implementation (**PLDI'12**), pp 89-98, 2012.

Research Projects

2023 **PR FESR LAZIO 2021-2027** – *METIS: Modular Early Threat Identification System* (All: 1,417,000€; Sapienza: 179,000€)
Role: PI for Sapienza

2023 **PRIN 2022 PNRR** – *SETA: Studying thE impact of anti-analysis Techniques in IoT security evAluations* (All: 229,240€; Sapienza: 76,352€)
Role: Co-PI and Unit leader for Sapienza

2023 **PRIN 2022** – *FARE: Firmware Analysis for vulneRability dEtection* (All: 193,000€; Sapienza: 96,000€)
Role: Co-PI and Unit leader for Sapienza

2022 **Sapienza Research Project** – *Vulnerability Detection for Embedded Software* (3500€)
Role: Principal Investigator

2022 **PNRR Rome Technopole FP4** – *Creazione di un'infrastruttura di innovazione, servizio, formazione, terza missione e ricerca aperta e distribuita sul territorio, finalizzata a supportare la creazione e sviluppo di dispositivi medici.* Role: research collaborator

2022 **PNRR PE SERICS Spoke 9** – *Securing the Digital Transformation*
Role: research collaborator

2020 **Project funded by Ministero Sviluppo Economico** – *Metodologie e strumenti innovativi a supporto dei test di sicurezza software di sistemi e componenti ordinari ed embedded di interesse per le attività del CVCN* (798000€). Role: research collaborator

2019 **Sapienza Research Project** – *Cyber threat analysis and detection* (4000€)
Role: Substitute Principal Investigator

2017 **PRIN 2017** – *AHeAD: efficient Algorithms for HArnessing networked Data*
Role: research collaborator. National coordinator: Giuseppe Italiano.

2017 **Postdoctoral Starting grant. Role: PI**
Grant from Sapienza University of Rome (Finanziamento per Avvio alla Ricerca 2017 - Tipologia B, 2000€).

2016 **Postdoctoral Starting grant. Role: PI**
Grant from Sapienza University of Rome (Finanziamento per Avvio alla Ricerca 2016 - Tipologia B, 2000€).

2015 **Ph.D. Starting grant. Role: PI**
Grant from Sapienza University of Rome (Finanziamento per Avvio alla Ricerca 2015 - Tipologia A, 1000€).

2015 **PRIN 2012** – *AMANDA: Algorithmics for MAssive and Networked DAta*
Role: research collaborator. National coordinator: Giuseppe Di Battista.

Honors and awards

2022 **Best Paper Award.**
15th Innovations in Software Engineering Conference.

2018 **Best Paper Award.**
15th IEEE Symposium on Visualization for Cyber Security.

2015 **Best PhD Student Paper Award**
Granted by the Computer Science Department at Sapienza University of Rome.

2015 **Scholarship award by ACM to attend SoCC 2015**
Grant to attend the 2015 ACM Symposium on Cloud Computing as a student co-author of an accepted paper.

2014 **Scholarship award by ACM/IEEE to attend CGO 2014**
Grant to attend the 12th IEEE/ACM International Symposium on Code Generation and Optimization as a student co-author of an accepted paper.

2013 **Excellent graduate student award**
Award from the Alumni Noi Sapienza Association, accorded to students with outstanding performances in academic activities.

2013 **Scholarship award by ACM to attend PLMW 2013 and POPL 2013**
Grant to attend the 2013 edition of the ACM SIGPLAN Programming Languages Mentoring Workshop and the 40th ACM SIGPLAN Symposium on Principles of Programming Languages.

2012 **Scholarship award by Sapienza University of Rome**
Grant awarded to students enrolled in the Honors Program in order to support their research activities.

2012 **ACM SIGPLAN PAC Award to attend PLDI 2012**
Grant by the SIGPLAN Professional Activities Committee (PAC) to attend the 33nd ACM SIGPLAN conference on Programming Language Design and Implementation as a student co-author of an accepted paper.

2011 – 2012 **Enrolled in the Honors Program of the M.Sc. in Engineering in Computer Science**
Research program for students with outstanding academic performance at Sapienza University of Rome.

2011 **Scholarship award by Sapienza University of Rome to attend ADS 2011**
Grant to attend the 5th Bertinoro Workshop on Algorithms and Data Structures, awarded to students with outstanding academic performance.

Services to the community

2017 – 2023 **Local Organizer and Instructor of CyberChallenge.IT** at Sapienza Univ. of Rome
Training program in cybersecurity for high-school and undergraduate students
2023: First place (out of 43 universities)

2017 – 2019 **National Organizer of CyberChallenge.IT**
Member of the Technical Committee
Consorzio Interuniversitario Nazionale per lInformatica (CINI)
Training program in cybersecurity for high-school and undergraduate students

2017 – 2019 **Member of the Steering Committee of ECSC**
European CyberSecurity Challenge (ECSC) is organized by the European Union Agency for Network and Information Security (ENISA)

2019 **Team manager of the Italian National CyberSecurity Team**
Fall 2019: 2nd place at the 2017 European CyberSecurity Challenge (ECSC19)

2017 – 2018 **Coach of the Italian National CyberSecurity Team**
Fall 2017: 3rd place at the 2017 European CyberSecurity Challenge (ECSC17)
Fall 2018: 6th place at the 2018 European CyberSecurity Challenge (ECSC18)

Program committees, conference organization, and journal roles

2023 Elsevier COSE - Journal of Computers & Security (ISSN 0167-4048). **Guest editor for a special issue**.

2023 Elsevier JISA - Journal of Information Security and Applications (ISSN 2214-2126). **Member of the Editorial Board**.

2020-23 ARES 2023 - 18th International Conference on Availability, Reliability and Security. **Member of the Program Committee**.

2023 ACM ISSTA 2023 - ACM SIGSOFT Int. Symposium on Software Testing and Analysis (ISSTA) 2023 Tool Demonstration Track. **Member of the Program Committee**.

2022 USENIX Security 2022 - 31st USENIX Security Symposium. **Member of the Artifact Evaluation Committee**.

2021-23 Frontiers in Computer Science - Journal Frontiers in Computer Science, section Computer Security (ISSN 2624-9898). **Member of the Editorial Board**.

2022 ITASEC 2022 - 2022 Italian Conference on Cybersecurity. **Member of the Program Committee**.

2021 ACM ISSTA 2021 - ACM SIGSOFT Int. Symposium on Software Testing and Analysis (ISSTA) 2021 Tool Demonstration Track. **Member of the Program Committee**.

2020 Capture.IT 2020 - 2nd Workshop on CTF competitions.
Member of the Program Committee.

2019 MPLR 2019 - 16th International Conference on Managed Programming Languages & Runtimes, sponsored by ACM SIGPLAN. **Publicity Chair**.

2019 CSCML 2019 - 3rd International Symposium on Cyber Security Cryptology and Machine Learning.
Member of the Program Committee.

2019 Capture.IT 2019 - 1st Workshop on CTF competitions.
Member of the Program Committee.

2018 SPLASH OOPSLA 2018 - 9th ACM SIGPLAN conference on Systems, Programming, Languages and Applications: Software for Humanity & Applications.
Member of the Artifact Evaluation Committee.

2017 SPLASH OOPSLA 2017 - 8th ACM SIGPLAN conference on Systems, Programming, Languages and Applications: Software for Humanity & Applications.
Member of the Artifact Evaluation Committee.

2016 ECOOP 2016 - 30th European Conference on Object-Oriented Programming.
Publicity Chair and Posters Co-Chair.

2015 ECOOP 2015 - 29th European Conference on Object-Oriented Programming.
Member of the Artifact Evaluation Committee.

2014 ECOOP 2014 - 28th European Conference on Object-Oriented Programming.
Member of the Artifact Evaluation Committee.

Reviewing activity

2020-23 Elsevier COSE - Elsevier Computers & Security (reviewer).

2020-23 ARES - International Conference on Availability, Reliability and Security. (reviewer).

2019-23 SoftX - Elsivier SoftwareX Journal (reviewer).

2018-23 Elsevier JSS - The Journal of Systems & Software (reviewer).

2017-23 IET Software (reviewer).

2022-23 IEEE TSE - IEEE Transactions on Software Engineering. (reviewer).

2021-23 ISSTA 2021 Tool Demonstration Track - ACM SIGSOFT Int. Symposium on Software Testing and Analysis 2021. (reviewer).

2022 Elsevier JISA - Journal of Information Security and Applications. (reviewer).

2022 IEEE TIFS - IEEE Transactions on Information Forensics and Security. (reviewer).

2019 IEEE Access - IEEE Access Journal (reviewer).

2018 OOPSLA 2018 - 33th ACM SIGPLAN Conference on Object-Oriented Programming Systems, Languages, and Applications (subreviewer).

2017 OOPSLA 2017 - 32th ACM SIGPLAN Conference on Object-Oriented Programming Systems, Languages, and Applications (subreviewer).

2015 JEA - ACM Journal of Experimental Algorithmics (reviewer).

2015 ECOOP 2015 - 29th European Conference on Object-Oriented Programming (subreviewer).

2012-15 ALENEX - Workshop on Algorithm Engineering and Experimentation (reviewer).

2014 ECOOP 2014 - 28th European Conference on Object-Oriented Programming (subreviewer).

Teaching Activity

2021-2024 Professor. CyberSecurity 3 CFU
Master of Science in Computer Engineering, Sapienza University of Rome.

2020-2023 Professor. Advanced techniques for finding bugs in real-world software 1.5 CFU
PhD in Computer Engineering, Sapienza University of Rome.

2018-2023 Professor. Computer System Architecture (Sistemi di Calcolo) 6 CFU
Bachelor program in Computer Engineering, Sapienza University of Rome.

2021-2022 Professor. Web Security and Privacy 3 CFU
Master of Science in Computer Engineering, Sapienza University of Rome.

2017-2023 Lecturer. CyberChallenge.IT
Sapienza University of Rome.

2016-2023 Lecturer. Big data management & processing, Master di II livello in Data Intelligence e Strategie Decisionali, Dipartimento Scienze Statistiche, Sapienza University of Rome.

2020-2021 Professor. Computer and Network Security 6 CFU
Master of Science in Computer Engineering, Sapienza University of Rome.

2017-2018 Adjunct Professor. Computer System Architecture 1 (Sistemi di Calcolo 1) 6 CFU
Bachelor program in Computer Engineering, Sapienza University of Rome.

2016 Lecturer. Introduction to Symbolic Execution. Introduction to Malware Analysis.
Honors program in Computer Engineering.

2016-2017 Teaching assistant. Computer System Architecture 1 (Sistemi di Calcolo 1).
Bachelor program in Computer Engineering, Sapienza University of Rome.

2015-2016 Teaching assistant. Fondamenti di Informatica II.
Bachelor program in Computer Engineering, Sapienza University of Rome.

Research Talks

Sep 2023	*New ideas in concolic execution* **Invited talk** at EURECOM.
May 2023	*Rethinking concolic execution* **Invited talk** at Quarkslab.
Oct 2022	*Improving the scalability and effectiveness of concolic execution* **Invited talk** at the Universite Paris-Saclay, CEA.
Oct 2022	*SymFusion: Hybrid Instrumentation for Concolic Execution* Presentation at the 37th IEEE/ACM International Conference on Automated Software Engineering (ASE 2022). Oakland Center, Michigan, USA.
Sep 2022	*Reach Me if You Can: On Native Vulnerability Reachability in Android Apps* Presentation at the the 27th European Symposium on Research in Computer Security (ESORICS 2022). Copenhagen, Denmark.
Sep 2022	*Fuzzing Symbolic Expressions* Presentation at the third international KLEE Workshop on Symbolic Execution. London, UK.
Oct 2021	*FUZZOLIC and FUZZY-SAT: Mixing Fuzzing and Concolic Execution* **Invited talk** at the the Department of Computer and Information Science at the University of Delaware.
Apr 2018	*Symbolic Execution for the Security Realm: the Cyber Grand Challenge Story* **Invited talk** at the 2nd International Workshop on Usages of Symbolic Execution (USE'18). Västerås, Sweden.
Jun 2017	*Assisting Malware Analysis with Symbolic Execution: A Case Study* Presentation at the 2017 International Symposium on Cyber Security Cryptography and Machine Learning (CSCML'17), Be'er Sheva, Israel.
Aug 2015	*On data skewness, stragglers, and MapReduce progress indicators* Presentation at 2015 ACM Symposium on Cloud Computing (SoCC'15), Hawaii, USA.
Apr 2015	*Performance analysis at scale* **Invited talk** at TU Darmstadt, Germany.
Dec 2014	*An interactive visualization framework for performance analysis* Presentation at 8th International Conference on Performance Evaluation Methodologies and Tools (VALUETOOLS'14), Bratislava, Slovakia.
Jan 2014	*Estimating the Empirical Cost Function of Routines with Dynamic Workloads* Presentation at 12th IEEE/ACM International Symposium on Code Generation and Optimization (CGO'14), Orlando, USA.
Apr 2013	*From asymptotics to performance profiling (and back)* **Invited talk**, Department of Informatics, University of Bergen, Norway.
Jan 2013	*One Minute Madness presentation* at the 2013 SIGPLAN Programming Languages Mentoring Workshop (PLMW 2013), Rome, Italy.
Jun 2012	*Input Sensitive Profiling* Presentation at 33nd ACM SIGPLAN conference on Programming Language Design and Implementation (PLDI'12), Beijing, China.

Additional training

Jul 2014	ECOOP Summer School 2014. Uppsala University, Sweden. Lecturers: Joe G. Politz, Shriram Krishnamurthi, Anil Madhavapeddy, Richard Mortier, Laurence Tratt, Tomas Kalibera, and Cristina V. Lopes.
Jul 2014	UPMARK Multicore Computing Summer School 2014. Uppsala University, Sweden. Lecturers: Cormac Flanagan, Stephen Freund, Viktor Klang, Simon M. Smith, and Viktor Vafeiadis.
Sep 2013 - Nov 2013	C++ For C Programmers, Coursera. Prof. Ira Pohl, University of California, Santa Cruz.
Aug 2013	MADALGO PhD Summer School 2013, Summer school on Data Structures. Aarhus University, Denmark. Lecturers: Valerie King, Ian Munro, Rasmus Pagh, and the Turing Award recipient Robert E. Tarjan.
Nov 2012	Advanced course on GPU computing Cineca/Caspur Research Center, Rome.

Software projects

2022–2023 SymFusion
Hybrid Instrumentation for Concolic Execution. **Chief developer**.
Project website: season-lab.github.io/SymFusion/

2022 DroidReach
Framework for testing the reachability of native functions in Android applications.. **Developer**.
Project website: github.com/season-lab/DroidReach

2020–2022 FUZZOLIC: mixing fuzzing and concolic execution
A new concolic executor based on QEMU. **Chief developer**.
Project website: season-lab.github.io/fuzzolic/

2020–2021 FUZZY-SAT
Approximate solver. **Developer**.
Project website: github.com/season-lab/fuzzy-sat

2017–2018 MemSight: a New Symbolic Memory Model
Rethinking Pointer Reasoning in Symbolic Execution. **Chief developer**.
Project website: github.com/season-lab/memsight

2016–2018 ANGR. A powerful and user-friendly binary analysis platform.
Contributor (GitHub PR: #263, #267, #744, #772, #788, #789, #829).
Project website: angr.io

2014 Hadoop MapReduce Project. Open Source implementation of the MapReduce paradigm. **Contributor** (JIRA: MAPREDUCE-5958).
Project website: hadoop.apache.org

2011–2014 Aprof: Asymptotic Profiler. A Valgrind tool for performance profiling designed to help developers discover hidden asymptotic inefficiencies in the code. **Chief developer**.
Project website: github.com/ercoppa/aprof.

2010–2011 BSA++: an adaptive segregated fit memory allocator
The allocator is now integrated in the DC dataflow constraint programming framework available at code.google.com/p/dc-lib and described in the paper *Reactive imperative programming with dataflow constraints* by Camil Demetrescu, Irene Finocchi, and Andrea Ribichini, published in the proceedings of the 26th ACM SIGPLAN Conference on Object-Oriented Programming Systems, Languages, and Applications (OOPSLA'11).

2008 Gemini Project: detecting P2P filters on an ADSL connection
An Ubuntu-based live distro for revealing if an ISP is throttling BitTorrent traffic on an ADSL connection. The approach used for detecting anti-p2p filters was partly described in a detailed article on the Electronic Frontier Foundation (EFF) official site.

2006–2008 Contributor to linux@p2pforum.it
A collection of how-to and tutorials designed for helping inexperienced GNU/Linux italian users.

Computer skills

Algorithms	Advanced knowledge of algorithms and data structures and their mathematical analysis.
Programming	Advanced knowledge of C, Java, Python, ASM x86. Good experience with C++, Rust, PHP.
Operating systems	Very good experience with GNU/Linux (especially Gentoo-based and Debian-based) and Microsoft Windows.
Other	Apache Hadoop (hadoop.apache.org/). Apache Spark (spark.apache.org/). Apache Flink (flink.apache.org/). Intel PIN (software.intel.com/en-us/articles/pintool/). Valgrind (valgrind.org/). IDA Pro (hex-rays.com/products/ida/). angr (angr.io/).

Languages

English: Fluent
Italian: Mothertongue