

Daniele Cono D'ELIA

Curriculum vitae

(last updated: March 2017)



PERSONAL DATA

PLACE AND DATE OF BIRTH: Polla (SA), Italy - December 17, 1988
OFFICE ADDRESS: Via Ariosto 25, Room B118, 00185 Rome, Italy
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EMPLOYMENT

JUL 2016-PRESENT | Postdoctoral Researcher
Sapienza University of Rome, Italy
Research Center of Cyber Intelligence and Information Security (CIS Sapienza)

FALL 2016 | Adjunct Professor
Sapienza University of Rome, Italy
Computer System Architecture (*Sistemi di Calcolo 1*)
Undergraduate course, 6 credits, Bachelor program in Computer Engineering

EDUCATION

NOV 2012-JUN 2016 | Ph.D. in COMPUTER ENGINEERING
Sapienza University of Rome, Italy
Dissertation title: *New Techniques for Adaptive Program Optimization*
Advisor: Prof. Camil DEMETRESCU

MAR 2014-JUL 2014 | Visiting Scholar at Purdue University
Research topic: novel techniques for program optimization
Supervisor: Prof. Jan VITEK

OCT 2010-OCT 2012 | Master of Science in COMPUTER ENGINEERING (in English)
Sapienza University of Rome, Italy
Dissertation title: *Mining Hot Calling Contexts in Small Space*
Advisor: Prof. Camil DEMETRESCU
Final grade: 110/110 with honors (*summa cum laude*)

SEP 2007-OCT 2010 | Bachelor degree in COMPUTER ENGINEERING
Sapienza University of Rome, Italy
Dissertation title: *Hot Path Profiling*
Advisor: Prof. Camil DEMETRESCU
Final grade: 110/110 with honors (*summa cum laude*)

SEP 2002-JUN 2007

HIGH SCHOOL DIPLOMA

Liceo Scientifico Carlo Pisacane, Padula - Italy

Final grade: 100/100 with honors (*summa cum laude*)

RESEARCH INTERESTS

Programming languages and security. I'm passionate about compilers, program analysis and optimization, malware analysis, and reverse engineering. I've been researching in algorithms and data structures too, focusing mostly on algorithm engineering aspects.

PUBLICATIONS

- 2016 Daniele Cono D'Elia, Camil Demetrescu. *Flexible On-Stack Replacement in LLVM*. In Proceedings of the 2016 International Symposium on Code Generation and Optimization (CGO 2016).
- 2015 Daniele Cono D'Elia, Camil Demetrescu, and Irene Finocchi. *Mining Hot Calling Contexts in Small Space*. Appeared in *Software: Practice and Experience*, 46(8), John Wiley & Sons (SPE).
- 2013 Daniele Cono D'Elia, Camil Demetrescu. *Ball-Larus Path Profiling Across Multiple Loop Iterations*. In Proceedings of the 28th ACM SIGPLAN conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA 2013).
- 2011 Daniele Cono D'Elia, Camil Demetrescu, and Irene Finocchi. *Mining Hot Calling Contexts in Small Space*. In Proceedings of the 32nd ACM SIGPLAN conference on Programming Language Design and Implementation (PLDI 2011).

SOFTWARE ARTIFACTS

- 2016 Daniele Cono D'Elia and Camil Demetrescu. *Flexible On-Stack Replacement in LLVM*. Published in the [ACM Digital Library](#). Artifact endorsed by the joint Artifact Evaluation Process of CGO-PPoPP 2016.
- 2013 Daniele Cono D'Elia, Camil Demetrescu, and Irene Finocchi. *k-BLPP: a k-Iteration Path Profiler*. In [Jikes RVM Research Archive](#). Artifact endorsed by the ACM SIGPLAN OOPSLA 2013 Artifact Evaluation Committee.

HONORS AND AWARDS

- 2015 **Ph.D. Starting grant** for the project: *Continuous Optimization for Large-Scale Data Analytics* from Sapienza University of Rome.
- 2014 **Ph.D. Starting grant** for the project: *Large-scale data analytics in R* from Sapienza University of Rome.
- 2013 **Ph.D. Starting grant** for the project: *Performance engineering for big data computing* from Sapienza University of Rome.
ACM SIGPLAN PAC Award, granted by the SIGPLAN Professional Activities Committee to attend OOPSLA 2013 as student co-author of an accepted paper.

Selected for the final phase of *Best ICT Master's thesis* competition organized by AICA-CINI-CNIT.

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

2011 **ACM SIGPLAN PAC Award**, granted by the SIGPLAN Professional Activities Committee to attend PLDI 2011 as a student co-author of an accepted paper.

Grant of Sapienza University of Rome for attending the 5th Bertinoro Workshop on Algorithms and Data Structures (ADS 2011), awarded to students with outstanding academic performance.

2009-2010 Enrolled in the *Excellence Path Program* of the Bachelor Degree in Computer Engineering of Sapienza University of Rome for students with outstanding academic performance.

2007 Ranked first out of 382 students attending the admission test for the Bachelor program in Computer Engineering of Sapienza University of Rome.

Merit scholarship awarded by the Italian Ministry of Education, Universities and Research (MIUR) for outstanding high school graduation.

2006 Winner of the *Gerardo Ritorto* literary prize for high school students.

TEACHING

FALL 2016 Adjunct Professor for *Sistemi di Calcolo 1* course (Computer System Architecture), Sapienza University of Rome.

2015-2016 Teaching assistant for *Sistemi di Calcolo* course, part 1 (Computer System Architecture – Fall 2015) and part 2 (Systems Programming – Spring 2016), Sapienza University of Rome.

2014-2015 Teaching assistant for *Sistemi di Calcolo* course, part 1 (Computer System Architecture – Fall 2014) and part 2 (Systems Programming – Spring 2015), Sapienza University of Rome.

2013 Teaching assistant for *Algorithm Engineering* course (Spring semester), Sapienza University of Rome.

TALKS AND SEMINARS

JAN 2017 *Securing Software Applications through Symbolic Execution: an Overview*. Technical talk, ITASEC 2017, Venice, Italy.

MAR 2016 Presentation of the paper *Flexible On-Stack Replacement in LLVM* at CGO 2016, Barcelona, Spain.

OCT 2013 Presentation of the paper *Ball-Larus path profiling across multiple loop iterations* at OOPSLA 2013, Indianapolis, Indiana.

JUN 2011 Presentation of the paper *Mining hot calling contexts in small space* at PLDI 2011, San Jose Convention Center, California.

MAR 2010 *Finding frequent items in data streams*. Reading seminar, Department of Computer and System Sciences, Sapienza University of Rome.

EVENT ORGANIZATION

- 2015-2016 Artifact Evaluation Committee (AEC) Member for [ECOOP 2016](#) – 30th European Conference on Object-Oriented Programming, Rome, Italy.
Web Technology & Housing Chair and Posters Co-Chair for [ECOOP 2016](#) – 30th European Conference on Object-Oriented Programming, Rome, Italy.
- JUL 2015 Student Volunteer at [ECOOP 2015](#) – 29th European Conference on Object-Oriented Programming, Prague, Czech Republic.
- 2002-2005 2nd–5th edition of Linux Day, Salerno Linux User Group, Italy.
- 2003-2004 1st–2nd edition of VaLug Linux Meeting, Teggiano, Italy.

CONFERENCE AND SCHOOL ATTENDANCES

- JAN 2017 [ITASEC 2017](#) - First Italian Conference on Cybersecurity. Venice, Italy.
- JUL 2016 [ECOOP 2016](#) - 30th European Conference on Object-Oriented Programming.
- JUN 2016 [VMSS 2016](#) - Virtual Machines Summer School. Cumberland Lodge, UK. School organized by Carl Friedrich Bolz and Laurence Tratt.
- MAR 2016 [CGO+EuroLLVM 2016](#) - International Symposium on Code Generation and Optimization & LLVM Developers' European Meeting. Barcelona, Spain.
- JUL 2015 [ECOOP 2015](#) – 29th European Conference on Object-Oriented Programming.
- JUN 2015 [ADS 2015](#) - 7th Bertinoro Workshop on Algorithms and Data Structures. Workshop co-organized by Camil Demetrescu, Andrew V. Goldberg, Valerie King, and the Turing Award recipient Robert E. Tarjan.
- APR 2015 [EuroLLVM 2015](#) - LLVM Developers' European Meeting. London, UK.
- AUG 2014 [ECOOP Summer School 2014](#) - Summer School of the European Conference on Object-Oriented Programming. Uppsala, Sweden. School organized by James Noble and Jan Vitek.
- JUL 2014 [UPMARC 2014](#) - UPMARC Multicore Computing Summer School 2014, Uppsala University, Sweden. School organized by Kostis Sagonas and Roland Grönroos.
- OCT 2013 [OOPSLA 2013](#) - 28th ACM SIGPLAN conference on Object-Oriented Programming, Systems, Languages, and Applications. Indianapolis, Indiana.
- AUG 2013 [MADALGO 2013](#) - MADALGO Summer School on Data Structures, Aarhus University, Denmark. School taught by Valerie King, Ian Munro, Rasmus Pagh, and the Turing Award recipient Robert E. Tarjan.
- JUN 2013 [ADS 2013](#) - 6th Bertinoro Workshop on Algorithms and Data Structures. Workshop co-organized by Giuseppe F. Italiano, Andrew V. Goldberg, Valerie King, and the Turing Award recipient Robert E. Tarjan.
- JUN 2013 [SEA 2013](#) - 12th International Symposium on Experimental Algorithms.
- JUN 2011 [ADS 2011](#) - 5th Bertinoro Workshop on Algorithms and Data Structures. Workshop co-organized by Camil Demetrescu, Andrew V. Goldberg, Valerie King, and the Turing Award recipient Robert E. Tarjan.
- JUN 2011 [PLDI 2011](#), 32nd ACM SIGPLAN conference on Programming Language Design and Implementation. San Jose Convention Center, California.

COMPUTER SKILLS

- ALGORITHMS: Advanced knowledge of algorithms and data structures and their mathematical analysis. Expertise in data streaming algorithms. Good knowledge of data mining techniques.
- PROGRAMMING: ASM x86, C, C++, Java, and UNIX shell scripting (very good) JavaScript, PHP, Python, and HTML/CSS (good)
- OPERATING SYSTEMS: Linux, MacOS, and Windows power user. Expert of legacy systems.
- OTHER: Advanced knowledge of the LLVM compiler infrastructure. Good knowledge of Intel Pin and of the Jikes Research Virtual Machine.

OPEN SOURCE PROJECTS

- 2011-2015 [TinyVM](#), a proof-of-concept virtual machine that provides an interactive environment for LLVM IR manipulation, JIT compilation, and benchmarking.
- 2011-2015 [HCCT](#), a context-sensitive performance profiler for Linux applications. The main ideas behind this tool are described in the PLDI '11 paper *Mining Hot Calling Contexts in Small Space* and in the homonymous SPE article.
- 2012 *Virtual Hosting*, realized with [Mauro Gentile](#) using YAWL and Web Services.
- 2003-2006 Contributor to [ILD](#), the Italian Linux Documentation Project.
- 2005 *ShareDistro*, a tool adopted by several Linux User Groups in areas affected by digital divide in broadband access.
- 2002-2005 Contributor to [ELKS](#), the Embeddable Linux Kernel Subset for 8086 CPUs.

LANGUAGES

- ENGLISH: Fluent
- ITALIAN: Native

OTHER INFORMATION

I'm an outgoing person and a cyclist at heart. I love traveling, eating out, watching games, and climbing mountains on a bike. I enjoy swimming from time to time. I wrote several articles for Linux Magazine and Linux Journal before joining college.