

IRENE FINOCCHI

CURRICULUM VITÆ

PART 1 – GENERAL INFORMATION

Full name Irene Finocchi
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Spoken languages Italian (native language), English (full professional proficiency)

CAREER HIGHLIGHTS

- Research interests at the intersection of algorithmics and programming languages
- 77 publications, H-index 23. Articles appeared in top-notch journals and conferences including:
 - ACM Transactions on Algorithms (**TALG**)
 - ACM Transactions on Programming Languages and Systems (**TOPLAS**)
 - IEEE Transactions on Software Engineering (**TSE**)
 - *Algorithmica*
 - ACM/SIAM Symposium on Discrete Algorithms (**SODA**)
 - ACM Symposium on Cloud Computing (**SoCC**)
 - ACM Symposium on Theory of Computing (**STOC**)
 - ACM SIGPLAN Conference on Programming Language Design and Implementation (**PLDI**)
 - ACM SIGPLAN Conf. on Object-Oriented Programming, Systems, Lang. & Applic. (**OOPSLA**)
 - IEEE/ACM International Symposium on Code Generation and Optimization (**CGO**)
 - European Symposium on Algorithms (**ESA**)
 - International Colloquium on Automata, Languages and Programming (**ICALP**)
- **Associate editor** of the **ACM Journal on Experimental Algorithmics** since 2014
- **Program chair** of **ESA 2015**, the premier European conference on algorithms, engineering and applications track
- **Program Committee Member** of top-tier conferences on algorithms and programming languages, including **OOPSLA 2017**, **ECOOP 2015**, **ECOOP 2014**, **SODA 2012**, **ESA 2012**, **ICALP 2009**, **ESA 2007**
- **Distinguished paper award** recipient at **OOPSLA 2011**
- Co-author of widely used **textbooks** on algorithms and data structures (McGraw-Hill)
- **Student evaluations**: ~**70%** gave max score wrt ability to spark interest and ~**58%** gave max score wrt teaching clarity (compared to school/degree program average ~**38%** for both).

PART 2 – EDUCATION

Nov 1997 - Feb 2002 PhD in Computer Science, Sapienza University of Rome.

Nov 1993 - Jul 1997 BS + MS in Computer Science, *summa cum laude*, Sapienza University of Rome, GPA: 30/30.

Sep 1988 - Jun 1993 High school in classical studies (Viterbo), 60/60.

PART 3 – APPOINTMENTS

PART 3.A – ACADEMIC APPOINTMENTS

2007 - today *Associate Professor*, Dept. of Computer Science, Sapienza University of Rome.

2005 - 2007 *Assistant Professor*, Dept. of Computer Science, Sapienza University of Rome.

2002 - 2004 *Research Fellow*, Dept. of Computer Science, Systems & Production, University of Rome “Tor Vergata”.

Career breaks: from Oct 28, 2005 to Apr 1, 2006 and from Mar 1, 2008 to Aug 4, 2008 (maternity leave).

PART 3.B – OTHER APPOINTMENTS

2004 *Visiting Scientist*, Microsoft Research – Silicon Valley.

2004 *Visiting Scientist*, School of Computer Science, University of Nevada.

2002 *Visiting Research Fellow*, IT University of Copenhagen – Theory Group.

2000 - 2001 *PhD Student Intern*, AT&T Research Laboratories.

PART 4 – RESEARCH INTERESTS

I am puzzled by problems where data, programming models, and computations interact in complex ways.

My long term research interests have been in *algorithms and data structures*, especially algorithmics for massive data sets, fault-tolerant computing, and graph processing. Besides a mathematical approach, I am actively involved and have a leading role in the *algorithm engineering* community, focusing on the experimental testing and fine-tuning of discrete algorithms on modern computational platforms.

More recently, I have been investigating problems and methodologies in a different research area – *programming languages and systems* – exploring connections within the two. My main contributions in this context focus on automatic *software analysis*, most notably through dynamic techniques, *data-flow programming models*, and *performance engineering*, especially applied to big data systems.

PART 5 – PUBLICATION RECORD

I regularly publish in a variety of top-notch journals (such as ACM TALG, ACM TOPLAS, Algorithmica, IEEE TSE) and conferences (such as ACM/SIAM SODA, ACM SoCC, ACM STOC, ACM/IEEE CGO, ESA, ICALP, ACM OOPSLA, ACM PLDI).

I have co-authored 77 papers, among which 24 journal articles, 4 handbook chapters, and 3 book chapters. I have also co-authored 2 (teaching) textbooks on algorithms and data structures, published by McGraw-Hill and widely adopted throughout the years in several national universities.

According to Google Scholar, my works received 1456 citations, with an average of 19 citations per article. My H-index is 23 on Google Scholar and 15 on Scopus. My i10-index (number of publications with at least 10 citations, as in Google Scholar) is 43.

PART 6 – SCIENTIFIC ACTIVITIES

PART 6.A – SCIENTIFIC BOARDS

- 2014 - today **Associate editor: ACM Journal on Experimental Algorithmics.**
- 2015 - 2018 **Steering committee member:** European Symposium on Algorithms (**ESA**).
- 2009 - 2016 **Steering committee member:** SIAM Meeting on Algorithm Engineering and Experiments (**ALENEX**).

PART 6.B – PROGRAM CHAIR

- 2015 **Program committee chair:** European Symposium on Algorithms (**ESA**), engineering and applications track.
- 2009 **Program committee co-chair** (with John Hershberger): SIAM Meeting on Algorithm Engineering and Experiments (**ALENEX**)

PART 6.C – PROGRAM COMMITTEES

Regularly invited to serve as a PC member of well-established international conferences. A partial list of events I have been involved in includes:

- HotCloud 2017** *9th USENIX Workshop on Hot Topics in Cloud Computing*
- OOPSLA 2017** *ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications*
- SEA 2017 *16th International Symposium on Experimental Algorithms*
- CIAC 2017 *11th Conference on Algorithms and Complexity*
- ALENEX 2017 *SIAM Meeting on Algorithm Engineering and Experiments*
- PPPJ 2016 *13th International Conference on Principles and Practices of Programming on the Java Platform: Virtual Machines, Languages and Tools*
- AAIM 2016 *11th International Conference on Algorithmic Aspects of Information and Management*
- FUN 2016 *8th International Conference on Fun with Algorithms*
- WODA 2015 *13th International Workshop on Dynamic Analysis*
- ECOOP 2015** *30th European Conference on Object-Oriented Programming*
- ESA 2015** *23rd Annual European Symposium on Algorithms, PC chair engineering and applications track*
- CIAC 2015 *9th Conference on Algorithms and Complexity*
- ECOOP 2014** *29th European Conference on Object-Oriented Programming*
- ALENEX 2014 *16th SIAM Meeting on Algorithm Engineering and Experiments*
- IFIP TCS 2014 *Theoretical Computer Science*
- ALENEX 2013 *15th SIAM Meeting on Algorithm Engineering and Experiments*
- MASSIVE 2012 *4th Workshop on Massive Data Algorithmics*
- ESA 2012** *20th Annual European Symposium on Algorithms, engineering and applications track*
- SODA 2012** *23rd ACM-SIAM Symposium on Discrete Algorithms*

- IC3 2011 *4th International Conference on Contemporary Computing*, algorithms track
- CIAC 2010 *7th Italian Conference on Algorithms and Complexity*
- ICALP 2009** *36th International Colloquium on Automata, Languages & Programming*, track A (algorithms, automata, complexity, and games)
- ALENEX 2009** *11th SIAM Meeting on Algorithm Engineering and Experiments* (**PC co-chair**)
- WEA 2008 *7th International Workshop on Experimental Algorithms*
- ITNG 2008 *5th International Conference on Information Technology: New Generations*
- ESA 2007** *15th Annual European Symposium on Algorithms*
- FUN 2007 *Fourth Conference on Fun with Algorithms*
- ALENEX 2006 *8th SIAM Meeting on Algorithm Engineering and Experiments.*

PART 6.D – AWARDS AND HONORS

My research activities received the following recognitions:

- 2011 ***Distinguished paper award recipient at OOPSLA 2011*** for the paper “*Reactive imperative programming with dataflow constraints*”. OOPSLA is one of the most prestigious venues in the programming languages community. The award was assigned to “papers that epitomize the best of OOPSLA: technical brilliance and the possibility of long-term impact.”
- 2006 “*The price of resiliency: a case study on sorting with memory faults*” shortlisted as one of the ***best papers of ESA 2006*** and invited to a special issue on *Algorithmica*.
- 2006 “*Optimal resilient sorting and searching in the presence of memory faults*” shortlisted as one of the ***best papers of ICALP 2006*** and invited to a special issue on *Theoretical Computer Science*.
- 2004 “*On Coding Labeled Trees*” shortlisted as one of the ***best papers of LATIN 2004*** and invited to a special issue on *Theoretical Computer Science*.
- 2000 “*Breaking Cycles for Minimizing Crossings*” shortlisted as one of the ***best papers of ALENEX 2000*** and invited to a special issue on *ACM Journal on Experimental Algorithmics*.
- 1999 “*Smooth Animation of Algorithms in a Declarative Framework*” shortlisted as one of the ***best papers of IEEE VL’99*** and invited to a special issue on *Journal of Visual Languages and Computing*.

PART 6.E – INVITED LECTURES

I have been invited to give *plenary talks* in the following scientific events:

- 2013 *Computability in Europe*, special session on “Data streams & compression”
- 2013 *Women in Computability*, Milan, Italy
- 2004 *Algorithms for Dynamic Data*, Chennai, India

I am regularly invited to attend meetings at elite research centers including Dagstuhl, Oberwolfach, and Bertinoro. Among them, I have given *invited talks* at the following events:

- 2015 Dagstuhl Seminar on *Empirical Evaluation for Graph Drawing*
- 2011 Bertinoro Workshop on *Algorithms and Data Structures*
- 2007 *Algorithm Engineering*, Oberwolfach, Germany
- 2005 Bertinoro Workshop on *Algorithms and Data Structures*

- 2002 Dagstuhl Seminar on *Experimental Algorithmics*
- 2001 Dagstuhl Seminar on *Software Visualization*
- 2000 Dagstuhl Seminar on *Experimental Algorithmics*

I have also given seminars in a variety of universities and research centers, including Institute of Mathematical Sciences (Chennai, India), IT University of Copenhagen (Denmark), AT&T Research Laboratories (Florham Park, USA), Microsoft Research (Silicon Valley, USA), Max Planck Institute for Informatics (MPI), University of Nevada, University of Kent, IASI-CNR, Universities of Florence, Milano Bicocca, Pisa, “Tor Vergata”, and “Roma Tre”.

PART 6.F – ORGANIZATION OF SCIENTIFIC EVENTS

I have contributed to the organization of a variety of scientific events:

- 2016 **Sponsorship co-chair of ECOOP 2016** – 31st European Conference on Object-Oriented Programming.
Raised about 51,000\$ from sponsors including Google, Facebook, Oracle, Mozilla, Huawei, IBM Research, and Goldman Sachs.
- 2016 **Principal co-organizer and publicity chair of ICALP 2016** – International Colloquium on Automata, Languages & Programming.
- 2015 **Scientific co-director of the Dagstuhl Seminar** on “Empirical Evaluation for Graph Drawing”, Dagstuhl, Germany, January 2015.
- 2010 **Co-organizer of CIAC 2010** – 7th Italian Conference on Algorithms and Complexity.
- 2007 **Co-organizer of WEA 2007** – Workshop on Efficient and Experimental Algorithms.
- 2004 **Co-organizer of FOCS 2004** – 45th IEEE Symposium on Foundations of Computer Science.

At Sapienza University I have also organized a reading seminar on algorithmics for data streams (2009-2010) and co-organized the Interdepartmental Seminar on Algorithms (SIA, 2006-2008).

PART 6.G – FUNDING INFORMATION

I have been principal investigator in the following research projects:

- 2017 *Understanding performance at scale*, Sapienza
- 2015 *Data-parallel algorithms for counting subgraphs in massive graphs*, Amazon in Education Faculty Grant Award
- 2014 *Performance analysis in big data systems*, Amazon in Education Faculty Grant Award
- 2013 *Big data computing – Algorithmic foundations and analysis tools*, Sapienza
- 2012 *Asymptotic performance profiling*, Sapienza
- 2011 *From silent data corruptions to resilient algorithms: models, techniques, and algorithmic solutions*, Sapienza
- 2009 *Mobility and fault tolerance: methodologies and algorithmic solutions*, Sapienza

I have been investigator in the following PRIN national research projects supported by MIUR:

- 2010-2012 *ALGODEEP – Algorithmic challenges for data-intensive processing on emerging computing platforms* (PI: Andrea Pietracaprina)

2007-2009 MAINSTREAM – *Algorithms for massive information structures and data streams*. (PI: Giorgio Ausiello)

2004-2006 ALGONEXT – *Algorithms for the next generation Internet and Web: methodologies, design, and applications* (PI: Giuseppe F. Italiano)

In addition to the previously funded projects, a 1.1M project I have jointly submitted as co-PI with Università di Padova and Università di Roma Tre passed *both phases* of the selection of the MIUR call “Futuro in Ricerca (FIRB) 2012” devoted to under-40 researchers (none of the three shortlisted computer science and engineering projects could be eventually funded due to restrictions on the national research budget).

PART 6.H – EDITORIAL ACTIVITY

2016 **Guest editor** of a special issue of **Algorithmica** devoted to the best papers of ESA 2015 (with Nikhil Bansal).

2012 **Guest editor** of a special issue of **Networks** devoted to the algorithmic foundations of graphs and network algorithms (with Tiziana Calamoneri).

2011 **Guest editor** of a special issue of the **ACM Journal on Experimental Algorithmics** devoted to the best papers of ALENEX 2009 (with John Hershberger).

2015 **Co-editor** of the Proceedings of the 23rd Annual European Symposium on Algorithms.

2009 **Co-editor** of the Proceedings of the 11th SIAM Meeting on Algorithm Engineering & Experiments.

2006 **Co-editor** of the Proceedings of the 6th Italian Conference on Algorithms and Complexity, LNCS 3998.

PART 6.I – REVIEWING ACTIVITY

Reviewer for several journals among which: ACM Journal on Experimental Algorithmics, Algorithmica, ACM Transactions on Algorithms, Discrete Applied Mathematics, IEEE Transactions on Computers, IEEE Transactions on Visualization and Computer Graphics, IEEE Transactions on Parallel and Distributed Systems, Information Processing Letters, Journal of Discrete Algorithms, Journal of Information Technology, Journal of Interconnection Networks, Journal of Parallel and Distributed Computing, Journal of Visual Languages and Computing, Networks, Theoretical Computer Science, Theory of Computing Systems.

Continuously invited to serve as a referee for international conferences, symposia, and workshops among which: ALENEX (SIAM Workshop on Algorithm Engineering and Experiments), CIAC (Italian Conference on Algorithms and Complexity), ESA (Annual European Symposium on Algorithms), EUROPAR (European Conference on Parallel Computing), FOCS (IEEE Symposium on Foundations of Computer Science), GD (International Symposium on Graph Drawing), ICALP (International Colloquium on Automata, Languages and Programming), ICGT (International Conference on Graph Transformation), NGI (Traffic Engineering, Protection and Restoration for Next Generation Internet), PDCS (International Conference on Parallel and Distributed Computing and Systems), SEA (Symposium on Efficient and Experimental Algorithms), SODA (ACM-SIAM Symposium on Discrete Algorithms), SPAA (ACM Symposium on Parallel Algorithms and Architectures), STACS (International Symposium on Theoretical Aspects of Computer Science), STOC (ACM Symposium on Theory of Computing), SWAT (Scandinavian Workshop on Algorithm Theory), VL (IEEE Symposium on Visual/Multimedia Languages), VMPSE (IEEE Symposium on Visual/Multimedia Programming and Software Engineering), WADS (Workshop on Algorithms and Data Structures), WG (International Workshop on Graph-Theoretic Concepts in Computer Science).

PART 6.J – SOCIETY MEMBERSHIPS

Member of EATCS (European Association for Theoretical Computer Science) and of ACM (Association for Computing Machinery: ACM SIGPLAN – Special Interest Group on Programming Languages – and ACM SIGACT – Special Interest Group on Algorithms and Computation Theory).

PART 7 – TEACHING EXPERIENCE

PART 7.A – TEXTBOOKS

I am co-author of two books on algorithms and data structures (in Italian) published by *McGraw-Hill* and used as main textbooks in Computer Science and Computer Engineering degrees in many Italian universities and at the University of Pisa in the preparation of the International Olympiads in Informatics (IOI):

- 2008 C. Demetrescu, I. Finocchi, G. F. Italiano: “***Algoritmi e strutture dati – seconda edizione***” (Algorithms and data structures – 2nd edition), McGraw-Hill, 464 pages.
- 2007 C. Demetrescu, U. Ferraro Petrillo, I. Finocchi, G. F. Italiano: “***Progetto di algoritmi e strutture dati in Java***” (Design of algorithms and data structures in Java), McGraw-Hill, 433 pages.

PART 7.B – COURSES

Over the years, my teaching activities have spanned a variety of topics and different levels of the curriculum, ranging from informative talks in secondary schools to advanced PhD courses.

New courses. Within the Bachelor and Master of Science in Computer Science at Sapienza, I designed and developed three different courses on cutting-edge computer science topics:

- *Multicore systems programming* (BS, 3rd year, ~90 students): the course, started in 2015, focuses on design methods for multithreaded programming on modern multicore platforms. This increasingly more important topic (see, e.g., the ACM 2016 Curriculum in CS that inspired the course) was largely missing in the BS in Computer Science at Sapienza.
- *Big data computing* (MS, ~40 students): the course, started in 2014, leverages a hands-on approach to tackle fundamental programming issues posed by big-data computing applications. Sample topics include programming models behind MapReduce, Spark, and other big data systems, as well as techniques for mining on-the-fly rapidly changing streams of data.
- *Algorithm engineering* (MS, ~15 students): the course, which I taught from 2010 to 2013, covers fundamental techniques for designing software able to exploit technological aspects of modern computing platforms (e.g., memory hierarchies). Sample topics include processing of massive data sets stored in secondary memories and the design of cache-efficient software.

These courses are much appreciated by students, well-attended, and very positively evaluated w.r.t. the Degree Program and the School average.

Student evaluations. In A.Y. 2015/16, in the evaluation survey for the new *Multicore systems programming* course (the latest evaluations for *Big Data Computing* are not yet available):

- 69.7% of the students of answered “decisamente si” to question 6 (il docente stimola/motiva l’interesse verso la disciplina?), against a Degree Program and School average of 38.4% and 38.7%, respectively;
- 57.6% of the students answered “decisamente si” to question 7 (il docente espone gli argomenti in modo chiaro?), against a Degree Program and School average of 37.4% and 38.0%, respectively.

BS & MS. At the BS/MS levels, I have been teaching ten different courses, highlighted below in boldface:

2016/17	Sapienza	<i>Fondam. di Matematica e Statistica*</i>	BS, 1 st year
2016/17	Sapienza	<i>Big data computing</i>	MS
2016/17	Sapienza	<i>Multicore systems programming</i>	BS, 3 rd year
2015/16	Sapienza	<i>Big data computing</i>	MS
2015/16	Sapienza	<i>Multicore systems programming</i>	BS, 3 rd year

2014/15	Sapienza	<i>Introduction to algorithms</i>	BS, 1 st year
2014/15	Sapienza	<i>Big data computing</i>	MS
2013/14	Sapienza	<i>Introduction to algorithms</i>	BS, 1 st year
2013/14	Sapienza	<i>Big data computing</i>	MS
2012/13	Sapienza	<i>Introduction to algorithms</i>	BS, 1 st year
2012/13	Sapienza	<i>Algorithm engineering</i>	MS
2011/12	Sapienza	<i>Introduction to algorithms</i>	BS, 1 st year
2011/12	Sapienza	<i>Algorithm engineering</i>	MS
2010/11	Sapienza	<i>Introduction to algorithms</i>	BS, 1 st year
2010/11	Sapienza	<i>Algorithm engineering</i>	MS
2009/10	Sapienza	<i>Introduction to algorithms</i>	BS, 1 st year
2009/10	Sapienza	<i>Parallel and distributed computing</i>	MS
2008/09	Sapienza	<i>Introduction to algorithms</i>	BS, 1 st year
2008/09	Sapienza	<i>Algorithms I</i>	BS, 2 nd year
2007/08	Sapienza	<i>Network algorithms</i>	BS, 3 rd year
2007/08	Sapienza	<i>Algorithms I</i>	BS, 2 nd year
2006/07	Sapienza	<i>Network algorithms</i>	BS, 3 rd year
2005/06	Sapienza	<i>Network algorithms</i>	BS, 3 rd year
2004/05	Univ. of Rome “Tor Vergata”	<i>Computer science II</i>	BS, 2 nd year
2003/04	Univ. of Rome “Tor Vergata”	<i>Algorithms and data structures</i>	BS, 2 nd year
2003/04	Univ. of Rome “Tor Vergata”	<i>Computer science II</i>	BS, 2 nd year
2002/03	Univ. of Rome “Tor Vergata”	<i>Computer science II</i>	BS, 2 nd year

All courses at Sapienza refer to the BS and MS in Computer Science, except for * which I am teaching at Scienze Farmaceutiche Applicate. Big data computing and Multicore systems programming are also included in the curriculum of the MS in Communications Engineering.

Master and PhD. At the graduate level, I have been teaching the following courses and seminars:

2016–17	Sapienza	<i>Big data management & processing</i> <i>Master di II livello in</i> <i>Data Intelligence e Strategie Decisionali</i>	Master course
2016	Sapienza	<i>Parallel data processing in big data systems</i> <i>Great Ideas in ICT</i>	PhD seminar
2014	Sapienza	<i>Data stream algorithmics</i> <i>Great Ideas in ICT</i>	PhD seminar
2012	Univ. of Milano Bicocca	<i>Algorithms for data streams</i>	PhD course

High school. At the high school level, throughout the years I have been involved in the following activities:

2017	IOI	International Olympiad in Informatics (selezioni territoriali) trainer and local co-organizer
2017	<i>Fun with algorithms</i>	activity within the project “ <i>Alternanza Scuola Lavoro</i> ” co-designer and instructor
2014–16	<i>Quanto sei efficiente?</i>	Motivational talk for 4 th and 5 th year students, speaker

Teaching assistant. I have been teaching assistant in the following courses:

2006/07	Sapienza	<i>Computer programming II</i>	BS, 1 st year
2006/07	Sapienza	<i>Algorithms and data structures II</i>	BS, 2 nd year
2005/06	Sapienza	<i>Algorithms and data structures II</i>	BS, 2 nd year
2004/05	Sapienza	<i>Computer programming II</i>	BS, 1 st year

2004/05	Sapienza	<i>Algorithms and data structures II</i>	BS, 2 nd year
2001/02	Sapienza	<i>Algorithms and data structures I</i>	BS, 2 nd year
1999/00	Sapienza	<i>Advanced algorithms and data structures</i>	MS

PART 7.C – STUDENT MENTORING

I am/have been thesis advisor of 3 PhD students, about 20 MS students, and several undergraduates (both at Sapienza and previously at Tor Vergata) on topics related to the design and analysis of algorithms and to performance engineering. I have supervised 1 MS student and 2 BS students within the Excellence Program in Computer Science. I have been member of the thesis committee of 4 PhD students and supervisor of 2 postdocs.

PART 8 – INSTITUTIONAL RESPONSIBILITIES AND COMMISSIONS OF TRUST

The following selected services have been carried out at Sapienza University of Rome:

2016	Chair of the PhD Admission Committee, 32nd PhD Programme in Computer Science
2014 - today	Research Staff Member CIS – Center of Cyber Intelligence and Information Security, Sapienza
2011 - 2014	Delegate of Associate Professors in the Council of the School of Information Engineering, Computer Science, and Statistics (elected office, <i>Giunta di Facoltà I3S</i>)
2014	Member of the committee for the admission to the BS in Computer Science
2011 - 2013	Member of the I3S Web site Committee nominated by the Dean
2011	Chair of the PhD Admission Committee, 27th PhD Programme in Computer Science
2010 - today	Faculty member, School of Information Engineering, Informatics, and Statistics
2010 - 2013	Member of the Scientific Committee (<i>Commissione Dottorato</i>) of the PhD Programme in Computer Science
2010	IBM award committee chair for assigning three graduation prizes in computer science
2009 - 2012	Publicity chair for the Department of Computer Science
2009	EATCS award committee member for selecting the best Italian PhD Thesis in theoretical computer science
2007	Member of the PhD Admission Committee, 23rd PhD Programme in Computer Science
2005 - 2010	Faculty member, School of Mathematics, Physics, and Natural Sciences

PART 9 – SOFTWARE

I have been instrumental in the development of some open-source software systems. Most notably:

A <code>PROF</code>	https://github.com/ercoppa/aprof/wiki
2012 - now	A Valgrind tool for performance profiling, designed to help developers discover hidden asymptotic performance bottlenecks in their code. From a single run of a program, <code>aprof</code> measures how the performance of individual routines scales as a function of the input size, yielding clues to its growth rate and to the “big-O” of the program.
CLIQUECOUNTER	https://github.com/CliqueCounter/QkCount

2014 - now	Exact and sampling-based approximation algorithms to compute the number of cliques of a fixed size in a large undirected graph. Clique counting is an important task in social network analysis and is computationally very demanding even for moderate clique sizes. The package is implemented on top of Apache™ Hadoop 2.2.0.
κ-BLPP	https://zenodo.org/record/9744
2013 - now	A novel multi-iteration Ball-Larus path profiler. <i>k</i> -BLPP allows the analysis of all the control flow paths obtained by concatenating up to <i>k</i> Ball-Larus acyclic paths, where <i>k</i> is a user-defined parameter. It can reveal optimization opportunities that standard acyclic profilers would miss. The software has been endorsed by the OOPSLA 2013 Artifact Evaluation Committee.
LEONARDO	http://www.dis.uniroma1.it/%7Edemetres/Leonardo/
1999 - 2002	A C programming environment for reversible execution and software visualization. C programs can be animated by embedding in the source code special annotations written in a declarative programming language. Leonardo has been widely distributed in software magazines and used both in academia and by professional developers. For users' comments, we refer to the Users & Feedback section of the project web site.

PART 10 – PUBLICATIONS

INTERNATIONAL JOURNALS

1. S. Caminiti, I. Finocchi, E. G. Fusco, F. Silvestri. “Resilient dynamic programming”. **Algorithmica**, vol. 77(2), pp. 389–425, 2017.
2. D. C. D’Elia, C. Demetrescu, I. Finocchi. “Mining hot calling contexts in small space”. **Software Practice and Experience**, vol. 46(8), pp. 1131–1152, 2016.
3. C. Demetrescu, I. Finocchi, A. Ribichini. “Reactive imperative programming with dataflow constraints”. **ACM Transactions on Programming Languages and Systems (ACM TOPLAS)**, vol. 37(1), pp. 1–53, 2015.
4. I. Finocchi, M. Finocchi, E. G. Fusco. “Clique counting in MapReduce: algorithms and experiments”. **ACM Journal on Experimental Algorithmics (ACM JEA)**, vol. 20, article 1.7, pp. 1–20, 2015.
5. E. Coppa, C. Demetrescu, I. Finocchi. “Input-sensitive profiling”. **IEEE Transactions on Software Engineering (IEEE TSE)**, vol. 40(12), pp. 1185–1205, 2014.
6. I. Finocchi, F. Grandoni, G. F. Italiano. “Resilient dictionaries”. **ACM Transactions on Algorithms (ACM TALG)**, vol. 6, pp. 1–19, 2009.
7. C. Demetrescu, I. Finocchi, A. Ribichini. “Trading Off Space for Passes in Graph Streaming Problems”. **ACM Transactions on Algorithms (ACM TALG)**, vol. 6, pp. 1–17, 2009.
8. U. Ferraro Petrillo, I. Finocchi, G. F. Italiano. “The Price of Resiliency: A Case Study on Sorting with Memory Faults”. **Algorithmica**, vol. 53, pp. 597–620, 2009. *Special issue devoted to the best papers of ESA 2006*.
9. I. Finocchi, F. Grandoni, G.F. Italiano. “Optimal Resilient Sorting and Searching in the Presence of Memory Faults”. **Theoretical Computer Science**, vol. 410, pp. 4457–4470, 2009. *Special issue devoted to the best papers of ICALP 2006*.
10. I. Finocchi, G. F. Italiano. “Sorting and Searching in Faulty Memories”. **Algorithmica**, vol. 52, pp. 309–332, 2008.

11. S. Caminiti, I. Finocchi, R. Petreschi. “On Coding Labeled Trees”. **Theoretical Computer Science**, vol. 382, pp. 97–108, 2007. *Special issue devoted to the best papers of LATIN 2004*.
12. I. Finocchi, F. Grandoni, G.F. Italiano. “Designing reliable algorithms in unreliable memories”. **Computer Science Review**, vol. 1(2), pp. 77–87, 2007.
13. S. Das, I. Finocchi, R. Petreschi. “Conflict-Free Star-Access in Parallel Memory Systems”, **Journal of Parallel and Distributed Computing**, vol. 66(11), pp.1431–1441, 2006.
14. I. Finocchi. “Crossing-constrained Hierarchical Drawings”, **Journal of Discrete Algorithms**, vol. 4(2), pp.299–312, 2006.
15. I. Finocchi, R. Petreschi. “Structure-preserving Hierarchical Decompositions”. **Theory of Computing Systems**, vol. 38(6), pp.687–700, 2005.
16. I. Finocchi, A. Panconesi, R. Silvestri. “An Experimental Analysis of Simple, Distributed Vertex Coloring Algorithms”. **Algorithmica**, vol. 41(1), pp.1–23, 2004.
17. V. Bonifaci, C. Demetrescu, I. Finocchi, L. Laura. “A Java-based System for Building Animated Presentations over the Web”. **Science of Computer Programming**, *special issue on “Practice and experience with Java in education”*, vol. 53(1), pp.37–49, 2004.
18. I. Finocchi, R. Petreschi. “Divider-based Algorithms for Hierarchical Tree Partitioning”. **Discrete Applied Mathematics**, vol. 136(2–3), pp.227–247, 2004.
19. C. Demetrescu, I. Finocchi, G. F. Italiano. “Algorithm Engineering”. **Bulletin of the EATCS – Algorithmics column**, **invited paper**, vol. 79, pp.48–63, 2003.
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