

Ornela Dardha

Curriculum Vitae

University of Glasgow
School of Computing Science
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Research Interests

My research interests include programming languages, concurrency theory, verification techniques, formal models, and static analysis, in particular types and type systems. My current research focuses on the design and implementation of software tools with direct support for session types as well as the integration of session types into mainstream programming languages, such as Java and Scala, to model communication protocols, provide feedback on protocol violation and guide programmers in the development of software for distributed applications.

Employment History

Jan 2014 – **Postdoctoral Researcher**, *School of Computing Science, University of Glasgow*, Glasgow, UK.
Present Research Associate (Grade 7) August 2015 – Present.
Research Assistant (Grade 6) January 2014 – August 2015.

Within the EPSRC programme grant *From Data Types to Session Types: A Basis for Concurrency and Distribution, ABCD* (EP/K034413/1), I work with Prof. Simon J. Gay and other members of the project to further research on session types, and design and implement software tools with direct support of session types for the verification of communication safety in distributed computing systems.

My expertise lies on bringing formal models and verification techniques to mainstream programming languages such as Java and Scala.

Within the School of Computing Science (SoCS), I am a member of Formal Analysis, Theory and Algorithms (FATA) research section and Athena SWAN Self-Assessment Team (SAT).

Academic Qualifications

- 2011 – **PhD in Computer Science**, *University of Bologna*, Bologna, Italy.
 - 2013 Thesis: *Type Systems for Distributed Programs: Components and Sessions*. Defence date: 19 May 2014.
Supervisor: Davide Sangiorgi. External reviewers: Illaria Castellani and Vasco T. Vasconcelos.
Scholarship: University of Bologna for 3 years.
- 2008 – **MSc (Laurea specialistica) in Computer Science**, *Sapienza University of Rome*, Rome, Italy.
 - 2010 Grade: 110/110 *summa cum laude*. Thesis: *Semantic Subtyping for Object-Oriented Languages*. (In Italian)
Supervisor: Daniele Gorla. Scholarship: Sapienza University of Rome for 2 years.
- 2004 – **BSc (Laurea triennale) in Computer Science**, *Sapienza University of Rome*, Rome, Italy.
 - 2007 Grade: 110/110 *summa cum laude*. Thesis: *A New Type System for Information Flow*. (In Italian)
Supervisor: Pietro Cenciarelli. Scholarship: Sapienza University of Rome for 4 years.

Academic Prizes

- 2015 **Best Italian PhD Thesis in Theoretical Computer Science**, Italy.
Winner of the prize for the *Best Italian PhD in TCS 2015* (one recipient). The prize was awarded by the Italian Chapter of the European Association of Theoretical Computer Science (EATCS).
As part of the prize, my PhD thesis was published as a book by Atlantis Press / Springer in July 2016.
<http://www.eatcs.org/index.php/italian-chapter-awards>
- 2008 **Undergraduate Prize (1,000€)**, *Sapienza University of Rome*, Rome, Italy.
Winner of the Undergraduate Prize (Premio di Laurea Triennale) awarded by Laziodisu Sapienza University of Rome for my academic merits and graduation with honours.

Scholarships and Funding

- Jan – Mar, 2016 **Postdoctoral and Early Career Researcher Exchange bursary (£7,500)**, *SICSA*, Scotland, UK.
Offered by the Scottish Informatics & Computer Science Alliance (SICSA); provides support for scientific visits in other institutions. I secured the bursary to cover my visit to Imperial College, London.
- Nov 2012 – May 2013 **Marco Polo Scholarship (6,900€)**, *University of Bologna*, Bologna, Italy.
Offered by the University of Bologna; provides support for PhD students to visit other institutions. I secured the scholarship to cover my visit at the IT University of Copenhagen.
- Jan 2011 – Dec 2013 **PhD Scholarship (52,605€)**, *University of Bologna*, Bologna, Italy.
Offered by the University of Bologna. I secured the scholarship to cover my three years of PhD program.
- 2007 – 2010 **CS Labs Scholarship (3,285€)**, *Sapienza University of Rome*, Rome, Italy.
Offered by Sapienza University of Rome based on academic merits ranking. I secured the scholarship and I was part of the students support staff in the Computer Science Department Laboratories.
- 2004 – 2010 **University Scholarship (25,200€)**, *Sapienza University of Rome*, Rome, Italy.
Offered by Sapienza University of Rome. Provides accommodation and financial support of 4,200€/year during BSc and MSc programs. I was awarded the scholarship based on academic merits and GPA.

Teaching and Related Administration

- Nov 2016 **Programming Languages 3**, *School of Computing Science, University of Glasgow*, Glasgow, UK.
Two lectures and lab tutoring at Programming Languages 3 led by Simon J. Gay. I used the already existing material of the course for the lectures. I supervised students projects during the lab tutoring.
- Jun 27 – Introduction to Session Types, *BETTY Summer School 2016*, Limassol, Cyprus.
- Jul 1, 2016 **Invited lecturer** at the 2nd BETTY Summer School, organised by COST Action IC1201: Behavioural Types for Reliable Large-Scale Software Systems (BETTY).
I gave three lectures and exercises on session types. I designed and prepared the material for the course. <http://summerschool2016.behavioural-types.eu>
- Aug 3 – 5, 2015 **Session Types**, *Practical Types 2015, University of St. Andrews*, St. Andrews, UK.
Invited lecturer at the SICSA Summer School on Practical Types 2015, organised by the Scottish Informatics & Computer Science Alliance (SICSA) and the University of St. Andrews.
I gave two lectures and exercises on session types. I designed and prepared the material for the course. <https://eb.host.cs.st-andrews.ac.uk/PracticalTypes/>
- Oct 2014 **Research Reading**, *School of Computing Science, University of Glasgow*, Glasgow, UK.
One lecture at the Research Reading course during the week of Programming Languages. The lecture was based on two research papers. I designed and prepared the lecture for one of the two papers. The second paper was presented by a student. I led discussions and assessed the student.
- Oct 2014 – Present **PhD Student Supervision**, I am assisting my PI Simon J. Gay with supervision of **two** PhD students part of the ABCD project.
- Feb 2017 – Present **PhD Student Mentoring**, I am a mentor of **one** PhD student supervised by Alice Miller, member of FATA. I have regular meeting with the student and provide pastoral support.

Involvement in Research Projects

- Jan 2014 – Present **UK EPSRC project: ABCD**, *School of Computing Science, University of Glasgow*, Glasgow, UK.
Member of the UK EPSRC programme grant *From Data Types to Session Types: A Basis for Concurrency and Distribution* (ABCD) (EP/K034413/1).
This is a joint project among the University of Glasgow, University of Edinburgh, Imperial College, London and several industrial partners. <http://groups.inf.ed.ac.uk/abcd/>
- Oct 2012 – Oct 2016 **BETTY**, *European COST Action*.
Member of the European COST Action on *Behavioural Types for Reliable Large-Scale Software Systems* (BETTY). <http://www.behavioural-types.eu>
- Jan 2011 – Dec 2013 **FOCUS Research Team**, *University of Bologna*, Bologna, Italy.
Member of *FOundations of Component-based Ubiquitous Systems* (FOCUS), the first joint research team between INRIA, France and University of Bologna, led by Davide Sangiorgi.
<http://focus.cs.unibo.it/bin/view>

Scientific Visiting Periods

- Jan – Mar, **Imperial College**, London, UK.
2016 Visited Imperial College to work with Nobuko Yoshida, and her postdocs Alceste Scalas and Raymond Hu. We worked on theory and implementation of multiparty session types in Scala.
- Nov 2012 – **IT University of Copenhagen**, Copenhagen, Denmark.
Nov 2013 PhD visit abroad at the IT University of Copenhagen to work with Marco Carbone and Fabrizio Montesi on session types and liveness properties, like progress and (dead)lock freedom.

Esteem Indicators

Professional Services

PC Membership.

- SICSA PhD Conference, Poster Session 2017
- ICE 2017
- EXPRESS/SOS 2016
- SICSA PhD Conference, Poster Session 2016
- ICE 2016
- MSFP 2016
- ICE 2015
- PLACES 2015
- ICE 2013

Paper Reviewing.

- BETTY Book – Behavioural Types: From Theory to Tools
- LMCS
- SOCA
- Information and Computation
- Haskell 2017
- SICSA PhD Posters 2017
- FSEN 2017
- ESOP 2017
- SICSA PhD Posters 2016
- EXPRESS/SOS 2016
- ICE 2016
- MSFP 2016
- ICTAC 2015
- ICTCS 2015
- PLACES 2015
- ICE 2015
- PPDP 2014
- COORDINATION 2014
- FOSSACS 2014
- RTA/TLCA 2014
- ICE 2013
- CONCUR 2013

Prestigious Participation

- Aug 23 – **Heidelberg Laureate Forum**, Heidelberg, Germany.
28, 2015 Selected to attend the 3rd Heidelberg Laureate Forum, involving laureates of ACM A.M Turing Award, Abel Prize, Fields Medal and Nevanlinna Prize. <http://www.heidelberg-laureate-forum.org>.

University Administration

- Jan 2017 – **Athena SWAN SAT**, *School of Computing Science, University of Glasgow*, Glasgow, UK.
Present RAs representative and member of Athena Swan Self-Assessment Team (SAT). I am responsible for data collection for SoCS for the advancement to Silver Award and mentoring scheme to support PGR students.

Events Organisation

- Jun 18, 2014 **Scottish Programming Languages Seminar**, *Glasgow, Scotland*, UK.
Co-organiser and attendee of the summer meeting of SPLS. <http://www.dcs.gla.ac.uk/research/spls/>
- May 8, 2014 **Communication-based Computation**, *Loch Lomond*, Scotland, UK.
Co-organiser and attendee of the first CoCo meeting in Scotland. <http://www.dcs.gla.ac.uk/coco/>
- 2014 – **Other Events Organised**, *School of Computing Science, University of Glasgow*, Glasgow, UK.
Present Co-organiser of two ABCD general meetings and organiser of several ABCD Scotland meetings in Glasgow. Organiser of Invited talks at FATA by: Marco Gaboardi, Massimo Bartoletti, Alceste Scalas, Jorge A. Pérez.

Invited Talks and Seminars

- Jul 4, 2017 **Session Types Revisited**, *University of St. Andrews*, St. Andrews, UK.
Invited speaker. Talk on encoding of session types and latest developments.
- Jun 26-29, 2017 **A Linear Decomposition of Multiparty Sessions for Safe Distributed Programming**, *OPCT17*, Vienna, Austria.
Invited participant and speaker at the Workshop on Open Problems in Concurrency Theory (OPCT17). Participation by invitation only; limited number of participants.

- Apr 4, **On the Encoding of Session Types and Beyond**, *LFCS*, Edinburgh, UK.
 2017 Invited speaker at the Laboratory for Foundations of Computer Science (LFCS).
 Talk on encoding of session types and latest applications and implementations.
- Sep 9 – 11, **Type Systems for Distributed Programs: Components and Sessions**, *ICTCS15*, Florence, Italy.
 2015 Invited speaker at the 16th Italian Conference of Theoretical Computer Science (ICTCS15).
 Talk on my PhD thesis and award ceremony for the prize of the Best Italian PhD thesis in TCS 2015.
- Sep 8, **Session Types Revisited**, *IT University of Copenhagen*, Copenhagen, Denmark.
 2012 Invited speaker at IT University of Copenhagen.
- Feb 2 – 3, **An Interpretation of Session Types**, *CoTiCo*, Lucca, Italy.
 2012 Invited speaker at the 1st Workshop on Contracts and Behavioural Types (CoTiCo).
https://cse.lab.imtlucca.it/mediawiki/index.php/CoTiCo_2012
- Sep 10, **Semantic Subtyping for Object-Oriented Languages**, *University of Bologna*, Bologna, Italy.
 2010 Invited speaker at the Computer Science Department of University of Bologna.
 Presented my MSc thesis titled *Semantic Subtyping for Object-Oriented Languages*.

Schools and Events

- Jun 30 – **1st International Summer School on Behavioural Types (BETTY)**, Lovran, Croatia.
 Jul 4, 2014 <http://summerschool2014.behavioural-types.eu>.
- Sep 24 – **1st International Summer School on Formal Models for Components and Objects (HATS-FMOC)**, Bertinoro, Italy, <http://www.cs.unibo.it/hats-fmoc/>.
 28, 2012
- Apr 15 – **Milner Symposium**, *LFCS*, Edinburgh, UK.
 18, 2012 <http://events.inf.ed.ac.uk/Milner2012/index.html>.
- Jun 16 – **Oregon Programming Languages Summer School: Types, Semantics and Verification (OPLSS)**, Eugene, Oregon, USA, <http://www.cs.uoregon.edu/Activities/summerschool/summer11/>.
 Jul 1, 2011
- May 31, **Programming Languages Day**, *INRIA Sophia Antipolis – Méditerranée*, Sophia-Antipolis, France.
 2011 <https://raweb.inria.fr/rapportsactivite/RA2011/focus/uid48.html>
- Mar 7 – 18, **BICI Bertinoro international Spring School (BiSS)**, Bertinoro, Italy.
 2011 <http://www.bici.eu/biss2011/>.
- Jun 27 – **BICI School on Security of Wireless Networking (SWing)**, Bertinoro, Italy.
 Jul 2, 2010 <http://swing10.di.uniroma1.it/>.

Professional Development Workshops

- Mar 6 – 7, **EPSRC ICT Theme Early Career Workshop**, Cardiff, UK.
 2017 Selected to attend. Update on EPSRC and ICT Theme strategies and policies; guidance grant applications.
- Apr 14 & **Balancing A Busy Workload**, *University of Glasgow*, Glasgow, UK.
 May 12, The course explored a range of tools and options to help researchers improve efficiency and effectiveness in carrying out a range of responsibilities.
 2016
- Mar 19, **Making Presentations At Conferences**, *University of Glasgow*, Glasgow, UK.
 2015 Effectively prepare and make presentations to a professional audience at conferences.
- Nov 20, **Impact Statements In Grant Applications**, *University of Glasgow*, Glasgow, UK.
 2014 The course provided information on myths and realities of impact in grant applications.
- Oct 10, **Research Integrity**, *University of Glasgow*, Glasgow, UK.
 2014 The workshop covered the principles of good and ethical practice in research and its publication.

Language Skills

- Albanian – Native
- Italian – Fluent
- English – Fluent
- French – Intermediate