MARCO GIUNTI

Department of Computer Science ◇ 7 Parks Rd, Oxford OX1 3QG

marco.giunti@cs.ox.ac.uk ◇ http://ctp.di.fct.unl.pt/~mgiunti/

https://orcid.org/0000-0002-7582-0308

EDUCATION

PhD in Informatics — June 2007
Ca' Foscari University — *Venice, Italy*

· "Secure implementations of typed channel abstractions"

MSc (Laurea) in Informatics — July 2002
Ca' Foscari University — *Venice, Italy*

· 110/110

AFFILIATION

University of Oxford — January 2024 - Present
Research Associate — *Oxford, UK*

· Multiparty session types

Teesside University — February 2023 - September 2023
Research Associate — *Middlesbrough, UK*

· Language-based security

University of Beira Interior — March 2022 - January 2023
Research Associate — *Covilhã, Portugal*

· Formalisation of consensus algorithms

NOVA School of Science and Technology — March 2019 - February 2022
Research Associate — *Caparica, Portugal*

· Distributed concurrency control, Coq

University of Beira Interior — October 2018 - February 2019
Research Associate — *Covilhã, Portugal*

· Why3, CPS monad transformers

University of Lisbon — September 2016 - August 2018
Lecturer — *Lisbon, Portugal*

· Programming 1
· Programming 2
· Object-Oriented Programming
· Laboratory of Programming
· Theory of Computation

University of Beira Interior — September 2014 - August 2016
Lecturer — *Covilhã, Portugal*

· Programming 1

- Programming 2
- Computational Logic
- Theory of Computation

Autonomous University of Lisbon   September 2015 - August 2016
Lecturer   *Lisbon, Portugal*

- Object-Oriented Programming
- Paradigms of Programming

University of Porto   March 2014 - August 2014
Research Associate   *Porto, Portugal*

- Formalisation of sensor networks

NOVA School of Science and Technology   August 2012 - February 2014
Research Associate   *Caparica, Portugal*

- Behavioural type systems

Ècole Polytechnique   February 2011 - January 2012
Research Associate   *Palaiseau, France*

- Language-based security

IUAV University   April 2009 - September 2010
Research Associate   *Venice, Italy*

- Formalisation of geospatial web services

University of Lisbon   April 2008 - March 2009
Research Associate   *Lisbon, Portugal*

- Session types

RESEARCH OUTPUTS

ECOOP 2024   September 2024
Behavioral up/down casting for statically typed languages   *Vienna, Austria*

- Co-authored by Lorenzo Bacchiani, Mario Bravetti, João Mota and António Ravara

OOPSLA 2023   October 2023
AtomiS: Data-centric synchronization made practical   *Lisbon, Portugal*

- Co-authored by Jan Cederquist, Ana Matos, João Matos, Hervé Paulino, and António Ravara

ECOOP 2023   July 2023
On using VeriFast, VerCors, Plural, and KeY to check object usage   *Seattle, WA*

- Co-authored by João Mota and António Ravara

SAC 2023   March 2023
Anticipation of Method Execution in Mixed Consistency Systems   *Tallinn, Estonia*

- Co-authored by Hervé Paulino and António Ravara

Science of Computer Programming   2022 (221: 102844)
A Java typestate checker supporting inheritance

· Co-authored by Lorenzo Bacchiani, Mario Bravetti, João Mota and António Ravara

Coordination 2021   June 2021
Java typestate checker   *Malta*

· Co-authored by João Mota and António Ravara

Coordination 2020   June 2020
GoPi: Compiling Linear and Static Channels in Go   *Malta*

· `https://sites.fct.unl.pt/gopi/`

Mathematical Structures in Computer Science   2016 (26(2): 206-237)
Linearity, session types and the Pi calculus

· Co-authored by Vasco Vasconcelos

Automated Specification and Verification of Web Systems 2015   June 2015
Unlocking Blocked Communicating Processes   *Oslo, Norway*

· Co-authored by Adrian Francalanza and António Ravara

Secure IT Systems - 19th Nordic Conference   October 2014
Static Semantics of Secret Channel Abstractions   *Tromso, Norway*

· `https://link.springer.com/book/10.1007/978-3-319-11599-3`

The Journal of Logic and Algebraic Programming   2013 (82(8): 263-281)
Algorithmic type checking for a pi-calculus with name matching and session types

· `https://doi.org/10.1016/j.jlap.2013.05.003`

Trustworthy Global Computing - 8th International Symposium   August 2013
Towards Static Deadlock Resolution in the pi-calculus   *Buenos Aires, Argentina*

· Co-authored by António Ravara

EXPRESS/SOS 2012   September 2012
Hide and New in the Pi-Calculus   *Newcastle upon Tyne, UK*

· Co-authored by Catuscia Palamidessi and Frank D. Valencia

Automated Specification and Verification of Web Systems 2011   June 2011
A type checking algorithm for qualified session types   *Reykjavik, Iceland*

· `https://arxiv.org/abs/1108.2360v1`

CONCUR 2010   August 2010
A Linear Account of Session Types in the Pi Calculus   *Paris, France*

· Co-authored by Vasco Vasconcelos

POPL 2007   January 2007
Secure implementations of typed channel abstractions   *Nice, France*

· Co-authored by Michele Bugliesi

Trustworthy Global Computing - International Symposium   April 2005
Typed Processes in Untyped Contexts   *Edinburgh, UK*

· Co-authored by Michele Bugliesi

Online Resources
Papers in informal proceedings, technical reports, and software repositories

- *Type qualifier inference and code synthesis for a better data-centric synchronisation experience*: 16th Interaction and Concurrency Experience (*ICE 2023*), Oral communication, `http://www.discotec.org/2023/ice.html`. Co-authored by Jan Cederquist, Ana Matos, João Matos, Hervé Paulino, and António Ravara

- *Sound Atomicity Inference for Data-Centric Synchronization*: `https://arxiv.org/abs/2309.05483`. Co-authored by Jan Cederquist, Ana Matos, João Matos, Hervé Paulino, and António Ravara

- *On using VeriFast, VerCors, Plural, and KeY to check object usage*: `https://arxiv.org/abs/2209.05136`. Co-authored by João Mota and António Ravara

- *Anticipation of Method Execution in Mixed Consistency Systems – Technical Report*: `https://arxiv.org/abs/2212.14651`. Co-authored by Hervé Paulino and António Ravara

- *AtomiS-Coq : soundness of inference of atomicities*: `https://zenodo.org/records/6346649`, `https://zenodo.org/record/6382015`. Co-authored by Jan Cederquist, Ana Matos, João Matos, Hervé Paulino, and António Ravara

- *The GoPi compiler*: `https://github.com/marcogiunti/gopi`

- *A mechanized proof of correctness of the Horn algorithm*: `https://release.di.ubi.pt/factor/pdfs/A_mechanized_proof_of_correctness_of_the_Horn_algorithm.pdf`

- *Rewinding functions through CPS*: `https://release.di.ubi.pt/factor/pdfs/rewind_exp_report.pdf`

- *Pointing to Private Names*: 12th Int. Workshop on Developments in Computational Models (*DCM 2018*), `https://easychair.org/publications/preprint/v3VM`. Co-authored by Adrian Francalanza and António Ravara

- *Type safety without subject reduction for session types*: `http://di.ciencias.ulisboa.pt/~vv/papers/vasconcelos.giunti.etal_type-safety-session-types.pdf`. Co-authored by Kohei Honda, Vasco Vasconcelos and Nobuko Yoshida

- *Session-based type discipline for pi calculus with matching*: Programming Language Approaches to Concurrency and Communication-cEntric Software ((*PLACES 2009*), `http://ctp.di.fct.unl.pt/~mgiunti/slides-places09.pdf`. Co-authored by Kohei Honda, Vasco Vasconcelos and Nobuko Yoshida

- *Preventing intrusions through non-interference*: IEEE Mexican Conference on Informatics Security (*MCIS* 2006), `http://ctp.di.fct.unl.pt/~mgiunti/giunti-preventing_intrusions.pdf`.

SUPERVISION

João Mota, PhD Candidate   September 2021 - Present
Co-Supervisor   *NOVA School of Science and Technology, Portugal*

- Coping with shared mutable state in a type-state oriented concurrent language

Leonardo Mendes dos Santos, MSc Candidate   March 2024 - Present
Co-Supervisor   *University of Beira Interior, Portugal*

- A DSL for rapid prototyping of consensus algorithms – Theory

Francisco Conceicão Santos, MSc Candidate   March 2024 - Present
Co-Supervisor   *University of Beira Interior, Portugal*

- A DSL for rapid prototyping of consensus algorithms – Implementation

João Mota, MSc   September 2019 - March 2021
Co-Supervisor   *NOVA School of Science and Technology, Portugal*

· Coping with the reality: adding crucial features to a typestate-oriented language

Miguel Alves, MSc January 2020- March 2021
Co-Supervisor *NOVA School of Science and Technology, Portugal*

· Consensus Protocols Environments and Specifications

PROJECTS

POST: Protocols, Observabilities and Session Types January 2024 - Present
Participant *EPSRC, UK*

· EP/T006544/2

Smart Types and Smart Virtual Machines for Validated Smart Contracts March 2023 - Present
Co-Principal Investigator *FCT, Portugal*

· FCT 2022.09138.PTDC

European Research Network on Formal Proofs October 2021 – Present
Participant *EU COST*

· `https://europroofnet.github.io/`

Rapid prototyping, reasoning and simulation of consensus protocols and algorithms July 2020 - Present
Participant *CoEnzyme, France*

· Project supported by private company

Quantified Information Flow Control in Cloud Computing Systems February 2023 - September 2023
Participant *DASA, UK*

· ACC2028868

Behavioural Application Program Interfaces March 2018 – December 2023
Participant *EU RISE*

· `https://www.um.edu.mt/projects/behapi/`

PROSE (Provers for Sessions) April 2019 – March 2020
Participant *INRIA, France*

· `https://raweb.inria.fr/rapportsactivite/RA2019/stamp/uid65.html`

Distributed Data-Centric Concurrency Control March 2019 - February 2022
Participant *FCT, Portugal*

· PTDC/CCI-COM/32166/2017

Functional Approach Teaching Portuguese Courses October 2018 - February 2019
Participant *Tezos Foundation, France*

· `https://release.di.ubi.pt/factor/index.html`

European research network on types for programming and verification March 2016 – February 2020
Participant *EU COST*

· `https://eutypes.cs.ru.nl/`

Languages And Tools for Critical rEal-time Systems March 2014 - September 2014
Participant *FCT, Portugal*

· NORTE-07-0124-FEDER-000062

Behavioural Types for Reliable Large-Scale Software Systems   October 2012 – January 2016
Participant   *EU COST*

· `http://www.dcs.gla.ac.uk/research/betty/www.behavioural-types.eu/`

Liveness, statically: Behavioural Types for Statically Checking Liveness Properties August 2012- February 2014
Participant   *FCT, Portugal*

· PTDC/EIA-CCO/117513/2010

Software Engineering for Service-Oriented Overlay Computers   March 2008 – February 2009
Participant   *EU IST*

· `http://www.sensoria-ist.eu/`

Models and Types for Security in Mobile Distributed Systems   January 2005 - July 2007
Participant   *EU IST*

· `https://www.dsi.unive.it/myths/`

EVENT ORGANISATION

40th ACM/SIGAPP Symposium On Applied Computing   April 2025
Co-Chair (Programming Languages Track)   *Catania, Italy*

· `https://www.sigapp.org/sac/sac2025/`

39th ACM/SIGAPP Symposium On Applied Computing   April 2024
Co-Chair (Programming Languages Track)   *Avila, Spain*

· `https://www.sigapp.org/sac/sac2024/file2024/TOC-Feb19.pdf`

ASSOCIATION MEMBER

ACM, Special Interest Group on Applied Computing (*SIGAPP*),   June 2023 - Present

· `https://www.acm.org/special-interest-groups/sigs/sigapp`

DISTINCTIONS

3rd Place – INNCYBER INNOVATION HUB Call for Projects   October 2023
Java typestate checker   *Lisbon, Portugal*

· Co-awarded to Lorenzo Bacchiani, Mario Bravetti, João Mota and António Ravara

Marie Curie ESR Fellowship Grant   January 2011
Secrecy and the pi calculus   *École Polytechnique & INRIA, France*

· Awarded by ERCIM

PhD Grant   November 2004
Secure implementations of typed channel abstractions   *Ca' Foscari University, Italy*

· Awarded by Ministry of University and Research