Curriculum Vitae of Emilio Tuosto

July 22, 2024

Contents

1 Personal information

- Full Name: Emilio Tuosto
- Birth: 28th of December 1970, Lioni (Avellino - Italy)
- Nationality: Italian
- Office phone: +39 0862 428 0312
- Email: emilio.tuosto **AT** gssi.it (replace 'AT' with '@')
- Homepage: https://cs.gssi.it/emilio.tuosto
- ORCID: 0000-0002-7032-3281

2 Education

- 2003 (May 5) PhD degree in computer science awarded by the Dipartimento di Informatica dell'Università di Pisa. Title of the thesis *Non-Functional Aspects of Wide Area Network Programming*. PhD advisor Prof. G. Ferrari.
- 1998 (July 17) MSc degree (Laurea in Scienze dell'informazione) in Science dell'informazione (Computer Science) awarded by Università di Pisa. Title of the thesis *Semantica e Pragmatica di un Linguaggio di Coordinamento di Attività su Reti*. Supervisors Prof. R. De Nicola and Prof. G. Ferrari.

3 Previous appointments

3.1 Academic appointments

- 2013-2020 associate professor at the School of Informatics, University of Leicester (part time from April 2019 to October 2020)
- 2005-2013 lecturer at the School of Informatics, University of Leicester
- 15/05/2005-31/08/2005 Research associate at the Dipartimento di Informatica, Università di Pisa
- 06/11/2002-30/04/2005 Research associate at the Dipartimento di Informatica, Università di Pisa under the EC FET Global Computing PROFUNDIS (IST-2001-33100) (Proofs of Functionality for Mobile Distributed Systems)
- 18/04/2002-24/05/2002 Teaching assistant at the Dipartimento di Matematica, Università di Pisa
- 01/10/2001-18/12/2001 Teaching assistant at the Dipartimento di Informatica, Università di Pisa
- 20/01/2000-20/02/2000 Teaching assistant at the Dipartimento di Informatica, Università di Pisa

3.2 Non-academic appointments

- 01/02/2003-25/05/2003 Consultant for Agenzia per la Formazione professionale "Comunicare" (Pisa)
- 19/02/2001-23/03/2001 Teacher at Istituto Tecnico Commerciale "F. Marchi" (Pescia)
- 25/06/2001-27/06/2001 Instructor at Telecom Italia (L'Aquila)
- 16/10/2000-20/10/2000 Instructor at DS-NET (Bologna), on behalf of Synapsis (Livorno)
- 10/10/1998-19/12/1998 Consultant for DLR Oberpfaffenhofen (Munich), on behalf of Intecs Sistemi (Pisa)

4 Summary

Emilio is a full professor in computer science at the Gran Sasso Science Institute (GSSI) in L'Aquila (Italy) since May 1, 2024. He got his PhD degree in computer science in 2003 from the University of Pisa. In 2005, after a post-doc at the Dipartimento di Informatica of the University of Pisa (funded by the EC FET Global Computing project IST-2001-33100 "PROFUNDIS: Proofs of Functionality for Mobile Distributed Systems"), Emilio joined the School of Informatics of the University of Leicester in UK as lecturer, where he became associate professor in April 2013. At Leicester, Emilio lead the research team on "Behavioural specification" from 2009 to 2020 (part-time from 2019). Emilio moved to GSSI in April 2019.

Emilio authored more than 100 publications published on international scientific journals and peer-reviewed conference proceedings with more than 90 co-authors (his h-index is 20 on Scopus and on 27 Google Scholar). Emilio served as member of the programme committees of several international conferences and workshops, he is member of the scientific board and editor for special issues of the Journal of Logical and Algebraic Methods in Programming (IF 0.7), and he has been guest editor for LMCS and SOCA and he has edited 8 between international conference and workshop proceedings.

Emilio's scientific interests are in formal models for the specification, analysis, and implementation of concurrent and distributed systems; in this area he develops and apply approaches based on (behavioural) type systems, automata, and logic.
At GSSI Emilio is currently site leader of the PRIN project DeLICE and of the MSCA RISE project BheAPI. From January 2023 toJuly 2024, Emilio coordinated a task on "Requirements of verification and validation techniques and of AI techniques for space" of the PNRR project ASTRA.
During his employment at the University of Leicester Emilio has been site and work package leader of the MSCA RISE BehAPI project, co-PI of the RCADE EU MSCA Fellowship, member of the management committee of the EU Cost Action IC1201, co-PI of the "Tracing Networks" project funded by the Leverhulme Trust, and a researcher of the SENSORIA EC FET: "Global Computing" project. Moreover, Emilio has also led other minor projects and participated to the MEALS MSCA Action.
Emilio's recent research collaborations are with the University of Bologna (Prof. I. Lanese), the University of Buenos Aires (Prof. H. C. Melgratti), the University of Liverpool (Dr. L. Gheri), the University of Cagliari (Prof. M. Bartoletti), the University of Catania (Prof. F. Barbanera), the Technical University of Denmark (Prof. A. Scalas), NOVA University (Prof. A. Ravara), the National University of Rio Negro - Sede Andina (Prof. C. G. Lopez Pombo), the University of Malta (Prof. A. Francalanza), the University of Oxford (Prof. N. Yoshida), the Royal Institute of Technology in Sweden (Prof. R. Guanciale and Prof. P. Haller), and the University of Turin (Prof. M. Dezani-Ciancaglini and Prof. U. de'Liguoro).

During his career, Emilio has been collaborating with several industrial partners on various projects. He is currently collaborating with Actyx to integrate in their platform a novel behavioural typing approach recently published.

Emilio has been member of 9 academic boards of Italian PhD programmes in computer science and he is the chair of the the acadmic board of the PhD programme in computer science of the GSSI. Emilio currently co-supervises 2 PhD students of the GSSI, 1 PhD student of the national school on Cybersecurity. At the University of Leicester Emilio supervised 7 PhD students (3 of them were co-supervisions); he also was the mentor of a Daphne Jackson fellow. Emilio was involved in more than 10 PhD examinations across Argentina, Europe, and UK; Emilio was the external examiner of 7 MSc thesis in Argentina and Europe.

At GSSI Emilio teaches introductory and advanced courses on formal methods. At the University of Leicester he though at both BSc and MSc level and supervised more than 100 BSc and MSc students' final projects some of which have been awarded the 'best student' project award. In 2017 Emilio became Fellow of the Higher Education Academy.

5 Research

Emilio's scientific interests are in formal models for the specification, analysis, and implementation of concurrent and distributed systems. More precisely, his research focuses on the study of

- Formal methods for distributed and concurrent systems
- Choreographic and contract-based distributed computing
- Tools for the design and analysis of distributed and concurrent systems.

The main techniques Emilio uses hinge on (behavioural) type systems, automata, and logics. His research activities span a number of national and international projects.

In 2012 Emilio was the invited speaker of WS-FM; he gave an invited tutorial at COORDINATION 2020 and an invited talk at ASYDE 2020. Emilio gave an invited talk at the Dagstuhl seminar n. 24051 (January/February 2024). Emilio has been invitated and attended several Dagsthul seminars (specifically, n. 21372 in 2022, n. 17051 in 2017, n. 15191 in 2009). In 2017, 2019, and 2023 he has been invited to the "Open Problem in Concurrency Theory" series of research seminars sponsored by the IFIP Working Group 1.8.

5.1 Highlights

Emilio's key scientific contributions are in the area of formal abstractions for distributed systems where, in the past years, he has developed formal frameworks based on choreographic approaches. In this area, Emilio contributed fundamental results in the directions listed below (in chronological order):

1. Design-by-contract for message passing systems
2. Bottom-up approaches
3. Abstract semantics model
4. Choreographic support to local-first software

Scope and relevance of each of the contributions above are summerised below (reporting Emilio's relevant papers with citations in the format '**Sn#Gm**' where on 'n' and 'm' are the number of citations –at the time of writing– on Scopus and Google Scholar respectively).

1. Emilio pioneered a design-by-contract approach for message passing systems in CONCUR 2010 **S94#G189**; the results in this paper, hinging on a variant of global types with *assertions*, have inspired new lines of research (e.g., in their PoPL 2019 paper, Hinrichsen et al. state that they build on Emilio's CONCUR 2010 "to attach logical predicates [...] thus vastly extending the expressivity" and extensions such as the one of Toninho et al. in JLAMP (90) 2017 or the one advocated by Charalambides et al. in SCICO (115-116) 2016: "adding support for global assertions [8] can form the basis of a powerful theory for deriving local restrictions" where [8] is the reference to Emilio's CONCUR 2010 paper) and have also been the basis for a generalisation based on choreography automata published in Emilio's ECOOP 2022 paper **S2#G13**.

2. Emilio introduced the first bottom-up approach for choreographies: CONCUR 2012 **S41#G70** introduced the first algorithm to extract a global type out of local types. This initial attempt was followed by a more general one introduced in PoPL 2015 **S107#G169** where Emilio and co-authors introduced identified the *multiparty compatibility condition* that guarantees that the behaviour of the global specification synthesised by our algorithm fully and faithfully correspond to the behaviour of the local specifications (formalised as Brand and Zafiropulo's communicating systems). Quoting Carbone et al., "choreography extraction is a known hard problem" Distributed computing (31), 2018. Emilio's PoPL 2015 paper is considered by Felipe et al. "the current reference for extracting choreography specifications") FoSSaCS 2017. The prototype tool (which obtained the PoPL Artefact Badge) has been used in EU projects (COST Action IC1405, **BehAPI**) and for the analysis of Google's GoLang programs. Felipe et al. improved our algorithm in their FoSSaCS 2017 paper.

3. Emilio developed the first study on the realisability of global specifications using abstract semantics based on parital orders JLAMP (108) 2019 **S16#G27**. This work has attracted some attention and taken up by other groups, in particular Prof. I. Castellani, Prof. M. Dezani-Ciancaglini, and Prof. P. Giannini, have developed an interpretation of global types in terms of Prime Event Structures JLAMP (131) 2023 and conjecture that the notion of realisability introduced in Emilio's JLAMP (108) 2019 paper can be casted in their framework; Emilio started to collaborate with them on a semantic characterisation of well-formedness conditions of global specifications. Also, this work has inspired Prof. Cledou, Prof. Jongmans and Prof. J. Proença to develop *branching pomsets* in their ICE 2022 paper to optimise our semantics and their work on API generation as they acknowledge in their ECOOP 2022 paper, where they state: "we take advantage of Guanciale–Tuosto's pomset framework [14] to interpret local types as sets of pomsets".

4. Recently Emilio introduced a formal choreographic framework to support local-first principles in the design, analysis, and implementation of peer-to-peer systems. This work has been recently published at ECOOP 2023 **S0#G2**. This approach radically diverts from standard approaches in behavioural types in that it favours availability over consistency. This line of research appears rather promising; in fact, the behavioural typing discipline introduced has already been integrated in the industrial platform of Actyx (cf. ISSTA 2023) and it is currently employed to develop the software controlling an industrial plant in China. Emilio is currently exploring the possibility of applying for grants to further develop this theory as well as its applications.

5.2 Main research activities & leadership

From 2009 to 2019, Emilio led the group "Behavioural Specifications" of the School of Informatics of the university of Leicester. The group, besides several PhD students, consisted of one post-doc —Dr. Yi Hong (now Lecturer at the University of Leicester)— and two research associates —Dr. Laura Bocchi (now Associate Professor at the University of Kent) and Dr. Paula Severi (now Teaching Fellow at the University of Leicester)— who Emilio also mentored during her Daphne Jackson fellowship from 2015 to 2017.

The group has been involved in several projects and scientific collaborations; in particular,

- Bocchi was active on the SENSORIA project. With her and colleagues from the Imperial College Emilio introduced the design-by-contract approach published in CONCUR 2010.
- Hong was active on the Tracing Network project where, under Emilio's direction, he implemented several tools to the manipulation and representation of archaeological data.
- Severi was active on the BehAPI project. Emilio introduced her to behavioural typing this allowed Severi to combine this with her expertise on type systems for functional languages which then let to a successful application for a Daphne Jackson fellowship.

Moreover, Emilio also mentored Bocchi, Hong, and Severy in their theaching-related activities.

The collaborations which Emilio coordinated and actively fostered gave me the opportunity to establish fruitful and long lasting collaborations within a wide network (Emilio has more than 90 co-authors across Europe and Argentina).

Emilio presented his results in more than 15 talks delivered at international scientific symposia where his papers have been accepted after a peer-review process evauated by anonymous reviewers. Among such symposia there are COORDINATION 2024 (Groningen, The Netherlands), ECOOP 2022 (Berlin, Germany), ISoLA 2021 (Rodi, Grecia), Coordination 2020 (online per le restrizioni COVID), ICE 2018 (Madrid, Spagna), 4PAD 2016 (Creta, Grecia), ICE 2016 (Heraklion, Grecia), FMCO 2005 (Amsterdam, Olanda), COORDINATION 2005 (Namur, Belgio).

5.3 Research projects

Emilio contributed to several Italian, UK, and EU projects.

5.3.1 Ongoing Projects

- **Site leader**, **substitute PI**, and **coordinator of several tasks** of the Italian PRIN project **DeLiCE**: Decentralised Ledgers in Circular Economy

5.3.2 Past projects

- **Task leader** on "Requirements of verification and validation techniques and of AI techniques for space" of **ASTRA**: Advanced Space Technologies and Research Alliance, an Italian MIUR PNRR, (from January 2023 to July 2024)
- **BehAPI**: Behavioural Application Program Interfaces, a Marie Skłodowska-Curie Actions (RISE, agreement No 778233, started on March 1 2018). **co-PI. Site and work package leader**
- **It-Matters** Methods and Tools for Trustworthy Smart Systems (Italian PRIN project). **Project's web site administrator**
- 2018 **RCADE** (EU MSCA Fellowship) Claudio Mezzina joined UoL as MSCA fellow collaborating with Irek Ulidowski and me on causal consistency reversible debuggers - **co-PI**
- 2015-2019 **Reversible Computation** (EU COST Action IC1405) - **Participant**
- 2012-2016 **BETTY** Behavioural Types for Reliable Large-Scale Software Systems) EU Cost Action IC1201 - RTD Framework Programme - **participant and member of the management committee**
- 2011-2016 **MEALS** EU FP7 Marie Skłodowska-Curie Action - **participant**
- 2009-2013 **Tracing Networks** Leverhulme Trust - **co-PI**
- 2009 **PAIS** Process Algebras for Interaction and Spatiality; British Council - **co-PI**
- 2005-2009 **SENSORIA** Software Engineering for Service-Oriented Overlay Computers (EC FET: Global Computing - finished) - **research associate**
- 2006-2008 **HiDe4SOC** History-dependent automata for SOC; Nuffield Foundation. **Principal Investigator**
- 2002-2003 **NAPOLI** Network Aware Programming - Objects, Languages, Implementations - research associate
- **SP4.** Italian MIUR project - **research associate**
- 2001-2004 **DEGAS** Design Environments for Global Applications (EC FET: Global Computing) - **research associate**
- 2002-2005 **AGILE** Architectures for Mobility (EC FET: Global Computing) - **participant**
- 2002-2005 **PROFUNDIS** Proofs of Functionality for Mobile Distributed Systems (EC FET: Global Computing) - **participant**
- 2002-2004 **COMETA** Computational Metamodels - **participant**
- 2001-2002 **NAPI** Network Aware Programming Interoperability (Microsoft Research Cambridge) - **participant**
- 1999-2001 **TOSCA** Italian MIUR project - **participant**
- 1998-1999 **CONFER2** Concurrency and Functions: Evaluation and Reduction - **participant**

5.4 Research visits and meetings

The coordination of the group at the University of Leicester and the activities on the projects listed above, allowed Emilio to collaborate with many institutions and participate to a large number of research meetings; the most relevant activities are as follows:

- 2020: 1 month spent at the Department of Computer Science of the Universidad NOVA in Lisbon in the context of the MSCA RISE project BehAPI (grant agreement No 778233)
- 2019: visit at the University of Bologna in the context of the COST Action IC1405
- 2019: in the context of the "Knowledge Exchange and Enterprise Fund" of the University of Leicester and of the MSCA RISE project BehAPI (grant agreement No 778233) collaboration with McAfee Argentina on the modelling and analysis of the OpenDXL platform developed at McAfee
- 2019: 1 month spent at the University of Buenos Aires (UBA) in the context of the MSCA RISE project BehAPI (grant agreement No 778233)
- 2019: visit at the Faculty of Information & Communication Technology of the University of Malta in the context of the MSCA RISE project BehAPI (grant agreement No 778233)
- 2019: collaboration in Leicester with F. Maldonado from McAfee Cordoba in the context of the MSCA RISE project BehAPI (grant agreement No 778233)
- 2017: visit at the IMT School in Lucca in the context of the COST Action IC1405
- Between 2014 and 2015 hosting of several visitors from the University of Buenos Aires in the context of the MSCA EU FP7 project MEALS n. 295261; specifically, 1 month spent at UBA and host of Prof. C. Pombo and a Pdh student (2 months) and Prof. H. C. Melgratti (1 month)
- 2015: participation to the Dagsthul seminar 15191 on "Compositional Verification Methods for Next-Generation Concurrency"
- 2015: Visiting professor at the University of Cagliari (Italy) for 3 months
- 2013: 1 month spent at UBA in the context of the MSCA EU FP7 project MEALS n. 295261
- 2011-2012: Visiting professor at the University of Cagliari (Italy) for 3 months
- 2011: 3 months spent at the University of Cagliari as visiting professor
- 2010-2011: Visiting professor at the University of Cagliari (Italy) for 3 months
- 2010: 2 months spent at the University of Cagliari as visiting professor
- 2004: participation to the Dagstuhl seminar 04241 "Graph Transformations and Process Algebras for Modeling Distributed and Mobile Systems"

5.5 Invited talks and seminars

- Invited talk at the Dagstuhl seminar n. 24051: Next Generation Protocols for Heterogeneous Systems
- Invited speaker of the "International Workshop on Automated and verifiable Software sYstem DEvelopment 2020"
- Keynote at "Web Services and Formal Methods 2012"
- Invited seminar at IMT Lucca: title "Experiments in runtime monitoring via probabilistic session types"
- Invited tutorial of DisCoTec 2020: "Choreographic Development of Message-Passing Applications"
- Invited talk of the Dagsthul seminar n. 21372: title "Asymmetric Replicated State Machines"
- Invited seminar at the "International Symposium on the Mathematical Foundations of Software Engineering": title "Message-passing, choreographically"
- Invited talk of the Dagsthul seminar n. 17051: title "From Communicating Machines to Graphical Choreographies"
- Invited tutorial at McAfee Cordoba: title "A choreographic approach to the design of (message-passing) software" (Cordoba - Argentina, 22/2/2019)
- Invited tutorial day at the Department of Archaeology, University of Leicester (UK): title "Think ontologically: An Introduction to the use of Ontologies in Archaeology and Digital Humanities" (17/6/2017)
- Invited tutorial at Faculty of Archaeology, University of Leiden (NL): title "Think Ontologically. A Crash Course on Ontology Modelling for Archaeologists." (11/5/2014)
- Invited seminar at the COST Action IC1405 Meeting in Larnaka (Cyprus): title "Reversible Choreographies via Monitoring in Erlang" (20/3/2018)
- Invited seminar at the COST Action IC1405 Meeting in Belgrade (Serbia): title "Choreographies for Automatic Recovery" (30/3/2017)
- Invited seminar at the COST Action IC1405 Meeting in Bologna (Italy): title "Thoughts from an outsider on the use of global views reversibility" (6/7/2016)
- Invited seminar at the MEALS Marie Skłodowska-Curie Action (EU FP7) meeting in Grenoble (France): title "Synthesis of Graphical Choreographies" (6/4/2014)
- Invited seminar at NOVA LINCS FCT-UNL in Lisbon (Portugal): title "Behavioural APIs & choreographic development" (26/2/2020)
- Invited seminar at NOVA LINCS FCT-UNL in Lisbon (Portugal): title "Automata for Choreographies" (27/7/2022)
- Invited seminar at FCUL FCT-UNL in Lisbon (Portugal): title "Behavioural APIs & choreographic development" (14/2/2020)
- Invited seminar at the Dipartimento di Informatica dell'Università di Bologna: title "On pomsets as models

of asynchronous message-passing languages" (19/9/2018)
- Invited seminar at the Department of Computing dell'Imperial College (UK): title "On Semantics of Global Views of Choreographies" (18/05/2017)
- Invited seminar at the Department of Computer Science of the Royal Holloway University (UK): title "Think global, act local! or the other way around? A (gentle?) introduction to distributed choreographies" (21/10/2014)

5.6 Industrial collaborations

Emilio is currently collaborating with Actyx on further developing the typing approach supporting local-first software introduced his paper ECOOP 2023. The typing discipline proposed there has been embedded in the industrial platform developed at Actyx to support the development of distributed software controlling industrial plants. An evolution of the prototype has been described in ISSTA 2023 and it is currently employed to develop the software controlling an industrial plant in China.

In the past, Emilio had collaborations with McAfee Argentina for the development of a choreographic model of their OpenDXL platform; the results of this collaborations appeared in Coordination 2020 **S3#G5**.

While working at Leicster, Emilio collaborated with Xibis by supervising MSc students' projects involving the company and in the context of the **BehAPI** project. Within this project he also collaborated with Ixaris Systems (Malta), DCR Solutions (Denmark), and Green by Web, Lda (Portugal).

In the context of the RCADE project Emilio collaborated with Erlang Solutions and Undo Software Ltd.

In the past, Emilio collaborated with Telecom Italia and BMW in the context of the EU projects PROFUNDIS and SENSORIA respectively. The collaboration consisted in the formal modelling and analysis of the industrial case studies of the projects.

5.7 Tools

Tool development is a key element of Emilio's approach to research. He developed a series of tools described below to support and complement theoretical results and to use them in several projects, teaching, and dissemination activities.

5.7.1 ChorGram

ChorGram is a tool chain to support choreographic development of message-oriented applications. Its development started to support the experimental work related to the theory introduced in PoPL 2015 paper, where it received the PoPL Artefact Badge) has been used in EU projects (COST Action IC1405, **BehAPI**) or for the analysis of Google's GoLang programs. Felipe et al. improved our algorithm in their FoSSaCS 2017 paper. ChorGram supports the semantics of choregraphies defined in ICE 2016 and its journal version.

Emilio used ChorGram during the tutorial given at McAfee Cordoba described in the dissemination section. A tutorial is given in chapter 6 of *Behavioural Types: from Theory to Tools*. Emilio gave a tutorial on ChorGram at COORDINATION 2020 available also as YouTube videos: part1, part2, and part3.

5.7.2 PomCho

The tool chain PomCho presented in SCICO 202, 2022, combines the pomset-based analysis of choregraphies supported by Guanciale's DirPoms tool COORDINATION 2019 with ChorGram. PomCho also includes the features of a model-based testing development by Alex Coto and includes results presented in ICE 2020 and ISoLA 2020, the automatic generation of Erlang executables and monitor-based reversibility introduced in this DAIS 2018.

PomCho (1) supports the specification of global views in terms of global choreographies, (2) verifies realisability of the global view, and identifies all possible misbehaviors that could arise from a message-passing based implementation, (3) enables the analysis of the counterexamples as patches of the original global choreography via edit-distance heuristics on graphs, (4) projects realisable global choreographies to local views in order to generate executable implementations.

5.7.3 MoCheQoS

The bounded model-checker algorithm published at ICTAC 2023 (best paper) is implemented in a branch extending ChorGram to specify and statically analyse quality of service properties of communicating systems. The tool has been recently accepted at FM 2024.

5.7.4 CSeq for Data Races

Within the supervision of Emerson Sales at GSSI, Emilio collaborates on an extension of Dr. O. Inverso tool CSeq to data race analysis of multithreaded C-like programs. A preliminary version of this tool, described in TACAS 2022 was awarded the silver medal at the SV-COMP competition. This first prototype is currently being further developed and can now verify a vast class of C-like programs that include programming features (such as arrays and pointers) that the verification and analysis performed by competing tools cannot support. The tool has been recently accepted at FM 2024

5.7.5 A prototype for local-first software

The protype supporting the typing discipline presented in ECOOP 2023 is described in ECOOP 2023 Artifact. The prototype support the development of peer-to-peer systems written in TypeScript on running on the Actyx middleware through a library. The tool, was awarded the "Availability" and "Functional" badges of ECOOP, checks protocols' well-formedness and conformance, as well as a stochastic simulation tool exploring possible executions permitted under our model. An evolution of the prototype has been described in ISSTA 2023 and it is currently employed to develop the software controlling an industrial plant in China.

5.8 Editorial Activity

Since June 2021 Emilio is a member of the **editorial board** of the Journal of Logical and Algebraic Methods in Programming (IF 0.7), for which he serves as **special issue editor**. Since November 2020 Emilio am a member of the **editorial board** of Frontiers in Computer Science (IF 2.6).

Emilio edited the following volumes

- LMCS 2019 Selected Papers of the 21st International Conference on Coordination Models and Languages
- COORDINATION 2019 - 21st International Conference on Coordination Models and Languages Copenhagen (Denmark) June 17-21, 2014. Proceedings: LNCS 11533. DOI 10.1007/978-3-030-22397-7
- SOCA 2015 Volume 9, Issue 3-4, September 2015. DOI 10.1007/s11761-015-0178-x
- TGC 2014 - 9th Inteernational Symposium on Trustworthy Global Computing Rome (Italy) September 5-6, 2014. Proceedings: LNCS 8902. DOI 10.1007/978-3-662-45917-1
- 4PAD 2014 - 1st special session on Formal approaches to Parallel and Distributed systems Turin (Italy) February 12-14 2014. Proceedings: IEEE Computer Society ISSN 1066-6192
- WS-FM 2013 - 10th International Workshop on Web Services and Formal Methods Beijing (China) August 29-30 2013. Proceedings: LNCS 8379. DOI 10.1007/978-3-319-08260-8
- GT-VMT 2010 - 9th International Workshop on Graph Transformation and Visual Modeling Techniques Paphos (Cyprus) March 20-21 2010. Proceedings: ECEASST 29. ISSN 1863-2122.
- ICE 2009 - 2nd Interaction and Concurrency Experience: Structured Interactions Bologna (Italy) August 31 2009. Proceedings: EPTCS 12. DOI 10.4204/EPTCS.12
- ICE 2008 - 1st Interaction and Concurrency Experiences Reykjavik (Iceland) June 6 2008. Proceedings: ENTCS 229(3). DOI 10.1016/j.entcs.2009.06.035
- Doctoral Symposium International Conference on Graph Transformation Leicester (UK) September 9-12 2008. Proceedings: ECEASST 16. DOI 10.14279/tuj.eceasst.16.235.243

5.8.1 Organisation of international events

- 01/06/2019 - to-date: member of steering committee of the International Conference on Coordination Models and Languages (COORDINATION)
- 01/07/2008 - 19/07/2019: member of steering committee of Interaction and Concurrency Experience (ICE 2008)
- Scientific director and organiser of the "International summer school on Behavioural Approaches for API-Economy with Applications"; https://www.um.edu.mt/projects/behapi/leicester-summer-school-behavioural-approaches-for-api-economy-with-applications
- Chair of the Program committee of the following events:
  - 2019: "International Conference on Coordination Models and Languages"
  - 2014: "International Symposium on Trustworthly Global Computing"
  - 2014: "Formal approaches to Parallel and Distributed systems"
  - 2013: "International Workshop on Web Services and Formal Methods"
  - 2009: "Interaction and Concurrency Experience: Structured Interactions"
  - 2008: "Interaction and Concurrency Experiences"
- Member of the program commitee of the following events:
  - ECOOP 2024 (16/09/2024 - 20/09/2024)

- 25th Italian Conference on Theoretical Computer Science (ICTCS, 11/09/2024 - 13/09/2024)
- 6th International Workshop on Automated and verifiable Software sYstem DEvelopment (ASYDE, 28/10/2024)
- First International Workshop on Formal Methods for Business Process Management (FM-BPM, 11/09/2023 - 11/09/2023)
- 25nd International Conference on Coordination Models and Languages (COORDINATION 2023, 19/06/2023 - 23/06/2023)
- 19th International Conference on Formal Aspects of Component Software (FACS2023, 19/10/2023 - 23/10/2023)
- 14th Workshop on Programming Language Approaches to Concurrency- & Communication-cEntric Software (PLACES23, 22/04/2023 - 22/04/2023)
- FM2023 (FM2023, 6/03/2023 - 10/03/2023)
- 23rd Italian Conference on Theoretical Computer Science (ICTCS2022, 7/09/2022 - 9/09/2022)
- 18th International Conference on Formal Aspects of Component Software (FACS2022, 10/09/2022 - 11/09/2022)
- 24nd International Conference on Coordination Models and Languages (COORDINATION 2022, 13/06/2022 - 17/06/2022)
- International Workshop on Model-Driven Engineering for Software Architecture (MDE4SA2021, 15/5/2020 - 17/09/2021)
- AGERE! Workshop on programming systems, languages and applications based on actors (AGERE 2021, 22/04/2021 - 22/04/2021)
- 22nd International Conference on Coordination Models and Languages (COORDINATION 2020, 15/06/2020 - 19/06/2020)
- 17th International workshop on Coordination and Self-Adaptativeness of Software Applications, September 17 (Associated with SEFM 2019) (FOCLASA 2019, 17/09/2019 - 17/09/2019)
- Erlang Workshop, 18th ACM SIGPLAN Erlang Workshop (EW 2019, 18/08/2019 - 18/08/2019)
- organising committee 10th International conferenze on Reversible Computation (RC 2018, 12/09/2018 - 14/09/2018)
- doctoral symposium of ESOCC (DS-ESOCC 2018, 12/09/2018 - 14/09/2018)
- 5th International Symposium on Formal Approaches to Parallel and Distributed Systems (4PAD 2018, 16/07/2018 - 20/07/2018)
- 16th International workshop on Coordination and Self-Adaptativeness of Software Applications (Associated with SEFM) (FOCLASA 2018, 26/06/2018 - 26/06/2018)
- doctoral symposium or ESOCC (DS-ESOCC 2017, 27/09/2017 - 29/09/2017)
- 2nd International workshop on Pre- and Post- Deployment Verification Techniques (PrePost 2017, 19/09/2017 - 19/09/2017)
- 19th International Conference on Coordination Models and Languages (COORDINATION 2017, 19/06/2017 - 21/06/2017)
- 25th Euromicro International Conference on Parallel, Distributed, and Network-Based Processing (PDP 2017, 06/03/2017 - 07/03/2017)
- doctoral symposium di ESOCC (DS-ESOCC 2016, 05/09/2016 - 07/09/2016)
- International Symposium on Mathematical Foundations of Computer Science (MFCS 2016, 22/08/2016 - 26/08/2016)
- 10th International Web Rule Symposium (RuleML 2016, 06/07/2016 - 09/07/2016)
- 12th International Workshop on Automated Specification and Verification of Web Systems (WWV 2016, 26/06/2016 - 26/06/2016)
- 9th Interaction and Concurrency Experience (ICE 2016, 21/06/2016 - 21/06/2016)
- 36th International Conference on Formal Techniques for Distributed Objects, Components, and Systems (FORTE 2016, 06/06/2016 - 09/06/2016)
- 20th International Conference on Coordination Models and Languages (COORDINATION 2016, 06/06/2016 - 09/06/2016)
- 24th Euromicro International Conference on Parallel, Distributed, and Network-Based Processing (PDP 2016, 17/02/2016 - 19/02/2016)
- doctoral symposium of ESOCC (DS-ESOCC 2015, 15/09/2015 - 17/09/2015)
- 5th International Symposium on Trustworthly Global Computing (TGC 2015, 31/08/2015 - 01/09/2015)
- 11th International Workshop on Automated Specification and Verification of Web Systems (WWV 2015, 23/06/2015 - 23/06/2015)
- 8th Interaction and Concurrency Experience (ICE 2015, 04/06/2015 - 05/06/2015)
- 19th International Conference on Coordination Models and Languages (COORDINATION 2015, 02/06/2015 - 05/06/2015)

- 11th International Colloquium on Theoretical Aspects of Computing (ICTAC 2014, 17/09/2014 - 20/09/2014)
- 11th International Workshop on Web Services, Formal Methods, and Behavioral Types (WS-FM:FASOCC 2014, 11/09/2014 - 12/09/2014)
- 5th International Workshop on Modeling and Simulation of Peer-to-Peer and Autonomic Systems (MOSPAS 2014, 21/07/2014 - 25/07/2014)
- 10th International Workshop on Automated Specification and Verification of Web Systems (WWV 2014, 18/07/2014 - 18/07/2014)
- 7th Interaction and Concurrency Experience (ICE 2014, 06/06/2014 - 06/06/2014)
- 18th International Conference on Coordination Models and Languages (COORDINATION 2014, 03/06/2014 - 06/06/2014)
- 10th International Workshop on International Workshop on Web Services and Formal Methods: Formal Aspects of Service-Oriented and Cloud Computing (WS-FM 2013, 29-08-2013 - 30/08/2013)
- 4th International Symposium on Trustworthly Global Computing (TGC 2013, 30/08/2013 - 31/08/2013)
- 4th International Workshop on Modeling and Simulation of Peer-to-Peer and Autonomic Systems (MOSPAS 2013, 01/07/2013 - 05/07/2013)
- 6th Interaction and Concurrency Experience (ICE 2013, 06/06/2013 - 06/06/2013)
- 9th International Workshop on Automated Specification and Verification of Web Systems (WWV 2013, 06/06/2013 - 06/06/2013)
- 17th International Conference on Coordination Models and Languages (COORDINATION 2013, 03-06-2013 - 05/06/2013)
- 8th International Workshop on Automated Specification and Verification of Web Systems (WWV 2012, 16/06/2012 - 16/06/2012)
- 5th Interaction and Concurrency Experience (ICE 2012, 16/06/2012 - 16/06/2012)
- 8th International Symposium on Formal Aspects of Component Software (FACS 2011, 14/09/2011 - 16/09/2011)
- 10th International workshop on Coordination and Self-Adaptativeness of Software Applications (FOCLASA 2011, 10/09/2011 - 10/09/2011)
- 5th International Symposium on Trustworthly Global Computing (TGC 2011, 09/09/2011 - 10/09/2011)
- 4th Interaction and Concurrency Experience (ICE 2011, 09/06/2011 - 09/06/2011)
- 10th International Workshop on Graph-Transformations and Visual Modeling Techniques (GT-VMT 2011, 02/04/2011 - 03/04/2011)
- 8th International workshop on Coordination and Self-Adaptativeness of Software Applications (Associated with CONCUR) (FOCLASA 2010, 05/09/2010 - 05/09/2010)
- 3rd Interaction and Concurrency Experience (ICE 2010, 10/06/2010 - 10/06/2010)
- 5th International Symposium on Trustworthly Global Computing (TGC 2010, 24/02/2010 - 26/02/2010)
- 5th International Symposium on Formal Aspects of Component Software (FACS 2008, 14/09/2008 - 16/09/2008)
- 4th International Conference on Graph Transformation (ICGT 2008, 07/09/2008 - 13/09-2008)
- WS-FM 2008, 5th International Workshop on Web Services and Formal Methods (WSFM 2008, 04/09/2008 - 05/09/2008)

5.8.2 Reviewing activity

Emilio regularly review papers for several international conferences, among which

- International Conference on Concurrency Theory (CONCUR)
- International Conference on Coordination Models and Languages (COORDINATION)
- European Conference on Object-Oriented Programming (ECOOP)
- International Colloquium on Automata Languages and Programming (ICALP)
- Logics in Computer Science (LICS)

Emilio serve as reviewer for several journals, among which:

- Formal Aspects of Computing (FAC)
- Logical Methods in Computer Science
- Science of Computer Programming
- Journal of Logical and Algebraic Methods in Programming
- Mathematical Review

- International Journal on Software Tools for Technology Transfer

6 Supervisions and examinantions

Between 2005 and 2018, at the University of Leicester, Emilio supervised more than 80 BSc and MSc students' final projects and he has been second supervisor of just as many final projects; the final project of Dott. Andrea Giugliano was awarded as the best master thesis in Theoretical Computer Science of the academic year 2012/2013. Besides the mentoring and the marking of the projects' deliverables, the roles of supervisor and second supervisor required to conduct students' viva and participate to the examination boards.

Emilio has also been external examiner of the following master thesis:

- Joao Afonso: Viva scheduled in December 2023 Universidad NOVA, Portugal, 2023
- Pablo Montepagano: SEArch, una infraestructura de ejecución de software basado en servicios. Tesis de Licenciatura en Ciencias de la Computación, UBA, 2023
- Diego Senarruzza: Bisimulación de Data-aware Communicating Finite State Machines con propiedades en las acciones. Tesis de Licenciatura en Ciencias de la Computación, UBA, 2023
- Damián Ariel Furman: Generación de mensajes de error significativos en herramienta de detección estática de deadlocks para programas en Go. Tesis de Licenciatura en Ciencias de la Computación, UBA, 2019
- Caroline Caruana: Compositional Reasoning about Actor Based Systems. M.Sc. Computer Science, University of Malta, 2019
- Ignacio Vissani: Un sat-solver paralelo y distribuido con herencia de cláusulas aprendidas. Tesis de Licenciatura en Ciencias de la Computación, UBA, 2013
- Matia Barbeito: Semantica de trazas y analisis de coreografias. Tesis de Licenciatura en Ciencias de la Computación, UBA, 2015

Emilio has been the PhD advisor and the examiner of several students as reported in the next subsections.

6.1 Current PhD students

Emilio is currently supervising the following PhD students of the GSSI:

- Christian Bartolo Burlò (2nd supervisor Prof. A. Francalanza)
- Alex Coto (2nd supervisor Prof. R. Guanciale, expected to graduate by December 2023)
- Emerson Sales (2nd supervisor Dr. O. Inverso)
- Bilal Hassan (Italian doctoral PhD school on cybersecurity)

6.2 Past PhD students

In the past Emilio supervised the following PhD students of the University of Leicester:

- Julien Lange (VIVA passed Oct 2013. Thesis title: On the Synthesis of Choreographies; now Senior Lecture at the Department of Computer Science at Royal Halloway)
- Kyriakos Poyias (VIVA passed Nov 2013. Thesis title:Design-by-contract for software architectures; now Director of Data at Ocean Finance)
- Qurat Ul Ain Nizamani (graduated 2011. Thesis title: Directed Symbolic Model Checking of Security Protocols; now lecturer at Kent Institute Australia)
- Hyder Ali Nizamani (graduated 2011. Thesis title: Modelling Architectures of Federated Identity Management Systems; now Software Consultant)

Emilio also co-supervised the following PhD students:

- Daniele Strollo (graduated June 2009. (Title: Designing and experimenting coordination primitives for service oriented computing); now Software Engineer at Imagicle - 2nd supervisor Prof. G. Ferrari)
- Hao Zeng (graduated December 2019. Thesis title: Interface Automata for Choreographies; now lecturer at Communication University of Zhejiang in China - 2nd supervisor Prof. A. Kurtz)
- Yi Xiao (graduated December 2019. Thesis title: Learning Nominal Regular Languages with Binders - 2nd supervisor Prof. A. Kurtz)

6.3 PhD Examination

Emilio has been involved in the examination of the following doctors:

- Loïc Germerie Guizouarn ("Communicating automata and quasi-synchronous communications"; Université Côte d'Azur, defense 21/12/2023, external examiner)

- Duncan Paul Attard ("Runtime Monitoring for Asynchronous Reactive Components", University of Malta, Malta 18/04/2023, external examiner)
- Aline Uwimbabazi ("Automated Replication of Tuple Spaces via Static Analysis and Transformation of Go Programs", Gran Sasso Science Institute, L'Aquila 7/09/2022, chair of the committee)
- Muhammad Rizwan Ali: Formal Modeling and Validation for Coexisting Plans. Mid-term evaluation of Doctor of Philosophy (Ph.D.), Høgskulen på vestlandet, Bergen
- Tala Najem Emerging Computing Models ("Software Architectures and Intelligent Systems", University of L'Aquila; defense pending, external examiner)
- Tala Najem Emerging Computing Models ("Software Architectures and Intelligent Systems", University of L'Aquila (2022, external examiner)
- Carlo Taticchi ("Handling Dynamic Aspects of Argumentation, Gran Sasso Science Institute, L'Aquila 19/4/2021, member of the examination committee)
- Lorenzo Pagliari ("Performance Engineering of Cyber-Physical Systems", Gran Sasso Science Institute, L'Aquila 16/11/2020, chair of the examination committee)
- Luca Di Stefano ("Modelling and Analysis of Multi-Agent Systems via Sequential Emulation", Gran Sasso Science Institute, L'Aquila 13/10/2020, chair of the examination committee)
- Ahmed Abdelsalam ("Service Function Chaining with Segment Routing", Gran Sasso Science Institute, L'Aquila 22/9/2020, chair of the examination committee)
- Teerath Das ("Investigating Performance Issues in Mobile Apps", Gran Sasso Science Institute, L'Aquila 11/5/2020, chair of the examination committee)
- Joseph Richard Harrison ("Robust Communications in Erlang", University of Kent, May 2020, external examiner)
- Ignacio Vissani ("Formal aspects of a service oriented execution model", Universidad de Buenos Aires, July 2018, external examiner)
- Vitaly Buralev ("Improving the efficiency of tuple spaces", IMT Lucca, June 2018, external examiner)
- Amala Vijaya Selvi Rajan ("Formal Semantics for LIPS (Language for Implementing Parallel/distributed Systems)", Middlesex University, May 2009, external examiner)
- Massimiliano Masi ("On Authentication and Authorisation Issues in E-Health Systems", Università degli Studi di Firenze, May 2012, external examiner)
- Ashley McNeil ("Protocol Modelling - Synchronous Composition of Data and Behaviour", Birkberk University, June 2016, external examiner)

7 Teaching

All the courses listed in the next sections have been delivered in English barred the courses given in Cagliari, Padova, and Pisa.

7.1 Academic teaching

Emilio's teaching at GSSI is at postgraduate level; he is currently teaching part of an introductory course on formal methods as well as a course on model checking and one on behavioural specifications.

At the University of Leicester Emilio taught a module on concurrency theory and one of C++ programming, he designed and delivered an MSc core course on advanced systems design, he taught part of the course "Cryptography and Internet Security" offered to both updergraduate and postgraduate level as well as a course on concurrent and distributed programming.
At Leicester Emilio also supervised more than 80 undergraduate and MSc student projects and an equally high number of 2nd-supervision.

In the past Emilio

- taught part of the immigration course on Formal Methods at GSSI (2020-2021)
- taught a course on Model Checking at GSSI (2020-2021)
- taught a course on Formal Behavioural Specifications at GSSI (2020-2021)
- taught part of the immigration course on Formal Methods at GSSI (2021-2022)
- taught a course on Model Checking at GSSI (2021-2022)
- gave invited lectures for the course "Languages for Concurrency and Distribution" of the MSc degree in computer science of the Dipartimento di Matematica of the University of Padova (9-12/5/2016)
- delivered a course on functional programming for the Computer Architectures course at the Dipartimento di Matematica of the University of Pisa (23/02/2003 - 20/05/2003)
- assisted in the lab sessions of a course on Computer Architectures at the Dipartimento di Informatica of the University of Pisa (18/04/2002 - 24/05/2002)

- assisted a lab on Network Programming at the Dipartimento di Informatica of the University of Pisa (01/10/2001 - 18/12/2001)

7.2 Postgraduate teaching

Emilio taught the following advanced courses to research students:

- From 13 to 21 July 2020 “Model Checking and Software Verification”. Part of the core course on model checking and software verification at GSSI
- From 25 to 29 November 2019 “Introduction to formal methods”. Part of the immigration course on formal methods at GSSI
- From 30/6/2015 to 14/7/2015 “Distributed Applications with Automata & Choreographies” for the PhD school of the Department of Matematica e Informatica of Cagliari
- From 3/12/2012 to 14/12/2012 “Interactions, automata, and names” for the PhD course at the Department of Computer Science in Pisa
- From 10/07/2012 to 17/07/2012 “Bisimulation, process algebras, and coinduction” for the PhD school of the Department of Matematica e Informatica of Cagliari
- From 13/4/2011 to 27/4/2011 “Introduction to Security Protocols” for the PhD school of the Department of Matematica e Informatica of Cagliari

7.3 Postgraduate schools

- From 11/4/2016 to 15/4/2016 “Distributed Systems and Choreographies” at the Midland Graduate School held at the University of Birmingham
- From 28/3/2010 to 1/4/2010 invited course on “Protcol Verification” for the Midland Graduate School held at the University of Sheffield
- From 16/10/2007 to 19/10/2007 “Synchronised Hyperedge Replacement as a Model for Service Oriented Computing” for the BPESO school
- From 8/4/2006 to 12/4/2006 invited course on “Concurrency and Mobility” for the “Midland Graduate School” held at University of Leicester, 8-12/4/2006
- From 26/07/2004 to 31/07/2004 course on “Verification for Mobile Systems” selected for la Escuela de Ciencias Informaticas. Departamento de Computacion, Facultad de Ciencias Exactas y Naturales. Universidad de Buenos Aires, Argentina

7.4 Other teaching-related activities

Emilio has been the organiser and scientific director of the International summer school on Behavioural Approaches for API-Economy with Applications, Leicester July 8-12 2019.

While working at the University of Leicester, Emilio has been

- the MSc progression tutor (mentoring and well-being of MSc students)
- chair of the Departmental Academic Committee (this committee monitors students’ progression through their academic career)
- member of the Teaching Academic Committee (this committee supervise and decides about teaching related policies and academic curricula)
- member of the industrial advisory board (this board consists of academics and IT companies and aims to update and integrate in the curricula skills and knowledge to strenghten marketability of students in the IT and software sector)
- Appeal officer of the computer science department.

8 Other roles and remits

- 2024-2025: Chair of the academic board (collegio dei docenti) of the Italian PhD program in computer science of the Gran Sasso Science Institute
- 2024-2025: Member of the academic board (collegio dei docenti) of the Italian PhD school of national interest in blockchain and distributed ledger technology lead by Università di Camerino
- 2024: Member of the recruitment panel for a post-doc position at the University of Cagliari on the PRIN 2022 (PNRR) project DeLiCE
- 2024: Chair of the recruitment panel for a post-doc position at GSSI on the PRIN 2022 (PNRR) project DeLiCE
- 2024: Chair of the recruitment panel for a post-doc position at GSSI on the PRIN 2022 project DREAM

- 2023: Chair of the recruitment panel for a researcher position (RTD-A, INF 01/B1) at the University of Turin
- 2023: Chair of the recruitment panel for a post-doc at GSSI funded by the PRO3 project
- 2023: Chair of the recruitment panel for a post-doc at GSSI funded by the PRO3 project
- 2022: Member of the recruitment panel for a researcher position (RTD-B, INF 01/B1) at the GSSI
- 2022-2023: Member of the academic board (collegio dei docenti) of the Italian PhD program in computer science of the Gran Sasso Science Institute
- 2022-2023: Member of the academic board (collegio dei docenti) of the Italian PhD school of national interest on Cybersecurity lead by the IMT Alti Studi - Lucca
- 2021: Chair of the recruitment panel for a post-doc (CUIM, INF 01/B1) at GSSI
- 2021: Member of the recruitment panel for a post-doc (INF 01/B1) at GSSI funded by the PRIN IT-Matters
- 2021-2022: Member of the academic board (collegio dei docenti) of the Italian PhD program in computer science of the Gran Sasso Science Institute
- 2020: Member of the evaluation panel for the PhD School of the University of Camerino
- 2020: Member of the evaluation panel for two post-doc positions at GSSI (INF 01/B1)
- 2021: Member of the recruitment panel for a researcher position (RTD-A, INF 01/B1) at GSSI funded by the PON 2014-2020 PON ("Azione I.2, AIM – Attrazione e Mobilità Internazionale", Linea 1, Mobilità dei ricercatori)
- 2020-2021: Member of the academic board (collegio dei docenti) of the Italian PhD program in computer science of the Gran Sasso Science Institute
- 2020: Member of the recruitment panel for a researcher position (RTD-A, INF 01/B1) at GSSI funded by the PON 2014-2020 PON ("Azione I.2, AIM – Attrazione e Mobilità Internazionale", Linea 2, Attrazione dei ricercatori)
- 2019: Member of the evaluation panel for the PhD selection at GSSI
- 2019-2023: Web site manager of the PRIN project It-Matters
- 2018-2019: Chair of the organising committee of the BehAPI school
- 2016: Lecturer for the course "Languages for Concurrency and Distribution" of the MSc degree in computer science of the Dipartimento di Matematica of the University of Padova (Italy)
- 2015 Visiting professor at the University of Cagliari (Italy) for 3 months
- 2014-2017: Member of the Industrial Advisory board of the Department of Informatics of the University of Leicester
- 2015-2018: Member of the Postgraduate Appeal Panel of the University of Leicester
- 2011-2012 Visiting professor at the University of Cagliari (Italy) for 3 months
- 2010-2011 Visiting professor at the University of Cagliari (Italy) for 2 months
- 2009-2018: Chair of the MSc departmental academic committee of the Department of Informatics of the University of Leicester
- 2014-2021: Reviewer of a research projects for the funding bodies MIUR (Italy), the Dutch Research Council, EPSRC (UK), and the Austrian Science Fund
- 2013-2018: MSc progression tutor of the Department of Informatics of the University of Leicester
- 2006-2013: Member of the departmental academic committee of the Department of Informatics of the University of Leicester
- 2006-2013: MSc project direct of the Department of Informatics of the University of Leicester

9 Dissemination and outreach activities

On January 25, 2024 Emilio delivered an introductory lecture on Turing machines and programming for students of secondary schools of Abruzzo.

On May 29, 2023 Emilio delivered an online lecture on Turing machines for students of secondary schools of Abruzzo.

On May 29, 2020 Emilio delivered an online lecture on Turing machines for students of secondary schools of Abruzzo.

On July 2, 2020 Emilio gave a talk at the "MSCA Day @ GSSI" event organised to share his experience related to the RCADE project with European researchers of various disciplines.

Emilio was invited at McAfee Cordoba (Argentina) to give a tutorial "A choreographic approach to the design of (message-passing) software". The visit (22/2/2019), supported by the University of Leicester, aimed to explore the possibility of industrial applications of the research on choreographic approaches supported by ChorGram. A follow up of this visit was Emilio's paper COORDINATION 2019 written in collaboration with engineers of McAfee Cordoba.

On 17/6/2017 Emilio gave a tutorial on "Think ontologically: An Introduction to the use of Ontologies in Archaeology and Digital Humanities" for the School of Archaeology of the University of Leicester.

In November 2015 Emilio gave a lecture to year-10 students of UK secondary schools (title: "We do our best to keep Facebook safe, but we cannot guarantee it" quote taken from 'Terms & Conditions' of Facebook) as part of the outreach activities of the department of computer science.

On 11/5/2014 Emilio was invited to give a tutorial at the Faculty of Archaeology of Leiden on "Think Ontologically. A Crash Course on Ontology Modelling for Archaeologists".

10 Publications

Emilio's peer-reviewed international conferenze and journals paper are listed below. Each author equally contributed to the paper in all publication where authors' names are listed alphabetically; text in square brackets clarifies Emilio's contribution for papers where authors' names are not not alphabetic order.

10.1 Journals

1. Franco Barbanera, Ivan Lanese, and Emilio Tuosto. Composition of synchronous communicating systems. J. Log. Algebraic Methods Program., 135:100890, 2023.
2. Franco Barbanera, Ivan Lanese, and Emilio Tuosto. A theory of formal choreographic languages. Log. Methods Comput. Sci., 19(3), 2023.
3. Maurizio Murgia, Riccardo Pinciroli, Catia Trubiani, and Emilio Tuosto. Comparing Perfomance Abstractions for Collective Adaptive Systems International Journal on Software Tools for Technology Transfer. Accepted - to appear.
4. Christian Bartolo Burlò, Adrian Francalanza, Alceste Scalas, Catia Trubiani, and Emilio Tuosto. PST-monitor: Monitor synthesis from probabilistic session types. Sci. Comput. Program., 222:102847, 2022.
5. Ugo de'Liguoro, Hernan C. Melgratti, and Emilio Tuosto. Towards refinable choreographies. J. Log. Algebraic Methods Program., 127:100776, 2022.
6. Alex Coto, Roberto Guanciale, and Emilio Tuosto. An abstract framework for choreographic testing. J. Log. Algebraic Methods Program., 123:100712, 2021.
7. Franco Barbanera, Mariangiola Dezani-Ciancaglini, Ivan Lanese, and Emilio Tuosto. Composition and decomposition of multiparty sessions. J. Log. Algebraic Methods Program., 119:100620, 2021.
8. Roberto Guanciale and Emilio Tuosto. Pomcho: A tool chain for choreographic design. Sci. Comput. Program., 202:102535, 2021.
9. Laura Bocchi, Hernan C. Melgratti, and Emilio Tuosto. On resolving non-determinism in choreographies. Log. Methods Comput. Sci., 16(3), 2020.
10. Roberto Guanciale and Emilio Tuosto. Realisability of pomsets. J. Log. Algebraic Methods Program., 108:69–89, 2019.
11. Emilio Tuosto and Roberto Guanciale. Semantics of global view of choreographies. J. Log. Algebraic Methods Program., 95:17–40, 2018.
12. Paula Severi, Luca Padovani, Emilio Tuosto, and Mariangiola Dezani-Ciancaglini. On sessions and infinite data. Log. Methods Comput. Sci., 13(2), 2017.
13. Hans Huttel, Ivan Lanese, Vasco T. Vasconcelos, Luis Caires, Marco Carbone, Pierre-Malo Denielou, Dimitris Mostrous, Luca Padovani, Antonio Ravara, Emilio Tuosto, Hugo Torres Vieira, and Gianluigi Zavattaro. Foundations of session types and behavioural contracts. ACM Comput. Surv., 49(1):3:1–3:36, 2016. [The first 3 authors selected the material surveyed (which includes 6 of Emilio's papers), organised it, and identified the case study used throughout the paper. The remaining authors, including Emilio, proof read the paper and checked its technical soundness, the uniformity in the presentation of the material, and the consistency of the various approaches with respect to the case study.]
14. Davide Basile, Pierpaolo Degano, Gian-Luigi Ferrari, and Emilio Tuosto. Relating two automata-based models of orchestration and choreography. J. Log. Algebraic Methods Program., 85(3):425–446, 2016.

15. Massimo Bartoletti, Alceste Scalas, Emilio Tuosto, and Roberto Zunino. Honesty by typing. Log. Methods Comput. Sci., 12(4), 2016.
16. Kyriakos Poyias and Emilio Tuosto. A design-by-contract approach to recover the architectural style from run-time misbehaviour. Sci. Comput. Program., 100:2–27, 2015.
17. Massimo Bartoletti, Emilio Tuosto, and Roberto Zunino. Contract-oriented computing in CO2. Sci. Ann. Comput. Sci., 22(1):5–60, 2012.
18. Laura Bocchi and Emilio Tuosto. Attribute-based transactions in service oriented computing. Math. Struct. Comput. Sci., 25(3):619–665, 2015.
19. Laura Bocchi, Julien Lange, and Emilio Tuosto. Three algorithms and a methodology for amending contracts for choreographies. Sci. Ann. Comput. Sci., 22(1):61–104, 2012.
20. Andrea Bracciali, Gianluigi Ferrari, and Emilio Tuosto. A symbolic framework for multi-faceted security protocol analysis. Int. J. Inf. Sec., 7(1):55–84, 2008.
21. Gian-Luigi Ferrari, Ugo Montanari, and Emilio Tuosto. Coalgebraic minimization of hd-automata for the pi-calculus using polymorphic types. Theor. Comput. Sci., 331(2-3):325–365, 2005.

10.2 Conferences

1. Philipp Haller, Ayman Hussein, Hernán Melgratti, A. Scalas, E. Tuosto. Fair Join Pattern Matching for Actors. To appear at ECOOP 2024
2. Carlos G. Lopez Pombo, Agustin E. Martinez-Suñé, Emilio Tuosto. Automated Static Analysis of QoS Properties of Communicating Systems. To appear at FM 2024
3. Omar Inverso, Emerson Sales, Emilio Tuosto. Accurate Static Data Race Detection for C. To appear at FM 2024
4. Christian Bartolo Burlò, Adrian Francalanza, Alceste Scalas, Emilio Tuosto. COTS: Connected OpenAPI Test Synthesis for RESTful Applications. In Ilaria Castellani and Francesco Tiezzi editors, 26th {IFIP} {WG} 6.1 International Conference, COORDINATION 2024, held as Part of the 19th International Federated Conference on Distributed Computing Techniques, DisCoTec 2024, Groningen, The Netherlands, June 17-21, 2024, Proceedings, volume 14676 of Lecture Notes in Computer Science, pages 75–92. Springer, 2024.
5. João Afonso, Elvis Konjoh Selabi, Maurizio Murgia, António Ravara, Emilio Tuosto. TRAC: A Tool for Data-Aware Coordination - (with an Application to Smart Contracts). In Ilaria Castellani and Francesco Tiezzi editors, 26th {IFIP} {WG} 6.1 International Conference, COORDINATION 2024, held as Part of the 19th International Federated Conference on Distributed Computing Techniques, DisCoTec 2024, Groningen, The Netherlands, June 17-21, 2024, Proceedings, volume 14676 of Lecture Notes in Computer Science, pages 239–257. Springer, 2024. **Best artefact**
6. Carlos Gustavo López Pombo, Pablo Montepagano, Emilio Tuosto. SEArch: An Execution Infrastructure for Service-Based Software Systems. In Ilaria Castellani and Francesco Tiezzi editors, 26th {IFIP} {WG} 6.1 International Conference, COORDINATION 2024, held as Part of the 19th International Federated Conference on Distributed Computing Techniques, DisCoTec 2024, Groningen, The Netherlands, June 17-21, 2024, Proceedings, volume 14676 of Lecture Notes in Computer Science, pages 314–330. Springer, 2024.
7. Roland Kuhn, Hernan C. Melgratti, and Emilio Tuosto. Behavioural types for local-first software. In Karim Ali and Guido Salvaneschi, editors, 37th European Conference on Object-Oriented Programming, ECOOP 2023, July 17-21, 2023, Seattle, Washington, United States, volume 263 of LIPIcs, pages 15:1–15:28. Schloss Dagstuhl - Leibniz-Zentrum fur Informatik, 2023.
8. Roland Kuhn, Hernan C. Melgratti, and Emilio Tuosto. Behavioural types for local-first software (artifact). Dagstuhl Artifacts Ser., 9(2):14:1–14:5, 2023.
9. Alex Coto, Omar Inverso, Emerson Sales, and Emilio Tuosto. A prototype for data race detection in cseq 3 - (competition contribution). In Dana Fisman and Grigore Rosu, editors, Tools and Algorithms for the Construction and Analysis of Systems - 28th International Conference, TACAS 2022, Held as Part of the European Joint Conferences on Theory and Practice of Software, ETAPS 2022, Munich, Germany, April 2-7, 2022, Proceedings, Part II, volume 13244 of Lecture Notes in Computer Science, pages 413–417. Springer, 2022. **Awarded the Silver medal**

10. Alex Coto, Franco Barbanera, Ivan Lanese, Davide Rossi, and Emilio Tuosto. On formal choreographic modelling: A case study in EU business processes. In Tiziana Margaria and Bernhard Steffen, editors, Leveraging Applications of Formal Methods, Verification and Validation. Verification Principles - 11th International Symposium, ISoLA 2022, Rhodes, Greece, October 22-30, 2022, Proceedings, Part I, volume 13701 of Lecture Notes in Computer Science, pages 205–219. Springer, 2022.

11. Lorenzo Gheri, Ivan Lanese, Neil Sayers, Emilio Tuosto, and Nobuko Yoshida. Design-by-contract for flexible multiparty session protocols. In Karim Ali and Jan Vitek, editors, 36th European Conference on Object-Oriented Programming, ECOOP 2022, June 6-10, 2022, Berlin, Germany, volume 222 of LIPIcs, pages 8:1–8:28. Schloss Dagstuhl - Leibniz-Zentrum fur Informatik, 2022.

12. Lorenzo Gheri, Ivan Lanese, Neil Sayers, Emilio Tuosto, and Nobuko Yoshida. Design-by-contract for flexible multiparty session protocols (artifact). Dagstuhl Artifacts Ser., 8(2):21:1–21:5, 2022.

13. Maurizio Murgia, Riccardo Pinciroli, Catia Trubiani, and Emilio Tuosto. On model-based performance analysis of collective adaptive systems. In Tiziana Margaria and Bernhard Steffen, editors, Leveraging Applications of Formal Methods, Verification and Validation. Adaptation and Learning - 11th International Symposium, ISoLA 2022, Rhodes, Greece, October 22-30, 2022, Proceedings, Part III, volume 13703 of Lecture Notes in Computer Science, pages 266–282. Springer, 2022.

14. Christian Bartolo Burlò, Adrian Francalanza, Alceste Scalas, Catia Trubiani, and Emilio Tuosto. Towards probabilistic session-type monitoring. In Ferruccio Damiani and Ornela Dardha, editors, Coordination Models and Languages - 23rd IFIP WG 6.1 International Conference, COORDINATION 2021, Held as Part of the 16th International Federated Conference on Distributed Computing Techniques, DisCoTec 2021, Valletta, Malta, June 14-18, 2021, Proceedings, volume 12717 of Lecture Notes in Computer Science, pages 106–120. Springer, 2021.

15. Simone Orlando, Vairo Di Pasquale, Franco Barbanera, Ivan Lanese, and Emilio Tuosto. Corinne, a tool for choreography automata. In Gwen Salaun and Anton Wijs, editors, Formal Aspects of Component Software - 17th International Conference, FACS 2021, Virtual Event, October 28-29, 2021, Proceedings, volume 13077 of Lecture Notes in Computer Science, pages 82–92. Springer, 2021.
[Emilio's contribution has been to advise on some implementation details the first two authors, who implemented the tool, and to collaborate with Prof. Barbanera and Prof. Lanese in writing the paper]

16. Franco Barbanera, Ivan Lanese, and Emilio Tuosto. Composing communicating systems, synchronously. In Tiziana Margaria and Bernhard Steffen, editors, Leveraging Applications of Formal Methods, Verification and Validation: Verification Principles - 9th International Symposium on Leveraging Applications of Formal Methods, ISoLA 2020, Rhodes, Greece, October 20-30, 2020, Proceedings, Part I, volume 12476 of Lecture Notes in Computer Science, pages 39–59. Springer, 2020.

17. Franco Barbanera, Ivan Lanese, and Emilio Tuosto. Choreography automata. In Simon Bliudze and Laura Bocchi, editors, Coordination Models and Languages - 22nd IFIP WG 6.1 International Conference, COORDINATION 2020, Held as Part of the 15th International Federated Conference on Distributed Computing Techniques, DisCoTec 2020, Valletta, Malta, June 15-19, 2020, Proceedings, volume 12134 of Lecture Notes in Computer Science, pages 86–106. Springer, 2020.

18. Alex Coto, Roberto Guanciale, and Emilio Tuosto. Choreographic development of message-passing applications - A tutorial. In Simon Bliudze and Laura Bocchi, editors, Coordination Models and Languages - 22nd IFIP WG 6.1 International Conference, COORDINATION 2020, Held as Part of the 15th International Federated Conference on Distributed Computing Techniques, DisCoTec 2020, Valletta, Malta, June 15-19, 2020, Proceedings, volume 12134 of Lecture Notes in Computer Science, pages 20–36. Springer, 2020.

19. Alex Coto, Roberto Guanciale, and Emilio Tuosto. On testing message-passing components. In Tiziana Margaria and Bernhard Steffen, editors, Leveraging Applications of Formal Methods, Verification and Validation: Verification Principles - 9th International Symposium on Leveraging Applications of Formal Methods, ISoLA 2020, Rhodes, Greece, October 20-30, 2020, Proceedings, Part I, volume 12476 of Lecture Notes in Computer Science, pages 22–38. Springer, 2020.

20. Leonardo Frittelli, Facundo Maldonado, Hernan C. Melgratti, and Emilio Tuosto. A choreography-driven approach to apis: The opendxl case study. In Simon Bliudze and Laura Bocchi, editors, Coordination Models and Languages - 22nd IFIP WG 6.1 International Conference, COORDINATION 2020, Held as Part of the 15th International Federated Conference on Distributed Computing Techniques, DisCoTec 2020, Valletta, Malta, June 15-19, 2020, Proceedings, volume 12134 of Lecture Notes in Computer Science, pages 107–124. Springer, 2020.

21. Omar Inverso, Hernan C. Melgratti, Luca Padovani, Catia Trubiani, and Emilio Tuosto. Probabilistic analysis of binary sessions. In Igor Konnov and Laura Kovacs, editors, 31st International Conference on Concurrency Theory, CONCUR 2020, September 1-4, 2020, Vienna, Austria (Virtual Conference), volume 171 of LIPIcs, pages 14:1–14:21. Schloss Dagstuhl - Leibniz-Zentrum fur Informatik, 2020.

22. Omar Inverso, Catia Trubiani, and Emilio Tuosto. Abstractions for collective adaptive systems. In Tiziana Margaria and Bernhard Steffen, editors, Leveraging Applications of Formal Methods, Verification and Validation: Engineering Principles - 9th International Symposium on Leveraging Applications of Formal Methods, ISoLA 2020, Rhodes, Greece, October 20-30, 2020, Proceedings, Part II, volume 12477 of Lecture Notes in Computer Science, pages 243–260. Springer, 2020.

23. Adrian Francalanza, Claudio Antares Mezzina, and Emilio Tuosto. Reversible choreographies via monitoring in erlang. In Silvia Bonomi and Etienne Riviere, editors, Distributed Applications and Interoperable Systems - 18th IFIP WG 6.1 International Conference, DAIS 2018, Held as Part of the 13th International Federated Conference on Distributed Computing Techniques, DisCoTec 2018, Madrid, Spain, June 18-21, 2018, Proceedings, volume 10853 of Lecture Notes in Computer Science, pages 75–92. Springer, 2018.

24. Davide Basile, Pierpaolo Degano, Gian-Luigi Ferrari, and Emilio Tuosto. Playing with our CAT and communication-centric applications. In Elvira Albert and Ivan Lanese, editors, Formal Techniques for Distributed Objects, Components, and Systems - 36th IFIP WG 6.1 International Conference, FORTE 2016, Held as Part of the 11th International Federated Conference on Distributed Computing Techniques, DisCoTec 2016, Heraklion, Crete, Greece, June 6-9, 2016, Proceedings, volume 9688 of Lecture Notes in Computer Science, pages 62–73. Springer, 2016.

25. Ramsay Taylor, Emilio Tuosto, Neil Walkinshaw, and John Derrick. Choreography-based analysis of distributed message passing programs. In 24th Euromicro International Conference on Parallel, Distributed, and Network-Based Processing, PDP 2016, Heraklion, Crete, Greece, February 17-19, 2016, pages 512–519. IEEE Computer Society, 2016.

26. Paula Severi, Luca Padovani, Emilio Tuosto, and Mariangiola Dezani-Ciancaglini. On sessions and infinite data. In Alberto Lluch-Lafuente and Josè Proenca, editors, Coordination Models and Languages - 18th IFIP WG 6.1 International Conference, COORDINATION 2016, Held as Part of the 11th International Federated Conference on Distributed Computing Techniques, DisCoTec 2016, Heraklion, Crete, Greece, June 6-9, 2016, Proceedings, volume 9686 of Lecture Notes in Computer Science, pages 245–261. Springer, 2016. **Nomination for best paper**

27. Julien Lange, Emilio Tuosto, and Nobuko Yoshida. From communicating machines to graphical choreographies. In Sriram K. Rajamani and David Walker, editors, Proceedings of the 42nd Annual ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages, POPL 2015, Mumbai, India, January 15-17, 2015, pages 221–232. ACM, 2015.

28. Laura Bocchi, Hernan C. Melgratti, and Emilio Tuosto. Resolving non-determinism in choreographies. In Zhong Shao, editor, Programming Languages and Systems - 23rd European Symposium on Programming, ESOP 2014, Held as Part of the European Joint Conferences on Theory and Practice of Software, ETAPS 2014, Grenoble, France, April 5-13, 2014, Proceedings, volume 8410 of Lecture Notes in Computer Science, pages 493–512. Springer, 2014.

29. Massimo Bartoletti, Alceste Scalas, Emilio Tuosto, and Roberto Zunino. Honesty by typing. In Dirk Beyer and Michele Boreale, editors, Formal Techniques for Distributed Systems - Joint IFIP WG 6.1 International Conference, FMOODS/FORTE 2013, Held as Part of the 8th International Federated Conference on Distributed Computing Techniques, DisCoTec 2013, Florence, Italy, June 3-5, 2013. Proceedings, volume 7892 of Lecture Notes in Computer Science, pages 305–320. Springer, 2013.

30. Massimo Bartoletti, Emilio Tuosto, and Roberto Zunino. On the realizability of contracts in dishonest systems. In Marjan Sirjani, editor, Coordination Models and Languages - 14th International Conference, COORDINATION 2012, Stockholm, Sweden, June 14-15, 2012. Proceedings, volume 7274 of Lecture Notes in Computer Science, pages 245–260. Springer, 2012.

31. Alexander Kurz, Tomoyuki Suzuki, and Emilio Tuosto. On nominal regular languages with binders. In Lars Birkedal, editor, Foundations of Software Science and Computational Structures - 15th International Conference, FOSSACS 2012, Held as Part of the European Joint Conferences on Theory and Practice of Software, ETAPS 2012, Tallinn, Estonia, March 24 - April 1, 2012. Proceedings, volume 7213 of Lecture Notes in Computer Science, pages 255–269. Springer, 2012.

32. Alexander Kurz, Tomoyuki Suzuki, and Emilio Tuosto. A characterisation of languages on infinite alphabets with nominal regular expressions. In Jos C. M. Baeten, Thomas Ball, and Frank S. de Boer, editors,

Theoretical Computer Science - 7th IFIP TC 1/WG 2.2 International Conference, TCS 2012, Amsterdam, The Netherlands, September 26-28, 2012. Proceedings, volume 7604 of Lecture Notes in Computer Science, pages 193–208. Springer, 2012.

33. Julien Lange and Emilio Tuosto. Synthesising choreographies from local session types. In Maciej Koutny and Irek Ulidowski, editors, CONCUR 2012 - Concurrency Theory - 23rd International Conference, CONCUR 2012, Newcastle upon Tyne, UK, September 4-7, 2012. Proceedings, volume 7454 of Lecture Notes in Computer Science, pages 225–239. Springer, 2012.

34. Laura Bocchi, Roberto Guanciale, Daniele Strollo, and Emilio Tuosto. BPMN modelling of services with dynamically reconfigurable transactions. In Paul P. Maglio, Mathias Weske, Jian Yang, and Marcelo Fantinato, editors, Service-Oriented Computing - 8th International Conference, ICSOC 2010, San Francisco, CA, USA, December 7-10, 2010. Proceedings, volume 6470 of Lecture Notes in Computer Science, pages 396–410, 2010.

35. Laura Bocchi and Emilio Tuosto. Testing attribute-based transactions in SOC. In John Hatcliff and Elena Zucca, editors, Formal Techniques for Distributed Systems, Joint 12th IFIP WG 6.1 International Conference, FMOODS 2010 and 30th IFIP WG 6.1 International Conference, FORTE 2010, Amsterdam, The Netherlands, June 7-9, 2010. Proceedings, volume 6117 of Lecture Notes in Computer Science, pages 87–94. Springer, 2010.

36. Laura Bocchi, Kohei Honda, Emilio Tuosto, and Nobuko Yoshida. A theory of design-by-contract for distributed multiparty interactions. In Paul Gastin and Francois Laroussinie, editors, CONCUR 2010 - Concurrency Theory, 21th International Conference, CONCUR 2010, Paris, France, August 31-September 3, 2010. Proceedings, volume 6269 of Lecture Notes in Computer Science, pages 162–176. Springer, 2010.

37. Laura Bocchi and Emilio Tuosto. A java inspired semantics for transactions in SOC. In Martin Wirsing, Martin Hofmann, and Axel Rauschmayer, editors, Trustworthly Global Computing - 5th International Symposium, TGC 2010, Munich, Germany, February 24-26, 2010, Revised Selected Papers, volume 6084 of Lecture Notes in Computer Science, pages 120–134. Springer, 2010.

38. Roberto Bruni, Ivan Lanese, Hernan C. Melgratti, and Emilio Tuosto. Multiparty sessions in SOC. In Doug Lea and Gianluigi Zavattaro, editors, Coordination Models and Languages, 10th International Conference, COORDINATION 2008, Oslo, Norway, June 4-6, 2008. Proceedings, volume 5052 of Lecture Notes in Computer Science, pages 67–82. Springer, 2008.

39. Pietro Cenciarelli, Daniele Gorla, and Emilio Tuosto. Network applications of graph bisimulation. In Hartmut Ehrig, Reiko Heckel, Grzegorz Rozenberg, and Gabriele Taentzer, editors, Graph Transformations, 4th International Conference, ICGT 2008, Leicester, United Kingdom, September 7-13, 2008. Proceedings, volume 5214 of Lecture Notes in Computer Science, pages 131–146. Springer, 2008.

40. Roberto Bruni, Alberto Lluch-Lafuente, Ugo Montanari, and Emilio Tuosto. Service oriented architectural design. In Gilles Barthe and Cedric Fournet, editors, Trustworthy Global Computing, Third Symposium, TGC 2007, Sophia-Antipolis, France, November 5-6, 2007, Revised Selected Papers, volume 4912 of Lecture Notes in Computer Science, pages 186–203. Springer, 2007.

41. Gianluigi Ferrari, Roberto Guanciale, Daniele Strollo, and Emilio Tuosto. Coordination via types in an event-based framework. In John Derrick and Juri Vain, editors, Formal Techniques for Networked and Distributed Systems - FORTE 2007, 27th IFIP WG 6.1 International Conference, Tallinn, Estonia, June 27-29, 2007, Proceedings, volume 4574 of Lecture Notes in Computer Science, pages 66–80. Springer, 2007.

42. Rocco De Nicola, Gian-Luigi Ferrari, Ugo Montanari, Rosario Pugliese, and Emilio Tuosto. A process calculus for qos-aware applications. In Jean-Marie Jacquet and Gian Pietro Picco, editors, Coordination Models and Languages, 7th International Conference, COORDINATION 2005, Namur, Belgium, April 20-23, 2005, Proceedings, volume 3454 of Lecture Notes in Computer Science, pages 33–48. Springer, 2005.

43. Gian-Luigi Ferrari, Ugo Montanari, and Emilio Tuosto. Model checking for nominal calculi. In Vladimiro Sassone, editor, Foundations of Software Science and Computational Structures, 8th International Conference, FOSSACS 2005, Held as Part of the Joint European Conferences on Theory and Practice of Software, ETAPS 2005, Edinburgh, UK, April 4-8, 2005, Proceedings, volume 3441 of Lecture Notes in Computer Science, pages 1–24. Springer, 2005.

44. Gian-Luigi Ferrari, Ugo Montanari, Emilio Tuosto, Bjorn Victor, and Kidane Yemane. Modelling fusion calculus using hd-automata. In Jose Luiz Fiadeiro, Neil Harman, Markus Roggenbach, and Jan J. M. M. Rutten, editors, Algebra and Coalgebra in Computer Science: First International Conference, CALCO 2005, Swansea, UK, September 3-6, 2005, Proceedings, volume 3629 of Lecture Notes in Computer Science, pages 142–156. Springer, 2005.

45. Gian-Luigi Ferrari, Dan Hirsch, Ivan Lanese, Ugo Montanari, and Emilio Tuosto. Synchronised hyperedge replacement as a model for service oriented computing. In Frank S. de Boer, Marcello M. Bonsangue, Susanne Graf, and Willem P. de Roever, editors, Formal Methods for Components and Objects, 4th International Symposium, FMCO 2005, Amsterdam, The Netherlands, November 1-4, 2005, Revised Lectures, volume 4111 of Lecture Notes in Computer Science, pages 22–43. Springer, 2005.

46. Dan Hirsch and Emilio Tuosto. Shreq: Coordinating application level qos. In Bernhard K. Aichernig and Bernhard Beckert, editors, Third IEEE International Conference on Software Engineering and Formal Methods (SEFM 2005), 7-9 September 2005, Koblenz, Germany, pages 425–434. IEEE Computer Society, 2005.

47. Ivan Lanese and Emilio Tuosto. Synchronized hyperedge replacement for heterogeneous systems. In Jean-Marie Jacquet and Gian Pietro Picco, editors, Coordination Models and Languages, 7th International Conference, COORDINATION 2005, Namur, Belgium, April 20-23, 2005, Proceedings, volume 3454 of Lecture Notes in Computer Science, pages 220–235. Springer, 2005.

48. Rocco De Nicola, Gian-Luigi Ferrari, Ugo Montanari, Rosario Pugliese, and Emilio Tuosto. A formal basis for reasoning on programmable qos. In Nachum Dershowitz, editor, Verification: Theory and Practice, Essays Dedicated to Zohar Manna on the Occasion of His 64th Birthday, volume 2772 of Lecture Notes in Computer Science, pages 436–479. Springer, 2003.

49. Andrea Bracciali, Antonio Brogi, Gian-Luigi Ferrari, and Emilio Tuosto. Security and dynamic compositions of open systems. In Hamid R. Arabnia, editor, Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications, PDPTA '02, June 24 - 27, 2002, Las Vegas, Nevada, USA, Volume 3, pages 1372–1377. CSREA Press, 2002.

50. Gian-Luigi Ferrari, Ugo Montanari, Roberto Raggi, and Emilio Tuosto. From co-algebraic specifications to implementation: The mihda toolkit. In Frank S. de Boer, Marcello M. Bonsangue, Susanne Graf, and Willem P. de Roever, editors, Formal Methods for Components and Objects, First International Symposium, FMCO 2002, Leiden, The Netherlands, November 5-8, 2002, Revised Lectures, volume 2852 of Lecture Notes in Computer Science, pages 319–338. Springer, 2002.

51. Emilio Tuosto. An ada95 implementation of a network coordination language with code mobility. In Michael Gonzalez Harbour and Juan Antonio de la Puente, editors, Reliable Software Technologies - Ada-Europe '99, 1999 Ada-Europe International Conference on Reliable Software Technologies, Santander, Spain, June 7-11, 1999, Proceedings, volume 1622 of Lecture Notes in Computer Science, pages 199–210. Springer, 1999.

10.3 Workshops

1. Franco Barbanera, Ivan Lanese, and Emilio Tuosto. On composing communicating systems. In Clèment Aubert, Cinzia Di Giusto, Larisa Safina, and Alceste Scalas, editors, Proceedings 15th Interaction and Concurrency Experience, ICE 2022, Lucca, Italy, 17th June 2022, volume 365 of EPTCS, pages 53–68, 2022.

2. Alex Coto, Roberto Guanciale, and Emilio Tuosto. An abstract framework for choreographic testing. In Julien Lange, Anastasia Mavridou, Larisa Safina, and Alceste Scalas, editors, Proceedings 13th Interaction and Concurrency Experience, ICE 2020, Online, 19 June 2020, volume 324 of EPTCS, pages 43–60, 2020.

3. Ugo de'Liguoro, Hernan C. Melgratti, and Emilio Tuosto. Towards refinable choreographies. In Julien Lange, Anastasia Mavridou, Larisa Safina, and Alceste Scalas, editors, Proceedings 13th Interaction and Concurrency Experience, ICE 2020, Online, 19 June 2020, volume 324 of EPTCS, pages 61–77, 2020.

4. Yi Xiao and Emilio Tuosto. On learning nominal automata with binders. In Massimo Bartoletti, Ludovic Henrio, Anastasia Mavridou, and Alceste Scalas, editors, Proceedings 12th Interaction and Concurrency Experience, ICE 2019, Copenhagen, Denmark, 20-21 June 2019, volume 304 of EPTCS, pages 137–155, 2019.

5. Hao Zeng, Alexander Kurz, and Emilio Tuosto. Interface automata for choreographies. In Massimo Bartoletti, Ludovic Henrio, Anastasia Mavridou, and Alceste Scalas, editors, Proceedings 12th Interaction and Concurrency Experience, ICE 2019, Copenhagen, Denmark, 20-21 June 2019, volume 304 of EPTCS, pages 1–19, 2019.

6. Roberto Guanciale and Emilio Tuosto. Realisability of pomsets via communicating automata. In Massimo Bartoletti and Sophia Knight, editors, Proceedings 11th Interaction and Concurrency Experience, ICE 2018, Madrid, Spain, June 20-21, 2018, volume 279 of EPTCS, pages 37–51, 2018.

7. Chiara Bodei, Pierpaolo Degano, Letterio Galletta, and Emilio Tuosto. Tool supported analysis of iot. In Massimo Bartoletti, Laura Bocchi, Ludovic Henrio, and Sophia Knight, editors, Proceedings 10th Interaction and Concurrency Experience, ICE@DisCoTec 2017, Neuchˆatel, Switzerland, 21-22nd June 2017, volume 261 of EPTCS, pages 37–56, 2017.

8. Ian Cassar, Adrian Francalanza, Claudio Antares Mezzina, and Emilio Tuosto. Reliability and fault-tolerance by choreographic design. In Adrian Francalanza and Gordon J. Pace, editors, Proceedings Second International Workshop on Pre- and Post-Deployment Verification Techniques, PrePost@iFM 2017, Torino, Italy, 19 September 2017, volume 254 of EPTCS, pages 69–80, 2017.

9. Roberto Guanciale and Emilio Tuosto. An abstract semantics of the global view of choreographies. In Massimo Bartoletti, Ludovic Henrio, Sophia Knight, and Hugo Torres Vieira, editors, Proceedings 9th Interaction and Concurrency Experience, ICE 2016, Heraklion, Greece, 8-9 June 2016, volume 223 of EPTCS, pages 67–82, 2016.

10. Ignacio Vissani, Carlos Gustavo Lopez Pombo, and Emilio Tuosto. Communicating machines as a dynamic binding mechanism of services. In Simon Gay and Jade Alglave, editors, Proceedings Eighth International Workshop on Programming Language Approaches to Concurrency- and Communication-cEntric Software, PLACES 2015, London, UK, 18th April 2015, volume 203 of EPTCS, pages 85–98, 2015.

11. Davide Basile, Pierpaolo Degano, Gian-Luigi Ferrari, and Emilio Tuosto. From orchestration to choreography through contract automata. In Ivan Lanese, Alberto Lluch-Lafuente, Ana Sokolova, and Hugo Torres Vieira, editors, Proceedings 7th Interaction and Concurrency Experience, ICE 2014, Berlin, Germany, 6th June 2014, volume 166 of EPTCS, pages 67–85, 2014.

12. Kyriakos Poyias and Emilio Tuosto. On recovering from run-time misbehaviour in ADR. In Marco Carbone, Ivan Lanese, Alberto Lluch-Lafuente, and Ana Sokolova, editors, Proceedings 6th Interaction and Concurrency Experience, ICE 2013, Florence, Italy, 6th June 2013, volume 131 of EPTCS, pages 68–84, 2013.

13. Kyriakos Poyias and Emilio Tuosto. Enforcing architectural styles in presence of unexpected distributed reconfigurations. In Marco Carbone, Ivan Lanese, Alexandra Silva, and Ana Sokolova, editors, Proceedings Fifth Interaction and Concurrency Experience, ICE 2012, Stockholm, Sweden, 16th June 2012, volume 104 of EPTCS, pages 67–82, 2012.

14. Emilio Tuosto. Contract-oriented services. In Maurice H. ter Beek and Niels Lohmann, editors, Web Services and Formal Methods - 9th International Workshop, WS-FM 2012, Tallinn, Estonia, September 6-7, 2012, Revised Selected Papers, volume 7843 of Lecture Notes in Computer Science, pages 16–29. Springer, 2012.

15. Massimo Bartoletti, Emilio Tuosto, and Roberto Zunino. Contracts in distributed systems. In Alexandra Silva, Simon Bliudze, Roberto Bruni, and Marco Carbone, editors, Proceedings Fourth Interaction and Concurrency Experience, ICE 2011, Reykjavik, Iceland, 9th June 2011, volume 59 of EPTCS, pages 130–147, 2011.

16. Laura Bocchi, Julien Lange, and Emilio Tuosto. Amending contracts for choreographies. In Alexandra Silva, Simon Bliudze, Roberto Bruni, and Marco Carbone, editors, Proceedings Fourth Interaction and Concurrency Experience, ICE 2011, Reykjavik, Iceland, 9th June 2011, volume 59 of EPTCS, pages 111–129, 2011.

17. Nour Ali and Emilio Tuosto. Architectural models of ambient-prisma in channel ambient calculus. In James L. Rash and Christopher A. Rouff, editors, 34th Annual IEEE Software Engineering Workshop, SEW 2011, Limerick, Ireland, June 20-21, 2011, pages 1–10. IEEE Computer Society, 2011.

18. Gian-Luigi Ferrari, Roberto Guanciale, Daniele Strollo, and Emilio Tuosto. Refactoring long running transactions: A case study. In Martin Wirsing, Martin Hofmann, and Axel Rauschmayer, editors, Trustworthly Global Computing - 5th International Symposium, TGC 2010, Munich, Germany, February 24-26, 2010, Revised Selected Papers, volume 6084 of Lecture Notes in Computer Science, pages 318–334. Springer, 2010.

19. Julien Lange and Emilio Tuosto. A modular toolkit for distributed interactions. In Kohei Honda and Alan Mycroft, editors, Proceedings Third Workshop on Programming Language Approaches to Concurrency and communication-cEntric Software, PLACES 2010, Paphos, Cyprus, 21st March 2010, volume 69 of EPTCS, pages 92–110, 2010.

20. Hyder Ali Nizamani and Emilio Tuosto. Patterns of federated identity management systems as architectural reconfigurations. Electron. Commun. Eur. Assoc. Softw. Sci. Technol., 31, 2010.

21. Qurat ul Ain Nizamani and Emilio Tuosto. Heuristic methods for security protocols. In Michele Boreale and Steve Kremer, editors, Proceedings 7th International Workshop on Security Issues in Concurrency, SECCO 2009, Bologna, Italy, 5th September 2009, volume 7 of EPTCS, pages 61–75, 2009.

22. Marco Aldinucci and Emilio Tuosto. Toward a formal semantics for autonomic components. In From Grids To Service and Pervasive Computing (Proc. of the CoreGRID Symposium 2008), Las Palmas, Spain, 2008, pp. 31-45. doi:10.1007/978-0-387-09455-7_3

23. Gian-Luigi Ferrari, Roberto Guanciale, Daniele Strollo, and Emilio Tuosto. Debugging distributed systems with causal nets. Electron. Commun. Eur. Assoc. Softw. Sci. Technol., 14, 2008.

24. Gian-Luigi Ferrari, Roberto Guanciale, Daniele Strollo, and Emilio Tuosto. Refactoring long running transactions. In Roberto Bruni and Karsten Wolf, editors, Web Services and Formal Methods, 5th International Workshop, WS-FM 2008, Milan, Italy, September 4-5, 2008, Revised Selected Papers, volume 5387 of Lecture Notes in Computer Science, pages 127–142. Springer, 2008.

25. Roberto Bruni, Hernan C. Melgratti, and Emilio Tuosto. Translating orc features into petri nets and the join calculus. In Mario Bravetti, Manuel Nunez, and Gianluigi Zavattaro, editors, Web Services and Formal Methods, Third International Workshop, WS-FM 2006 Vienna, Austria, September 8-9, 2006, Proceedings, volume 4184 of Lecture Notes in Computer Science, pages 123–137. Springer, 2006.

26. Roberto Bruni, Gian-Luigi Ferrari, Hernan C. Melgratti, Ugo Montanari, Daniele Strollo, and Emilio Tuosto. From theory to practice in transactional composition of web services. In Mario Bravetti, Leila Kloul, and Gianluigi Zavattaro, editors, Formal Techniques for Computer Systems and Business Processes, European Performance Engineering Workshop, EPEW 2005 and International Workshop on Web Services and Formal Methods, WS-FM 2005, Versailles, France, September 1-3, 2005, Proceedings, volume 3670 of Lecture Notes in Computer Science, pages 272–286. Springer, 2005.

27. Dan Hirsch, Alberto Lluch-Lafuente, and Emilio Tuosto. A logic for application level qos. In Antonio Cerone and Herbert Wiklicky, editors, Proceedings of the Third Workshop on Quantitative Aspects of Programming Languages, QAPL 2005, Edinburgh, UK, April 2-3, 2005, volume 153 of Electronic Notes in Theoretical Computer Science, pages 135–159. Elsevier, 2005.

28. Giacomo Baldi, Andrea Bracciali, Gian-Luigi Ferrari, and Emilio Tuosto. A coordination-based methodology for security protocol verification. In Nadia Busi, Roberto Gorrieri, and Fabio Martinelli, editors, Proceedings of the 2nd International Workshop on Security Issues with Petri Nets and other Computational Models, WISP@ICATPN 2004, Bologna, Italy, June 26, 2004, volume 121 of Electronic Notes in Theoretical Computer Science, pages 23–46. Elsevier, 2004.

29. Emilio Tuosto and Hugo Torres Vieira. An observational model for spatial logics. In Maurice H. ter Beek and Fabio Gadducci, editors, Proceedings of the First International Workshop on Views on Designing Complex Architectures, VODCA@FOSAD 2004, Bertinoro, Italy, September 11-12, 2004, volume 142 of Electronic Notes in Theoretical Computer Science, pages 229–254. Elsevier, 2004.

30. Emilio Tuosto. Tarzan: Communicating and moving in wireless jungles. In Antonio Cerone and Alessandra Di Pierro, editors, Proceedings of the Second Workshop on Quantitative Aspects of Programming Languages, QAPL 2004, Barcelona, Spain, March 27-28, 2004, volume 112 of Electronic Notes in Theoretical Computer Science, pages 77–94. Elsevier, 2004.

31. Andrea Bracciali, Antonio Brogi, Gian-Luigi Ferrari, and Emilio Tuosto. Security issues in component-based design. In Ugo Montanari and Vladimiro Sassone, editors, International Workshop on Concurrency and Coordination, ConCoord 2001, associated to the 13th Lipari School, Lipari Island, Italy, July 6-8, 2001, volume 54 of Electronic Notes in Theoretical Computer Science, pages 49–57. Elsevier, 2001.

32. Gian-Luigi Ferrari and Emilio Tuosto. A debugging calculus for mobile ambients. In Gary B. Lamont, editor, Proceedings of the 2001 ACM Symposium on Applied Computing (SAC), March 11-14, 2001, Las Vegas, NV, USA. ACM, 2001.

33. Gian-Luigi Ferrari, Ugo Montanari, and Emilio Tuosto. A LTS semantics of ambients via graph synchronization with mobility. In Antonio Restivo, Simona Ronchi Della Rocca, and Luca Roversi, editors, Theoretical Computer Science, 7th Italian Conference, ICTCS 2001, Torino, Italy, October 4-6, 2001, Proceedings, volume 2202 of Lecture Notes in Computer Science, pages 1–16. Springer, 2001.

34. Gian-Luigi Ferrari, Rosario Pugliese, and Emilio Tuosto. Calculi for network aware programming. In Antonio Corradi, Andrea Omicini, and Agostino Poggi, editors, WOA 2000: Dagli Oggetti agli Agenti. 1st AI*IA/TABOO Joint Workshop "From Objects to Agents": Evolutive Trends of Software Systems, 29-30 May 2000, Parma, Italy, pages 23–28. Pitagora Editrice Bologna, 2000.

10.4 Book chapters

1. Adrian Francalanza, Claudio Antares Mezzina, and Emilio Tuosto. Towards choreographic-based monitoring. In Irek Ulidowski, Ivan Lanese, Ulrik Pagh Schultz, and Carla Ferreira, editors, Reversible Computation: Extending Horizons of Computing - Selected Results of the COST Action IC1405, volume 12070 of Lecture Notes in Computer Science, pages 128–150. Springer, 2020.

2. Roberto Bruni, Andrea Corradini, Fabio Gadducci, Hernan C. Melgratti, Ugo Montanari, and Emilio Tuosto. Data-driven choreographies a la klaim. In Michele Boreale, Flavio Corradini, Michele Loreti, and Rosario Pugliese, editors, Models, Languages, and Tools for Concurrent and Distributed Programming - Essays Dedicated to Rocco De Nicola on the Occasion of His 65th Birthday, volume 11665 of Lecture Notes in Computer Science, pages 170–190. Springer, 2019.

3. Julien Lange, Emilio Tuosto and Nobuko Yoshida A Tool for Choreography-Based Analysis of Message-Passing Software In Simon and António Ravara editors, Behavioural Types: from Theory to Tools. River Publisher. Series on Automation, Control and Robot. DOI: https://doi.org/10.13052/rp-9788793519817 2017

4. Nicola Atzei, Massimo Bartoletti, Maurizio Murgia, Emilio Tuosto and Roberto Zunino. Contract-Oriented Design of Distributed Applications: A Tutorial. In Simon and António Ravara editors, Behavioural Types: from Theory to Tools. River Publisher. Series on Automation, Control and Robot. DOI: https://doi.org/10.13052/rp-9788793519817 2017

5. Giancarlo Bigi, Andrea Bracciali, Giovanni Meacci, and Emilio Tuosto. Validation of decentralised smart contracts through game theory and formal methods. In Chiara Bodei, Gian-Luigi Ferrari, and Corrado Priami, editors, Programming Languages with Applications to Biology and Security - Essays Dedicated to Pierpaolo Degano on the Occasion of His 65th Birthday, volume 9465 of Lecture Notes in Computer Science, pages 142–161. Springer, 2015.

6. Roberto Bruni, Howard Foster, Alberto Lluch-Lafuente, Ugo Montanari, and Emilio Tuosto. A formal support to business and architectural design for service-oriented systems. In Martin Wirsing and Matthias M. Holzl, editors, Rigorous Software Engineering for Service-Oriented Systems - Results of the SENSORIA Project on Software Engineering for Service-Oriented Computing, volume 6582 of Lecture Notes in Computer Science, pages 133–152. Springer, 2011.

7. Vincenzo Ciancia, Gian-Luigi Ferrari, Roberto Guanciale, Daniele Strollo, and Emilio Tuosto. Model-driven development of long running transactions. In Martin Wirsing and Matthias M. Holzl, editors, Rigorous Software Engineering for Service-Oriented Systems - Results of the SENSORIA Project on Software Engineering for Service-Oriented Computing, volume 6582 of Lecture Notes in Computer Science, pages 326–348. Springer, 2011.

8. Vincenzo Ciancia, Gian-Luigi Ferrari, Marco Pistore, and Emilio Tuosto. History dependent automata for service compatibility. In Pierpaolo Degano, Rocco De Nicola, and Jose Meseguer, editors, Concurrency, Graphs and Models, Essays Dedicated to Ugo Montanari on the Occasion of His 65th Birthday, volume 5065 of Lecture Notes in Computer Science, pages 625–641. Springer, 2008.

9. Gian-Luigi Ferrari, Roberto Guanciale, Daniele Strollo, and Emilio Tuosto. Event-based service coordination. In Pierpaolo Degano, Rocco De Nicola, and Jose Meseguer, editors, Concurrency, Graphs and Models, Essays Dedicated to Ugo Montanari on the Occasion of His 65th Birthday, volume 5065 of Lecture Notes in Computer Science, pages 312–329. Springer, 2008.

10. Gian-Luigi Ferrari, Stefania Gnesi, Ugo Montanari, Roberto Raggi, Gianluca Trentanni, and Emilio Tuosto. Verication on the web of mobile systems. In Juan Carlos Augusto and Ulrich Ultes-Nitsche, editors, Verification and Validation of Enterprise Information Systems, Proceedings of the 2nd International Workshop on Verification and Validation of Enterprise Information Systems, VVEIS 2004, In conjunction with ICEIS 2004, Porto, Portugal, April 2004, pages 72–74. INSTICC Press, 2004.

11. Lorenzo Bettini, Viviana Bono, Rocco De Nicola, Gian-Luigi Ferrari, Daniele Gorla, Michele Loreti, Eugenio Moggi, Rosario Pugliese, Emilio Tuosto, and Betti Venneri. The klaim project: Theory and practice. In Corrado Priami, editor, Global Computing. Programming Environments, Languages, Security, and Analysis of Systems, IST/FET International Workshop, GC 2003, Rovereto, Italy, February 9-14, 2003, Revised Papers, volume 2874 of Lecture Notes in Computer Science, pages 88–150. Springer, 2003.

12. Gian-Luigi Ferrari, Ugo Montanari, and Emilio Tuosto. Graph-based models of internetworking systems. In Bernhard K. Aichernig and T. S. E. Maibaum, editors, Formal Methods at the Crossroads. From Panacea to Foundational Support, 10th Anniversary Colloquium of UNU/IIST, the International Institute

for Software Technology of The United Nations University, Lisbon, Portugal, March 18-20, 2002, Revised Papers, volume 2757 of Lecture Notes in Computer Science, pages 242–266. Springer, 2002.