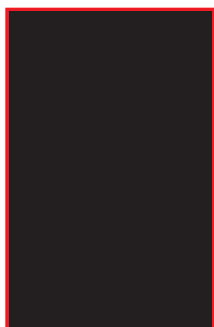


## PERSONAL INFORMATION


WORK EXPERIENCE  
POSITIONS

## Alessandro Fantechi

 DINFO, Via S. Marta 3, 50139 Firenze, Italy

 alessandro.fantechi@unifi.it

 <https://stlab.dinfo.unifi.it/fantechi/>

Sex Male | Date of  | Nationality Italian

Full Professor, Università di Firenze, from 30 December 2004 to present

Associate Professor, Università di Firenze, from 1 November 1995 to 29 December 2004.

Associate Professor, Università di Pisa, from 1 November 1992 to 30 October 1995.

Researcher, Istituto di Elaborazione dell'Informazione (IEI-CNR) from 16 April 1983 to 30 October 1992.

Research Associate, Istituto di Scienza e Tecnologie dell'Informazione (ISTI-CNR) from 1 January 2002 to present.

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Research Associate, Istituto di Elaborazione dell'Informazione (IEI-CNR) from 1 January 1993 to 31 December 2001.

Software Engineer, Olivetti, Pisa, from 1 November 1981 to 15 April 1983

CNR Fellowship at Università di Pisa, from 1 January 1980 to 30 October 1981

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EDUCATION AND TRAINING

Laurea in Scienze dell'Informazione, 110/110 cum laude

23/11/1978. Università di Pisa

Diploma di licenza, November 1978.

Scuola Normale Superiore, Pisa

## PERSONAL SKILLS

Mother tongue(s)

Italian

Other language(s)

English

French

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	
C1	C2	C1	C2	C2
B2	C1	A2	A2	A2

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user

## Research Activity

Alessandro Fantechi has conducted an intense research activity, witnessed by many publications in highly reputed journals and at main conferences, in the field of Software Engineering, concentrating in the last twenty years on the application of formal specification and verification methods. His main current research interests are on industrial applications of model checking and on software product lines and variability modeling.

Formal modeling, temporal logics, formal verification, model checking, form the foundational basis of Alessandro Fantechi's research activities. The industrial application of such foundations has brought, in the long run, to publications on industrial case studies, especially in the last period. Also, the more recent interests in (formalization of) Software Product Lines and in Requirement Engineering have produced a series of publications in this area.

## Technology Transfer

Alessandro Fantechi has maintained strict relations with industries as well, starting from his one year and a half experience in Olivetti in the early eighties of the twentieth century, and then within several research, teaching and consulting collaborations with main Italian companies, as well as with several small and medium enterprises. Most of these companies are active in the fields of safety critical computer systems and Alessandro Fantechi has had hence the opportunity to mature a significant experience, in particular on the Ada programming language, on the industrial applications of Formal Methods, on Software Certification, on Model-Based design, Automatic Code Generation, in particular in the railway signalling domain.

At this regard, we mention a 15-years long collaboration with General Electric Transportation Systems in Florence (formerly Siliani Harmon, now part of ALSTOM), that has included funding for research and technology transfer about the adoption of advanced software engineering techniques (structural testing, formal verification, model-based design and testing, requirement engineering,... ) in the company's software development process, including funding for 6 PhD students, in the time frame 2002-2019.

Other industrial collaborations in the same domain have been established with: COMESA (2010-2013), ALSTOM (2005-2008), Ansaldo Segnalamento Ferroviario (1994-1996), with funding for PostDoc fellowships. The participation to common research projects has been the occasion to collaborate with other companies as well (such as ECM, SIRT, Ardanuy, Thales, Resiltech).

Alessandro Fantechi has also offered from 1984 to 2013 more than 30 short courses on various themes regarding Software engineering, in particular Software development and certification according to safety guidelines in the avionic domain (DO178B), railway domain (EN50128), military domain (DEF STAN 00-55/56), to major Italian embedded system manufacturers, such as Agusta, Altran, Ansaldo Trasporti, Bombardier, Intecs, Officine Galileo, Selex.

The strict collaboration with companies working in the railway signalling domain has allowed Alessandro Fantechi to gain a significant experience in an area at the border between technology transfer and advanced industrial research, that is the application of Formal Methods to the development and verification of systems in this domain. For his experience, he has been invited as a keynote speaker at:

- FM-I day, August 2012, CNAM, Paris
- FMICS, September 2013, Univ. of Madrid .
- Round Table "La Modularizzazione dei Sistemi Ferroviari tra innovazione continua e ottimizzazione dei costi" organized by DITECFER and JU Shift2Rail within ExpoFerroviaria, 29 September 2021
- Round Table within the DITECFER/ERCI meeting on "Artificial Intelligence Made Easy for the Railway and Mobility Value Chain" 8 June 2023

In August 2014 he has been invited to talk at the Workshop on Software Change Management and Approval Processes for Safety-critical Applications, organized by DTU, DK and by the Danish railways.

## European and National Research Projects

### Leading roles in research projects:

ESPRIT II LOTOSPHERE (1989-92), as IEI-CNR team leader FP4-ESPRIT 4 GUARDS (Generic Upgradable Architecture for Dependable Systems - 1996-99), as IEI-CNR team leader

Nationally funded PRIN project SALADIN "Software Architectures and Languages to Coordinate Distributed Mobile Components" (1999-2001), as Università di Firenze team leader

Nationally funded PRIN project QUACK "Innovative techniques for the formal specification and verification of fault-tolerant real-time embedded systems" (1999-2001), as Università di Firenze team leader.

IP6 project MODTRAIN – MODCONTROL "Standardization of an innovative Train Control and Monitoring System (TCMS) designed for future interoperable European trains" (2004-2007), as ISTI-CNR team leader.

Tuscan Region funded project INDIGO (COMESA, UNIFI, QuestIt, PSC) (Diagnosis and monitoring of railway vehicles), as Università di Firenze team leader. 2015-2018

Spoke 4 (Railway Transport) of National Centre for Sustainable Mobility (MOST-CN4) funded by PNRR – Next Generation EU, Coordinator of Workpackage 1 (Increase of capacity of railway transport) 2022-present

### Participation to past projects:

CEC-MAP PAPS (Portable Ada Programming System - 1981-82), CEC-MAP AdaFD (Ada Formal Definition 1985-1987, as IEI-CNR, in partnership with DTU-DK),

IP6 Sensoria (2005-2009).

Tuscan Region funded project Trace-It (ECM, UNIFI, ISTI-CNR) (Train Control Enhancement via Information Technology) 2011-2014

Tuscan Region funded project SISTER (Thales, UNIFI, UNIFI, IDS, Resiltech, Genesys) (Signaling & Sensing Technologies in Railway Applications) 2017-2019

Shift2Rail ASTRail project (ISMB, SIRT, ARDANUY, ISTI-CNR, UNIFE) (Satellite-based Signalling and Automation Systems on Railways along with formal Method ad Moving Block Validation), as member of the ISTI-CNR team. 2017-2019

Shift2Rail 4SECURail project (SIRT, ARDANUY, ISTI-CNR, UNIFE) (Formal methods and CSIRT for the railway sector), as member of the ISTI-CNR team. 2019-2021

## Currently taught courses

Software dependability, within the Master course in Computer Engineering, Università di Firenze.

Industrial Informatics (Embedded Systems), within the Bachelor course in Computer Engineering, Università di Firenze.

Past teaching experience of over 25 years in these courses, as well as in courses on Theoretical Computer Science, Software Engineering and Foundations of Computers Science at Engineering Bachelor and Master students of Engineering curricula at Universities of Pisa and Florence

## Prominent academic roles

President of the School of Engineering of Università di Firenze (2019- present)

Coordinator of the curriculum (Master/Bachelor) in Computer Engineering of the Università di Firenze from 2007 to 2014.

Member of the Research Board of the Department of Computer Engineering (DINFO), Università di Firenze, 2015-2019

In charge of the Computer Engineering curriculum of the PhD school in Information Engineering at Università di Firenze 2015-2018

Member of the Steering Committee of the PhD school in Smart Industry at Università di Firenze 2018-present

1998-2017 External Member of PhD evaluation juries, at ENST, Telecom Paristech), Univ. of Grenoble, Univ. of Nice at Sophia Antipolis, Univ. of Pisa, Univ. of Maribor, Univ. of Malaga, Technical University of Denmark.

Supervisor of PHD students, Università di Firenze:

Emilio Spinicci (2006), Michele Banci (2007), Alessio Ferrari (2011), Daniele Grasso(2014), Gianluca Magnani(2014), Andrea Bonacchi (2015), Stefano Pepi (2016), Giorgio Oronzo Spagnolo (2016), Gloria Gori (2018), Marco Papini (2021)

Responsibilities in international conferences

Organizing Chair CSMR'98, Firenze, 8-11 March 1998.  
 Organizing Chair FMOODS'99, Firenze, 15-18 March 1999  
 Tutorial co-chair FORTE/PSTV'00, Pisa, October 2000.  
 Tutorial co-chair ICSM2001, Firenze, November 2001.  
 Organizing Chair FME2003, Pisa, September 2003  
 Publication Chair SRDS2003, Firenze, October 2003  
 Local Coordinator PFE-5, Siena, November 2003  
 General co-chair ICECCS2004, Firenze, April 2004  
 Program co-chair FMICS2008, L'Aquila, September 2008  
 Finance Chair SEFM 2010, Pisa, September 2010  
 Finance Chair IFM&ABZ 2012, Pisa, June 2012  
 General chair VECOS 2013, Firenze, November 2013  
 General co-chair SPLC2014, Firenze, September 2014  
 Program chair SERENE2015, Parigi, Settembre 2015  
 Program co-chair RSSRail 2017, Pistoia, November 2017  
 Member of the Steering Committee of the SPLC conference series, 2014-2018  
 General chair VAMOS 2022, Firenze, February 2022  
 Member of the Steering Committee of the RSSRail conference series, 2022-present

Scientific Committees

Member of the Scientific Committee of DITECFER (Distretto Tecnologico Ferroviario, an ERCI cluster) 2014 -present

## ADDITIONAL INFORMATION

Memberships

Member of AICA (Associazione Italiana per l'informatica e il Calcolo Automatico)  
 Member of FME (Formal Methods Europe)  
 Coordinator of the ERCIM FMICS (Formal Methods for Industrial Critical Systems) Working Group from 2008 to 2011.  
 Founder member of AMT (Associazione per gli studi sulla Mobilità in Toscana), of which he has been president from 2014 to 2015, and from 2018 to present.  
 Member of CIFI (Collegio Ingegneri Ferroviari Italiani)  
 Member of LRTA (Light Rail Transit Association).  
 Member of the Interdepartmental research unit on Sustainable Mobility of Università di Firenze

Long visits to foreign institutions

- 1984: 5 months as an invited visitor of Technical University of Denmark, Computer Science Department, working at a project on Formal Methods combination, under the supervision of Prof. Dines Bjørner.
- In the period 1999-2007, several invited long visits at Telecom Paristech (formerly Ecole Nationale Supérieure des Telecommunications, ENST) in Paris, to work on the formalization of interactions between distributed components and services, with Prof. Elie Najm.
- 2016: 6 months at the Technical University of Denmark, DTU Compute Department, as a Velux Visiting Professor, to join a research activity on formal verification of railway interlocking systems, conducted by Prof. Anne Haxthausen.

Participation to Juries of Awards

- Member of the Jury of the DITECFER Innovation Contest (2017-2022)
- Member of the Jury of the ERCI Innovation Awards (2018-present)

## Publications

(extracted from the DBLP database, with a few updates)

## JOURNALS

[j41] Anne Elisabeth Haxthausen, Alessandro Fantechi: Compositional Verification of Railway Interlocking Systems. Formal Aspects Comput. 35(1): 4:1-4:46 (2023)

- [j40] Alessandro Fantechi, Stefania Gnesi, Laura Semini:  
VIBE: Looking for Variability In amBiguous rEquirements. *J. Syst. Softw.* 195: 111540 (2023)
- [j39] Laura Carnevali, Alessandro Fantechi, Gloria Gori, Jacopo Parri, Moreno Pieralli, Samuele Sampietro: A heuristic approach for predictive diagnosis of wheel wear based on low-cost track-side equipment. *Ingegneria Ferroviaria*, p. 5-27, 2021, ISSN: 0020-0956
- [j38] Alessandro Fantechi, Anne E. Haxthausen, Jim Woodcock:  
Editorial. *Formal Aspects Comput.* 33(6): 923-924 (2021)
- [j37] Davide Basile, Alessandro Fantechi, Luigi Rucher, Gianluca Mandò:  
Analysing an autonomous tramway positioning system with the Uppaal Statistical Model Checker. *Formal Aspects Comput.* 33(6): 957-987 (2021)
- [j36] Laura Carnevali, Alessandro Fantechi, Gloria Gori, Enrico Vicario: Stochastic modeling and analysis of road-tramway intersections. *Innov. Syst. Softw. Eng.* 16(2): 215-230 (2020)
- [j35] Alessio Ferrari, Gloria Gori, Benedetta Rosadini, Iacopo Trotta, Stefano Bacherini, Alessandro Fantechi, Stefania Gnesi: Detecting requirements defects with NLP patterns: an industrial experience in the railway domain. *Empir. Softw. Eng.* 23(6): 3684-3733 (2018)
- [j34] Federica Paganelli, Terence Ambra, Alessandro Fantechi, Dino Giuli: Formalizing REST APIs for web-based communication and SIP interworking. *Telecommun. Syst.* 66(1): 75-93 (2017)
- [j33] Maurice H. ter Beek, Alessandro Fantechi, Stefania Gnesi, Franco Mazzanti:  
Modelling and analysing variability in product families: Model checking of modal transition systems with variability constraints. *J. Log. Algebraic Methods Program.* 85(2): 287-315 (2016)
- [j32] Andrea Bonacchi, Alessandro Fantechi, Stefano Bacherini, Matteo Tempestini:  
Validation process for railway interlocking systems. *Sci. Comput. Program.* 128: 2-21 (2016)
- [j31] Alessandro Fantechi, Francesco Flammini, Stefania Gnesi:  
Formal methods for railway control systems. *Int. J. Softw. Tools Technol. Transf.* 16(6): 643-646 (2014)
- [j30] Gionni Bernardini, Federica Paganelli, Mauro Manetti, Alessandro Fantechi, Ernesto Iadanza: SYRMA: a tool for a system approach to risk management in mission critical systems. *Int. J. Bus. Inf. Syst.* 13(1): 21-44 (2013)
- [j29] Alessandro Fantechi, Chris D. Nugent, Alessandro Pinzuti, Enrico Vicario, Tommaso Magherini: An On-line system for automated recognition of human activities. *Eur. J. Law Technol.* 4(2) (2013)
- [j28] Jonathan Michaux, Elie Najm, Alessandro Fantechi:  
Session types for safe Web service orchestration. *J. Log. Algebraic Methods Program.* 82(8): 282-310 (2013)
- [j27] Alessio Ferrari, Alessandro Fantechi, Gianluca Magnani, Daniele Grasso, Matteo Tempestini:  
The Metrô Rio case study. *Sci. Comput. Program.* 78(7): 828-842 (2013)
- [j26] Alessio Ferrari, Alessandro Fantechi, Stefania Gnesi, Gianluca Magnani:  
Model-Based Development and Formal Methods in the Railway Industry. *IEEE Softw.* 30(3): 28-34 (2013)
- [j25] Tommaso Magherini, Alessandro Fantechi, Chris D. Nugent, Enrico Vicario:  
Using Temporal Logic and Model Checking in Automated Recognition of Human Activities for Ambient-Assisted Living. *IEEE Trans. Hum. Mach. Syst.* 43(6): 509-521 (2013)
- [j24] Alessandro Fantechi, Stefania Gnesi, Alessandro Lapadula, Franco Mazzanti, Rosario Pugliese, Francesco Tiezzi: A logical verification methodology for service-oriented computing. *ACM Trans. Softw. Eng. Methodol.* 21(3): 16:1-16:46 (2012)
- [j23] Alessio Ferrari, Gianluca Magnani, Daniele Grasso, Alessandro Fantechi, Matteo Tempestini:  
Adoption of Model-Based Testing and Abstract Interpretation by a Railway Signalling Manufacturer. *Int. J. Embed. Real Time Commun. Syst.* 2(2): 42-61 (2011)
- [j22] Darren D. Cofer, Alessandro Fantechi, Stefan Leue, Pedro Merino:  
Preface to the special issue on Formal Methods for Industrial Critical Systems (FMICS 2007 + FMICS 2008). *Sci. Comput. Program.* 76(2): 63-64 (2011)
- [j21] Maurice H. ter Beek, Alessandro Fantechi, Stefania Gnesi, Franco Mazzanti:  
A state/event-based model-checking approach for the analysis of abstract system properties. *Sci. Comput. Program.* 76(2): 119-135 (2011)
- [j20] Michele Banci, Stefania Gnesi, Alessandro Fantechi, Giovanni Lombardi:  
Model driven development of railway systems using diversity. *Comput. Syst. Sci. Eng.* 23(5) (2008)
- [j19] Michele Banci, Alessandro Fantechi, Stefania Gnesi:  
Statecharts Composition to Model Topologically Distributed Applications. *Trans. SDPS* 10(1): 1-15 (2006)
- [j18] Cyril Carrez, Alessandro Fantechi, Elie Najm: Assembling components with behavioural contracts. *Ann. des Télécommunications* 60(7-8): 989-1022 (2005)
- [j17] Marcello Becucci, Alessandro Fantechi, Marco Giromini, Emilio Spinicci:  
A comparison between handwritten and automatic generation of C code from SDL using static analysis. *Softw. Pract. Exp.* 35(14): 1317-1347 (2005)
- [j16] Alessandro Fantechi, Stefania Gnesi, Giuseppe Lami, Alessandro Maccari:



- Applications of linguistic techniques for use case analysis. *Requir. Eng.* 8(3): 161-170 (2003)
- [j15] Cinzia Bernardeschi, Alessandro Fantechi, Stefania Gnesi:  
Model checking fault tolerant systems. *Softw. Test. Verification Reliab.* 12(4): 251-275 (2002)
- [j14] Nicoletta De Francesco, Alessandro Fantechi, Stefania Gnesi, Paola Inverardi:  
Finite Approximations for Model Checking Non-finite-state Processes. *Comput. J.* 44(2): 109-123 (2001)
- [j13] Andrea Bondavalli, Alessandro Fantechi, Diego Latella, Luca Simoncini:  
Design Validation of Embedded Dependable Systems. *IEEE Micro* 21(5): 52-62 (2001)
- [j12] Cinzia Bernardeschi, Alessandro Fantechi, Stefania Gnesi: Formal validation of fault-tolerance mechanisms inside GUARDS. *Reliab. Eng. Syst. Saf.* 71(3): 261-270 (2001)
- [j11] Cinzia Bernardeschi, Alessandro Fantechi, Luca Simoncini:  
Formally Verifying Fault Tolerant System Designs. *Comput. J.* 43(3): 191-205 (2000)
- [j10] David Powell, Jean Arlat, Ljerka Beus-Dukic, Andrea Bondavalli, P. Coppola, Alessandro Fantechi, Eric Jenn, Christophe Rabéjac, Andy J. Wellings:  
GUARDS: A Generic Upgradable Architecture for Real-Time Dependable Systems. *IEEE Trans. Parallel Distributed Syst.* 10(6): 580-599 (1999)
- [j9] Cinzia Bernardeschi, Alessandro Fantechi, Stefania Gnesi, Salvatore Larosa, Giorgio Mongardi, Dario Romano: A Formal Verification Environment for Railway Signaling System Design. *Formal Methods Syst. Des.* 12(2): 139-161 (1998)
- [j8] Cinzia Bernardeschi, Alessandro Fantechi, Stefania Gnesi:  
An industrial application for the JACK environment. *J. Syst. Softw.* 39(3): 249-264 (1997)
- [j7] Alessandro Fantechi, Stefania Gnesi, Gioia Ristori:  
Model Checking for Action-Based Logics. *Formal Methods Syst. Des.* 4(2): 187-203 (1994)
- [j6] Alessandro Fantechi, Stefania Gnesi, Gioia Ristori, Michele Carenini, Massimo Vanocchi, Paolo Moreschini:  
Assisting Requirement Formalization by Means of Natural Language Translation. *Formal Methods Syst. Des.* 4(3): 243-263 (1994)
- [j5] Rocco De Nicola, Alessandro Fantechi, Stefania Gnesi, Gioia Ristori:  
An Action-Based Framework for Verifying Logical and Behavioural Properties of Concurrent Systems. *Comput. Networks ISDN Syst.* 25(7): 761-778 (1993)
- [j4] Alessandro Fantechi, Stefania Gnesi:  
Compositionality and Bisimulation: A Negative Result. *Inf. Process. Lett.* 39(2): 109-114 (1991)
- [j3] Alessandro Fantechi, Stefania Gnesi, F. Leggio, P. Talini:  
Executing the formal definition of Ada. *ACM SIGPLAN Notices* 26(3): 25-34 (1991)
- [j2] Fabrizio Baiardi, Alessandro Fantechi, A. Tomasi, Marco Vanneschi:  
Distributed Implementation of Nested Communicating Sequential Processes: Communication and Termination. *J. Parallel Distributed Comput.* 4(6): 531-545 (1987)
- [j1] Alessandro Fantechi, Paola Inverardi, Norma Lijtmaer:  
Using High Level Languages for Local Computer Network Communication: A Case Study in Ada. *Softw. Pract. Exp.* 16(8): 701-717 (1986)

## CONFERENCES (limited to the last 10 years)

- [c125] Alessandro Fantechi, Gloria Gori, Anne E. Haxthausen:  
Automated Compositional Verification of Interlocking Systems. *RSSRail 2023*
- [c124] Alessandro Fantechi, Stefania Gnesi, Laura Semini:  
Rule-based NLP vs ChatGPT in ambiguity detection, a preliminary study. *REFSQ Workshops 2023*
- [c123] Alessandro Fantechi, Gloria Gori, Marco Papini:  
Runtime Reliability Monitoring for Complex Fault-Tolerance Policies. *ICSRS 2022: 110-119*
- [c122] Alessandro Fantechi, Stefania Gnesi, Anne E. Haxthausen:  
Formal Methods for Distributed Control Systems of Future Railways. *ISoLA (4) 2022: 243-245*
- [c121] Alessandro Fantechi, Stefania Gnesi, Gloria Gori:  
Future Train Control Systems: Challenges for Dependability Assessment. *ISoLA (4) 2022: 269-285*
- [c120] Alessandro Fantechi, Gloria Gori, Marco Papini:  
Software rejuvenation and runtime reliability monitoring. *ISSRE Workshops 2022: 162-169*
- [c119] Alessandro Fantechi, Gloria Gori, Anne E. Haxthausen, Christophe Limbrée:  
Compositional Verification of Railway Interlockings: Comparison of Two Methods. *RSSRail 2022: 3-19*
- [c118] Francesco Flammini, Lorenzo De Donato, Alessandro Fantechi, Valeria Vittorini:  
A Vision of Intelligent Train Control. *RSSRail 2022: 192-208*
- [c117] Alessandro Fantechi, Stefania Gnesi, Laura Semini: Language and Communication Problems in

- Formalization: A Natural Language Approach. Logic, Computation and Rigorous Methods 2021: 121-134
- [c116] Davide Basile, Alessandro Fantechi, Irene Rosadi: Formal Analysis of the UNISIG Safety Application Intermediate Sub-layer - Applying Formal Methods to Railway Standard Interfaces. FMICS 2021: 174-190
- [c115] Alessandro Fantechi, Stefania Gnesi, Samuele Livi, Laura Semini:  
A spaCy-based tool for extracting variability from NL requirements. SPLC (B) 2021: 32-35
- [c114] Alessio Ferrari, Franco Mazzanti, Davide Basile, Maurice H. ter Beek, Alessandro Fantechi:  
Comparing formal tools for system design: a judgment study. ICSE 2020: 62-74
- [c113] Davide Basile, Maurice H. ter Beek, Felicità Di Giandomenico, Alessandro Fantechi, Stefania Gnesi, Giorgio Ortonzo Spagnolo: 30 Years of Simulation-Based Quantitative Analysis Tools: A Comparison Experiment Between Möbius and Upaal SMC. ISO LA (1) 2020: 368-384
- [c112] Alessandro Fantechi, Stefania Gnesi, Anne E. Haxthausen:  
Formal Methods for Distributed Computing in Future Railway Systems. ISO LA (3) 2020: 389-392
- [c111] Davide Basile, Maurice H. ter Beek, Alessandro Fantechi, Alessio Ferrari, Stefania Gnesi, Laura Masullo, Franco Mazzanti, Andrea Piattino, Daniele Trentini: Designing a Demonstrator of Formal Methods for Railways Infrastructure Managers. ISO LA (3) 2020: 467-485
- [c110] Monica Arrabito, Alessandro Fantechi, Stefania Gnesi, Laura Semini: An Experience with the Application of Three NLP Tools for the Analysis of Natural Language Requirements. QUATIC 2020: 488-498
- [c109] Monica Arrabito, Alessandro Fantechi, Stefania Gnesi, Laura Semini:  
A comparison of NLP Tools for RE to extract Variation Points. REFSQ Workshops 2020
- [c108] Maurice H. ter Beek, Alessandro Fantechi, Laura Semini:  
The Legacy of Stefania Gnesi - From Software Engineering to Formal Methods and Tools, and Back. From Software Engineering to Formal Methods and Tools, and Back 2019: 1-11
- [c107] Alessandro Fantechi, Elie Najm, Jean-Bernard Stefani:  
From Behavioural Contracts to Session Types. Models, Languages, and Tools for Concurrent and Distributed Programming 2019: 278-297
- [c106] Maurice H. ter Beek, Arne Borälv, Alessandro Fantechi, Alessio Ferrari, Stefania Gnesi, Christer Löfving, Franco Mazzanti: Adopting Formal Methods in an Industrial Setting: The Railways Case. FM 2019: 762-772
- [c105] Alessandro Fantechi, Stefania Gnesi, Laura Semini:  
From Generic Requirements to Variability. REFSQ Workshops 2019
- [c104] Alessandro Fantechi: Connected or Autonomous Trains? RSSRail 2019: 3-19
- [c103] Davide Basile, Alessandro Fantechi, Luigi Rucher, Gianluca Mandò: Statistical Model Checking of Hazards in an Autonomous Tramway Positioning System. RSSRail 2019: 41-58
- [c102] Alessio Ferrari, Maurice H. ter Beek, Franco Mazzanti, Davide Basile, Alessandro Fantechi, Stefania Gnesi, Andrea Piattino, Daniele Trentini: Survey on Formal Methods and Tools in Railways: The ASTRail Approach. RSSRail 2019: 226-241
- [c101] Laura Carnevali, Lorenzo Ciani, Alessandro Fantechi, Marco Papini:  
A novel layered approach to evaluate reliability of complex systems. RTSI 2019: 291-295
- [c100] Andrea Ceccarelli, Davide Basile, Andrea Bondavalli, Lorenzo Falai, Alessandro Fantechi, Sandro Ferrari, Gianluca Mandò, Nicola Nostro, Luigi Rucher: The SISTER Approach for Verification and Validation: A Lightweight Process for Reusable Results. SAFECOMP Workshops 2019: 185-197
- [c99] Alessandro Fantechi, Stefania Gnesi, Laura Semini:  
Applying the QuARS tool to detect variability. SPLC (B) 2019: 62:1-62:4
- [c98] Maurice H. ter Beek, Alessandro Fantechi, Stefania Gnesi, Franco Mazzanti:  
States and Events in KandISTI - A Retrospective. Models, Mindsets, Meta 2018: 110-128
- [c97] Alessandro Fantechi, Anne E. Haxthausen:  
Safety Interlocking as a Distributed Mutual Exclusion Problem. FMICS 2018: 52-66
- [c96] Davide Basile, Maurice H. ter Beek, Alessandro Fantechi, Stefania Gnesi, Franco Mazzanti, Andrea Piattino, Daniele Trentini, Alessio Ferrari: On the Industrial Uptake of Formal Methods in the Railway Domain - A Survey with Stakeholders. IFM 2018: 20-29
- [c95] Alessandro Fantechi, Alessio Ferrari, Stefania Gnesi, Laura Semini:  
Requirement Engineering of Software Product Lines: Extracting Variability Using NLP. RE 2018: 418-423
- [c94] Maurice H. ter Beek, Alessandro Fantechi, Stefania Gnesi:  
Product line models of large cyber-physical systems: the case of ERTMS/ETCS. SPLC 2018: 208-214
- [c93] Alessandro Fantechi, Alessio Ferrari, Stefania Gnesi, Laura Semini:  
Hacking an Ambiguity Detection Tool to Extract Variation Points: an Experience Report. VaMoS 2018: 43-50
- [c92] Laura Carnevali, Alessandro Fantechi, Gloria Gori, Enrico Vicario:  
Analysis of a Road/Tramway Intersection by the ORIS Tool. VECos 2018: 185-199
- [c91] Alessandro Fantechi, Stefania Gnesi, Laura Semini:  
Optimizing Feature Interaction Detection. FMICS-AVoCS 2017: 201-216

- [c90] Hugo Daniel Macedo, Alessandro Fantechi, Anne E. Haxthausen: Compositional Model Checking of Interlocking Systems for Lines with Multiple Stations. NFM 2017: 146-162
- [c89] Alessandro Fantechi, Anne E. Haxthausen, Michel Boje Randahl Nielsen: Model Checking Geographically Distributed Interlocking Systems Using UMC. PDP 2017: 278-286
- [c88] Benedetta Rosadini, Alessio Ferrari, Gloria Gori, Alessandro Fantechi, Stefania Gnesi, Iacopo Trotta, Stefano Bacherini: Using NLP to Detect Requirements Defects: An Industrial Experience in the Railway Domain. REFSQ 2017: 344-360
- [c87] Alessandro Fantechi, Anne E. Haxthausen, Hugo Daniel Macedo: Compositional Verification of Interlocking Systems for Large Stations. SEFM 2017: 236-252
- [c86] Alessandro Fantechi, Stefania Gnesi, Laura Semini: Ambiguity defects as variation points in requirements. VaMoS 2017: 13-19
- [c85] Alessandro Fantechi: Formal Techniques for a Data-Driven Certification of Advanced Railway Signalling Systems. FMICS-AVoCS 2016: 231-245
- [c84] Alessandro Fantechi, Alessio Ferrari, Stefania Gnesi: Formal Methods and Safety Certification: Challenges in the Railways Domain. ISoLA (2) 2016: 261-265
- [c83] Hugo Daniel Macedo, Alessandro Fantechi, Anne E. Haxthausen: Compositional Verification of Multi-station Interlocking Systems. ISoLA (2) 2016: 279-293
- [c82] Maurice H. ter Beek, Alessandro Fantechi, Stefania Gnesi, Laura Semini: Variability-Based Design of Services for Smart Transportation Systems. ISoLA (2) 2016: 465-481
- [c81] Alessandro Fantechi, Stefano Pepi: Petri Nets Modeling for the Schedulability Analysis of Industrial Real Time Systems. AMARETTO@MODELSWARD 2016: 5-13
- [c80] Stefano Pepi, Alessandro Fantechi: Schedulability Analysis of Pre-runtime and Runtime Scheduling Algorithm of an Industrial Real Time System. MODELSWARD (Revised Selected Papers) 2016: 46-69
- [c79] Maurice H. ter Beek, Alessandro Fantechi, Stefania Gnesi: Applying the product lines paradigm to the quantitative analysis of collective adaptive systems. SPLC 2015: 321-326
- [c78] Maurice H. ter Beek, Alessandro Fantechi, Stefania Gnesi, Franco Mazzanti: Using FMC for family-based analysis of software product lines. SPLC 2015: 432-439
- [c77] Andrea Bonacchi, Alessandro Fantechi: On the Validation of an Interlocking System by Model-Checking. FMICS 2014: 94-108
- [c76] Maurice H. ter Beek, Alessandro Fantechi, Stefania Gnesi: Challenges in Modelling and Analyzing Quantitative Aspects of Bike-Sharing Systems. ISoLA (1) 2014: 351-367
- [c75] Mariano Di Claudio, Alessandro Fantechi, Giacomo Martelli, Simone Menabeni, Paolo Nesi: Model-based development of an automatic train operation component for communication based train control. ITSC 2014: 1015-1020
- [c74] Andrea Bonacchi, Alessandro Fantechi: Validation of Interlocking Systems by Testing their Models. QUATIC 2014: 226-229

## Book Chapters

- [p3] Eleonora Arganese, Alessandro Fantechi, Stefania Gnesi, Laura Semini: Nuts and Bolts of Extracting Variability Models from Natural Language Requirements Documents. Integrating Research and Practice in Software Engineering 2020: 125-143
- [p5] Alessandro Fantechi, Alessio Ferrari, Stefania Gnesi: Applications of formal methods, modelling and testing strategies for safe software development, Chapter 17 of: Qamar Mahboob, Enrico Zio (eds.), Handbook of RAMS in Railway Systems Theory and Practice, CRC Press, 2018.
- [p4] Alessandro Fantechi, Stefania Gnesi: Refinement of Behavioural Models for Variability Description. From Action Systems to Distributed Systems 2016: 155-169
- [p3] Alessandro Fantechi, Wan Fokkink, and Angelo Morzenti, Some Trends in Formal Methods Applications to Railway Signaling, in: S. Gnesi, T. Margaria (eds.), Formal Methods for Industrial Critical Systems: A Survey of Applications, (pp. 63-84). Chichester: Wiley-IEEE Press, 2013.
- [p2] Alessandro Fantechi: The Role of Formal Methods in Software Development for Railway Applications. In Francesco Flammini (ed.) Railway Safety, Reliability, and Security: Technologies and Systems Engineering, 282-297 (2012) IGI Global.
- [p1] Antonia Bertolino, Alessandro Fantechi, Stefania Gnesi, Giuseppe Lami: Product Line Use Cases: Scenario-Based Specification and Testing of Requirements. Software Product Lines 2006: 425-445

## Edited Conference Proceedings



- [e8] Paolo Arcaini, Xavier Devroey, Alessandro Fantechi:  
VaMoS '22: 16th International Working Conference on Variability Modelling of Software-Intensive Systems, Florence, Italy, February 23 - 25, 2022. ACM 2022, ISBN 978-1-4503-9604-2
- [e7] Maurice H. ter Beek, Alessandro Fantechi, Laura Semini:  
From Software Engineering to Formal Methods and Tools, and Back - Essays Dedicated to Stefania Gnesi on the Occasion of Her 65th Birthday. Lecture Notes in Computer Science 11865, Springer 2019, ISBN 978-3-030-30984-8
- [e6] Alessandro Fantechi, Thierry Lecomte, Alexander B. Romanovsky:  
Reliability, Safety, and Security of Railway Systems. Modelling, Analysis, Verification, and Certification - Second International Conference, RSSRail 2017, Pistoia, Italy, November 14-16, 2017, Proceedings. Lecture Notes in Computer Science 10598, Springer 2017, ISBN 978-3-319-68498-7
- [e5] Alessandro Fantechi, Patrizio Pelliccione: Software Engineering for Resilient Systems - 7th International Workshop, SERENE 2015, Paris, France, September 7-8, 2015. Proceedings. Lecture Notes in Computer Science 9274, Springer 2015.
- [e4] Stefania Gnesi, Alessandro Fantechi, Patrick Heymans, Julia Rubin, Krzysztof Czarnecki (Eds.): 18th International Software Product Line Conference, SPLC '14, Florence, Italy - September 15 - 19, 2014. ACM 2014, ISBN 978-1-4503-2740-4
- [e3] Stefania Gnesi, Alessandro Fantechi, Maurice H. ter Beek, Goetz Botterweck, Martin Becker (Eds.): 18th International Software Product Lines Conference - Companion Volume for Workshop, Tools and Demo papers, SPLC '14, Florence, Italy, September 15-19, 2014. ACM 2014, ISBN 978-1-4503-2739-8
- [e2] Darren D. Cofer, Alessandro Fantechi (Eds.): Formal Methods for Industrial Critical Systems, 13th International Workshop, FMICS 2008, L'Aquila, Italy, September 15-16, 2008, Revised Selected Papers. Lecture Notes in Computer Science 5596, Springer 2009, ISBN 978-3-642-03239-4
- [e1] Paolo Ciancarini, Alessandro Fantechi, Roberto Gorrieri (Eds.): Formal Methods for Open Object-Based Distributed Systems, IFIP TC6/WG6.1 Third International Conference on Formal Methods for Open Object-Based Distributed Systems (FMOODS), February 15-18, 1999, Florence, Italy. IFIP Conference Proceedings 139, Kluwer 1999, ISBN 0-7923-8429-6



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