Cláudio Gomes

Contents

Key Academic Skills at a Glance

Researcher
- Participated in 25+ journal and 45+ conference publications (peer reviewed).
- Google H-Index is 23, ResearchGate score is 1,143, and most cited paper has 547 citations. 2393 new citations since 2020.
- Awarded a Research Foundation Flanders (FWO) Scholarship.

Collaborator
- 30 international collaborations (applied mathematics, formal methods), universities (Aarhus, Carnegie Mellon, KU Leuven, UCLouvain, McGill, KTH, Manchester), and companies (Boeing, Novo Nordisk, Vestas, Lego, Technicon, Flanders Make, Virtual Vehicle Research Center, fortiss, and Bosch).q

Leader
- Official co-supervisor of 6 PhD Students in the domains of modelling and simulation, manufacturing, anomaly detection, and machine learning.
- Co-simulation research group leader at ECE.

Teacher
- Assisting practical lectures since 2nd year of BSc (12 semesters).
- Associate Professor since 2025 (Fast tracked tenure track).

Learner
- Contributed to surveys in new fields (e.g., [25, 28][77]).
- Applied knowledge from other fields to problems on own field (e.g., [72]).
- Co-authored contributions outside own field (e.g., [69, 63]).

Speaker
- Delivered +30 presentations to international audiences, 7 of which were invited, at universities such as TU Graz, UCLouvain, research institutes such as IFP Energie Nouvelles, and companies such as Siemens, Boeing Research&Technology Europe, and Novo Nordisk.

Community Assistant
- Took part in the program committee of 4 conferences (TAROS, MoDELS, ANNSIM, EDTConf), chair of the CPS Track in the ANNSIM conference 2021 and 2022 editions, and co-organizer of 2 editions of CoSimCPS workshop.
- Part of FMI Standard Steering committee.
- Reviewed 15 journal articles in the past 3 years for journals such as SIMULATION, Sensors and Actuators, SoSym, and SIMPAT.

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Employment

10/2025 – Present **Associate Professor**, *Aarhus University*, Aarhus, Middle Jutland, Denmark
Supervision, teaching, and conducting research with a focus on co-simulation, digital twin engineering, and machine learning for digital twins.

01/2022 – 09/2025 **Assistant Professor**, *Aarhus University*, Aarhus, Middle Jutland, Denmark
Supervision, teaching, and conducting research with a focus on co-simulation, digital twin engineering, and machine learning for digital twins.

01/2020 – 01/2022 **Postdoctoral Researcher**, *Aarhus University*, Aarhus, Middle Jutland, Denmark
Supervision and research with a focus on co-simulation, digital twin engineering, and machine learning for digital twins.

11/2019 – 12/2019 **Visiting Researcher**, *Carnegie Mellon University*, Greater Pittsburgh Area
Collaborated with Prof. Andre Platzer and Stefan Mitsch on runtime monitoring of co-simulations.

03/2015 – 09/2019 **FWO Fellow Phd Student**, *University of Antwerp*, Antwerp Area, Belgium
Pursued a Ph.D. in Computer Science with a focus on co-simulation.

07/2013 – 01/2015 **Software Engineer**, *Altitude Software*, Lisbon
Worked as a Front and Backend engineer on a real-time web application for telephony scripts and customer relations, specified by a Domain Specific Language.

09/2011 – 01/2013 **Assistant Lecturer**, *NOVA School of Science and Technology*, Almada
Taught practical (lab) classes involving C and Octave programming languages.

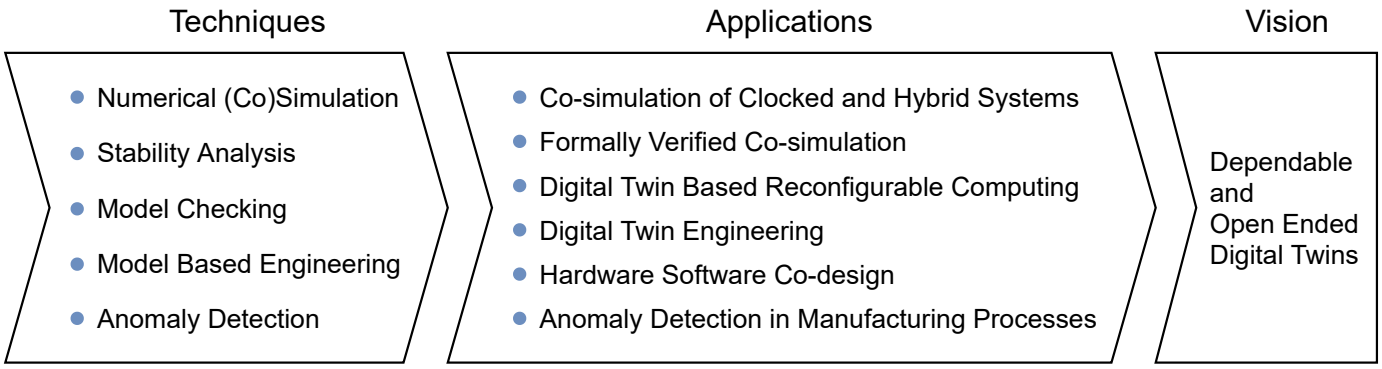
10/2009 – 07/2012 **Researcher in the SOLAR group**, *NOVA School of Science and Technology*, Almada
Participated in research focused on the methodology for prototype transformations and transformational semantics in a control system specification language.

Education

01/03/2015– 31/12/2019 **PhD**, *University of Antwerp*, Property Preservation in Co-simulation, Antwerp, Belgium
Supervisor: Prof. Hans Vangheluwe.

01/09/2011– 22/11/2013 **MSc and BSc degree, Mark: *18 (out of 20, honors)***, *New University of Lisbon*, A Framework for Efficient Model Transformations, Lisbon, Portugal
Supervisor: Prof. Vasco Amaral.

Scientific Focus Areas



Project, Grants & Awards (Selected)

01/2026 **SAILING: Secure AI and Digital Twin Empowered Smart Internet-of-Energy**, *Horizon Doctoral Network, 8 partners (Budget: ≈3.6M€, AU Part: ≈0.3M€)*, Aarhus, Denmark
Role: co-PI.

10/2025 **Best Short Paper Award at EDT Conference**, Michigan, US

09/2024 **Best Short Paper Award at EDT Conference**, Linz, Austria

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01/2024 **ROBOSAPIENS: Robotic Self Adaptation in Novel Environments**, *Horizon Europe CL4 RIA Project (Budget: 4M€, 7 Partners, AU part 1.2M€)*, Aarhus, Denmark
Role: co-coordinator, digital twin safety expert.

23/05/2023 **Runner Up Best Paper Award at ANNSIM Conference**, Ontario, Canada

11/2021 **DIGIT-BENCH: DIGItal Twin for large-scale test BENCHes for the wind industry (AU part 2.6 MDKK)**, *EUDP*, Aarhus, Denmark
Role: PI on AU-ECE side, supervision of postdoc and phd students, and DT engineering expert.

11/2021 **Demonstration of Lifetime Extension (DLTE) Concept (AU part 1.5 MDKK)**, *EUDP*, Aarhus, Denmark
Role: PI on AU-ECE side, supervision of postdoc and phd students, and co-simulation expert.

10/2020 **UPSIM Unleash Potentials in SIMulation ITEA 3 Project (Budget 19.7M€, 6MDKK AU)**, Aarhus, Denmark
Role: state of the art in co-simulation and simulation governance work packages.

09/2020 **MADE FAST (Budget: 300MDKK, 15.6MDKK AU, 7 companies with AU)**, Aarhus, Denmark
Role: Co-supervision in Part Projects 3.01, 3.06, 4.07, 4.08, 4.09, 4.10.

06/2020 **Digit Brain Innovation Action (Budget: 8M€, 3.3MDKK AU), 36 Partners**, Aarhus, Denmark
Role: Revising AU experiments.

10/10/2019 **FWO Travel Grant to Carnegie Mellon University**, Pittsburgh, United States

31/07/2019 **Best Paper Award at SIMULTECH conference**, Prague, Czech Republic

07/10/2016 **2nd Place ACM Student Research Competition**, Saint-malo, France

01/01/2016 **FWO PhD Fellowship**, *Scholarship for 4 years, full time researcher*, Antwerp

22/11/2013 **Merit Student**, *2nd highest grade of CS MSc*, Lisbon, Portugal

Stays

01/10/2025 **Computer Science Department, Innsbruck University, Austria**, *Digital Twin Engineering*, 1 week, Host: Prof. Philipp Zech

09/04/2024 **Computer Science Department, Chongqing University, China**, *Digital Twin Engineering*, 2 weeks, Host: Prof. Zhiming Liu

11/11/2019 **Computer Science Department, Carnegie Mellon University, Pittsburgh, United States**, *Co-simulation Monitoring*, 5 weeks, Host: Prof. André Platzer

06/06/2018 **TU Graz, Austria**, *Co-simulation Collaboration*, 1 week, Host: Georg Engel (Senior Researcher)

01/03/2018 **Engineering Department, Aarhus University, Denmark**, *Verification of Co-simulation Methods*, 1 week, Host: Prof. Peter Gorm Larsen

05/10/2017 **Department of Computer Science, Manchester University, UK**, *Delayed Events in Co-simulation*, 1 week, Host: Prof. Eva Navarro-López

14/09/2017 **Applied Mathematics Department, Université Catholique de Louvain, Belgium**, *Stable Adaptive Co-simulation with Switched Systems*, 1 week, Host: Prof. Raphaël Jungers

05/09/2016 **Fortiss GmbH, Germany**, *Model Transformation Engine Optimization*, 1 week, Host: Levi Lúcio (Senior Researcher)

11/03/2016 **Engineering Department, Aarhus University, Denmark**, *Co-simulation Survey Preparation*, 1 week, Host: Prof. Peter Gorm Larsen

Selected Industrial Collaborations / R&D Projects

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1/2024–Now **PAL Robotics, Fraunhofer Institute for Factory Operation and Automation IFF, Simula Research Lab, and Danish Technological Institute**, *Safety in self adaptive robotics*, Aarhus, Denmark
Partners in robosapiens project.

1/2024–Now **Fibo Intercon**, *Industrial PhD*, Aarhus, Denmark
Digital twinning concrete mixer

1/2024–Now **Fraunhofer Institute for Factory Operation and Automation IFF**, *Safety in self adaptive robotics*, Aarhus, Denmark
Partner in robosapiens project.

1/2020–Now **Synopsys, ESI ITI GmbH, Robert Bosch GmbH, Dassault Systemes, dSPACE GmbH, AVL List GmbH, TLK-Thermo GmbH, Altair**, *FMI Standardization Committee*, Aarhus, Denmark
Designing version 3.0 of the FMU standard. Joint publications: [59, 57, 42],[22].

10/2021–2024 **ScubaTx Ltd.**, *Organ preservation DTs*, Aarhus, Denmark
Joint publications: [40].

10/2021–Now **R&D Test Systems A/S**, *Hybrid testing DTs*, Aarhus, Denmark
Joint publications: [14],[36].

10/2022–Now **FORCE Technology A/S**, *Hybrid testing DTs, IP Protection in FMI*, Aarhus, Denmark
Part of DLTE project.

10/2020–10/2023 **Novo Nordisk**, *Anomaly Detection for Manufacturing Processes*, Aarhus, Denmark
Application of state of the art anomaly detection methods to the production of dose pens. Joint publications: [47].

10/2020–10/2023 **Lego**, *Anomaly Detection for Machining Processes*, Aarhus, Denmark
Joint publications: [55].

10/2020–10/2023 **Vestas**, *Enabling Mobile Manufacturing*, Aarhus, Denmark
Joint publications: [15].

10/2020–10/2023 **Technicon**, *Automated Configuration of Robot Manufacturing Cells*, Aarhus, Denmark
Joint publications: [61, 49, 48].

08/2019–10/2019 **Boeing Research and Technology Europe**, *Hint-Based Configuration of Co-simulations*, Madrid, Spain
Joint publications: [67, 60].

09/2016 **Fortiss GmbH**, *Model Transformation Engine Optimization*, Munich, Germany
Joint publications: [76].

Ongoing Applications for Funding

11/2025 **BRICDT — Building Reliable Interfaces for Composable Digital Twins**, *Sapere Aude (Budget: ≈5.8MDKK€)*, Aarhus, Denmark. Role: PI; Status: Submitted.

11/2025 **AI4SHINERGY — Artificial Intelligence for Sustainable, Human-centered, Interoperable, Networked, Energy Systems**, *Horizon Doctoral Network, 14 partners (Budget: ≈4.6M€, AU Part: ≈1M€)*, Aarhus, Denmark. Role: PI; Status: Submitted.

10/2025 **Only Connect — efficient and safe plug and play for digital twins**, *COST Action (64 Partners)*, Aarhus, Denmark. Role: PI; Status: Submitted.

08/2025 **FAST – PtX Secure and EfFicient FederAted Digital Twin InfraSTructure for Power-to-X Systems in Future Energy Networks**, *IFD Grand Solution - Phase 2*, Aarhus, Denmark. Role: Coordinator; Status: Rejected.

01/2025 **TWIN-GROW**, *Danida*, Aarhus, Denmark. Role: PI; Status: Submitted.

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11/2024 **SAILING**, *Horizon Doctoral Network, 8 partners (Budget: ≈3.6M€, AU Part: ≈0.3M€)*, Aarhus, Denmark. Role: co-PI; Status: Accepted.

11/2024 **EngDT**, *Horizon Doctoral Network, 8 partners (Budget: ≈4.3M€, AU Part: ≈0.6M€)*, Aarhus, Denmark. Role: PI and WPLead; Status: Rejected.

10/2024 **ESPECIALS**, *COST Action*, Aarhus, Denmark. Role: PI; Status: Rejected.

03/2024 **VECTRON**, *Horizon Europe*, Aarhus, Denmark. Role: PI; Status: Rejected.

02/2024 **AIapple**, *Danida*, Aarhus, Denmark. Role: PI; Status: Rejected.

01/2024 **ROBOSAPIENS: Robotic Self Adaptation in Novel Environments**, *Horizon Europe CL4 RIA Project (Budget: ≈4M€, ≈7 Partners, AU part 8.1 MDKK)*, Aarhus, Denmark. Role: coordinating, preparing state of the art and work packages for AU; Status: Accepted.

07/2024 **DTCore**, *Poul Due Jensen Foundation personal project grant to Prof. Peter Gorm Larsen (Budget AU: ≈15MDKK)*, Aarhus, Denmark. Role: co-PI; Status: Accepted.

12/2023 **Omen**, *Application for New Centers of Excellence*, Aarhus, Denmark. Role: co-PI; Status: Rejected.

10/2023 **DART**, *UArtic (Budget: ≈389 KNOK)*, Aarhus, Denmark. Role: PI; Status: Accepted.

10/2023 **WindExcel**, *Horizon Europe*, Aarhus, Denmark. Role: PI and WPLead; Status: Rejected.

04/2023 **ACCME**, *DFF Thematic*, Aarhus, Denmark. Role: PI; Status: Rejected.

04/2023 **PROMOTE**, *Novo Foundation*, Aarhus, Denmark. Role: PI; Status: Rejected.

05/2022–07/2022 **LakeTwin: Adaptive Lake Ecosystem Management through Digital Twin**, *DFF Research Project 1 (Thematic)*, Aarhus, Denmark. Role: PI; Status: Rejected.

11/2021 **DIGIT-BENCH: DIGItal Twin for large-scale test BENCHes for the wind industry (AU part 2.6 MDKK)**, *EUDP*, Aarhus, Denmark. Role: Co-PI, preparing state of the art and work packages for AU; Status: Accepted.

11/2021 **Demonstration of Lifetime Extension (DLTE) Concept (AU part 1.5 MDKK)**, *EUDP*, Aarhus, Denmark. Role: Co-PI; Status: Accepted.

11/2021 **DILIGENT: Digital Twin Engineering for a Resilient Future**, *MSCA Doctoral Network (Budget: ≈4M€, ≈8 Partners)*, Aarhus, Denmark. Role: coordinating, preparing state of the art and work packages for AU; Status: Rejected.

05/2021 **DiTToLA: Digital Twin for Tool Life Assessment**, *DFF*, Aarhus, Denmark. Role: preparing state of the art and work packages for digital twin; Status: Rejected.

05/2021 **AI-rPET: Data-assisted tools for thermoforming of recycled PET in food packaging**, *DFF*, Aarhus, Denmark. Role: preparing state of the art and work packages for digital twin; Status: Rejected.

09/2020 – 06/2024 **MADE FAST (Budget: 300MDKK, 15.6MDKK AU, 7 companies with AU)**, Aarhus, Denmark. Role: Edition Part Projects 3.01, 3.06, 4.07, 4.08, 4.09, 4.10; Status: Accepted.

09/2020 **Wear Mitigation in Hydraulic Systems using Digital Twin**, *DFF*, Aarhus, Denmark. Role: preparing state of the art and work packages for digital twin; Status: Rejected.

10/2020 – 09/2023 **UPSIM Unleash Potentials in SIMulation ITEA 3 Project (Budget 19.7M€, 6MDKK AU)**, Aarhus, Denmark. Role: preparing state of the art in co-simulation and simulation governance work packages; Status: Accepted.

06/2020 – 12/2023 **Digit Brain Innovation Action (Budget: 8M€, 3.3MDKK AU), 36 Partners**, Aarhus, Denmark. Role: Revising AU experiments; Status: Accepted.

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10/2019 **DiT-MaP: Digital Twins for Manufacturing Processes Villum Foundation**, Aarhus, Denmark. Role: preparing state of the art in digital twins; Status: Rejected.

03/2019 **PULSE: Perpetual Learning for cyber-physical Systems of Systems H2020**, Aarhus, Denmark. Role: revising state of the art in co-simulation; Status: Rejected.

Teaching

2025 – Now **Engineering Digital Twins**, *Assistant professor*, Aarhus, Denmark
Tasks: Preparing and delivering lectures on engineering digital twins. Program: MsC.

2023 – Now **Data Structures and Algorithms**, *Assistant professor*, Aarhus, Denmark
Tasks: Preparing and delivering lectures on data structures and algorithms. Program: BsC and BEng.

2023 **Programming and Modelling**, *Assistant professor*, Aarhus, Denmark
Tasks: Preparing and delivering lectures on programming and modelling. Program: MsC.

Spring 2022 **Software Design**, *Assistant professor*, Aarhus, Denmark
Tasks: Preparing and delivering lectures on software architecture and design patterns. Program: BsC.

Spring 2022 / Spring 2021 / Spring 2020 **Systems Engineering**, *Teaching assistant with Associate Prof. Stefan Hallerstede on model based systems engineering with co-simulation*, Aarhus, Denmark
Tasks: Delivering practical lecture, tutorial on using the INTO-CPS application, and preparing questionnaires. Program: MSc in Computer Engineering.

Fall 2019 / Fall 2018 / Fall 2017 / Fall 2016 / Fall 2015 **Modelling of Software-Intensive Systems**, *Teaching assistant with Prof. Hans Vangheluwe on causal block diagrams*, Antwerp, Belgium
Tasks: Preparing course exercises and exam questions on Petri Nets and Simulink Block Diagrams, and correction of exams and assignments. Program: MSc in Computer Science.

Fall 2018 / Fall 2017 **Model Driven Engineering**, *Teaching assistant with Prof. Hans Vangheluwe on Domain Specific Languages and Model Transformations*, Antwerp, Belgium
Tasks: Responsible for the practical part of the course: determining lab assignments and projects, delivering practical lectures, formulating and correcting part of the exam. Program: MSc in Computer Science.

Fall 2013 / Fall 2012 **Domain Specific Languages**, *Teaching assistant on Domain Specific Languages with Prof. Vasco Amaral*, Lisbon, Portugal
Tasks: Helping with lab assignments and projects, delivering practical lectures, correcting part of the exam and assignments. Program: MSc in Computer Science.

Spring 2012 / Spring 2011 **Formal languages and automata theory**, *Teaching assistant on Automata, Grammars, and Regular Expressions with Prof. Vasco Amaral*, Lisbon, Portugal
Tasks: Helping with lab assignments and projects, delivering practical lectures, correcting part of the exam and assignments. Program: BSc in Computer Science Engineering.

Fall 2010 **Introduction to Programming in C**, *Teaching assistant preparing and correcting exercises for students from physics and mathematics BSc with Prof. Artur Miguel Dias*, Lisbon, Portugal
Tasks: Helping with lab assignments and projects, delivering practical lectures and recapping theory, and correcting part of the exam and assignments. Program: BSc in Computer Science Engineering.

Research Leadership

Program Committees **Springsim, RIVF, ANNSIM, EDTConf, Isola, TAROS, conferences.**

Conference Organization **CPS Track in the ANNSIM conference 2021 and 2022 editions, co-organizer of 3 editions of CoSimCPS workshop, SETSS workshop, Isola Conference track chair, Engineering digital twins conference organizing committee.**

Editor **Guest editor for the SIMULATION journal, special issues on Digital Twins and dependability.**

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Reviews **Reviewer for 8 different journals in the past 2 years.**

PhD Committee **1**

Supervision

Post Docs **2 Ongoing**

PhD Students **4 Completed, 5 Ongoing**

MSc Students **10 Completed, 3 Ongoing**

BSc Students **8 Completed**

Dissemination

12/2025 **Research visit to Innsbruck University**, *Digital Twin For Buildings*, Host: Philipp Zech

10/2025 **Keynote at the Session "Digital Twin Industrial Software"**, *DT Evolution and Composition*, DigiTwin 2025

06/2025 **Tutorial: FMI for Beginners**, *Co-simulation and the FMI standard for industry*, Modelica Conference

05/2025 **SPACERAISE, L'Aquilla, Italy**, *Co-simulation and DTs*, Host: Martina De Sanctis

04/2025 **Research Festival, Aarhus, Denmark**, *Digit Bench Demonstrator*, Host: Charlotte Boel

02/2025 **DT-Core Center Opening, Aarhus, Denmark**, *Co-simulation and DTs*, Host: Peter Gorm Larsen

12/2024 **Digit Brainstorm Event, Aarhus, Denmark**, *Ontology Driven Design of Digital Twins*, Host: Peter Gorm Larsen

12/2024 **Research visit to Stauning Whisky, Stauning, Denmark**, *Introduction to Digital Twin Engineering*, Host: Lasse Vesterby

11/2024 **BIP Model-based Systems Engineering for Digital Twins, Antwerp, Belgium**, *Introduction to Co-simulation in Digital Twins*, Hosts: Joachim Denil et al.

10/2024 **FMI Design Meeting, Online**, *Example of Synchronous Clocked Co-simulation*, Hosts: Christian Bertsch

10/2024 **ISoLA Conference, Crete, Greece**, *Interoperability of Digital Twins*, Hosts: Tiziana Margaria, Bernhard Steffen

10/2024 **INTO-CPS Brainstorm Event, Aarhus, Denmark**, *Overview of Digit Bench and RoboSAPIENS Projects*, Hosts: Peter Gorm Larsen

04/2024 **Invited Lecture at Dalian University, Dalian, China**, *Introduction to Digital Twin Engineering*, Host: Yuan Zhao

04/2024 **SETSS School 2024, Chongqing, China**, *Introduction to Digital Twin Engineering*, Host: Zhiming Liu

04/2024 **Seminar at Huawei, Schenzen, China**, *Mobile Manufacturing: State of the Art*, Host: Hao Feng

03/2024 **Collaborative Simulation for Transport Decarbonisation**, *Introduction to Co-simulation and Applications*, Host: David Golightly

03/2024 **Revolutionizing Industry with AI and Digital Twins, Online**, *Model Based Design of Digital Twins*, Host: Pirita Ihamäki

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01/2024 **RoboSAPIENS Kickoff Meeting**, *Introduction to Digital Twin Engineering*, Host: Peter Gorm Larsen

11/2023 **SETSS School 2023, Chongqing, China**, *Introduction to Digital Twin Engineering*, Host: Zhiming Liu

09/2023 **15th International Modelica Conference, Aachen**, *FMI Beginners Tutorial*, Host: Dirk Müller et al.

09/2023 **TechCircle Webinar, Online**, *Digital Twin, basics*, Host: Jesper Petersen

09/2023 **Workshop on Digital Twins: Regulating Medical Devices as Safety Critical Systems, London, United Kingdom**, *Introduction to Digital Twins*, Host: Leo Freitas

05/2023 **ANNSIM Conference, Hamilton, ON, Canada**, *Error Estimators for Adaptive Scheduling Algorithm for Serial Co-simulation*, Host: Hamdi Kavak

04/2023 **Research day, Aarhus, Denmark**, *Introduction to Digital Twin Engineering*, Host: Alexandros Iosifidis

04/2023 **Campam Workshop, Cargese**, *State Estimation Tutorial*, Host: Hans Vangheluwe

04/2023 **EDT Seminar, Online**, *Uncertainty Quantification and Propagation in Digital Twins*, Host: Daniel Lehner

02/2023 **Verification seminar, Université Paris Cité, Paris, France**, *Application of formal methods to verification of self-adaptation loops in digital twins*, Host: Enrique Román Calvo

01/2023 **Dagstuhl Seminar Integrated Rigorous Analysis in CPS Engineering**, *Digital Twin, basics*, Host: Erika Abraham, Stefan Hallerstede, John Hatcliff, Danielle Stewart

11/2022 **Digit Center, Aarhus University**, *Digital Twin Research Overview*, Host: Peter Gorm Larsen

11/2022 **NIRAS A/S, Online**, *Digital Twin Engineering Overview*, Host: Fenjuan Rose Schmidt Hu

10/2022 **MSSiS Workshop, Online**, *Introduction to Co-simulation*, Host: Marcelo Maia

09/2022 **DICOM Workshop, Aarhus, Denmark**, *Co-simulation and It's Role in Digital Twin*

08/2022 **FMI Plug fest, Online**, *Overview of Aarhus University FMI Work*, Host: Andreas Junghanns

06/2022 **ECCOMAS Conference, Oslo, Norway**, *Co-simulation and It's Role in Digital Twin Engineering*

06/2022 **Collins Aerospace, Online**, *INTO-CPS Association Applications and Theory*, Host: Stylianos Basagiannis

05/2022 **Workshop on Fidelity in Systems Engineering, Almada, Portugal**, *Multi Abstraction Models in DT Engineering*, Host: Julien Deantoni

05/2022 **Driving IT Aarhus 2022, Aarhus, Denmark**, *Introduction to Digital Twin Engineering*, Host: IDA IT

06/2021 **Novo Nordisk, Denmark**, *Introduction to the Functional Mockup Interface Standard*, Host: Thomas Algot Søllested, Project Manager

10/2019 **Siemens, Belgium**, *Tutorial on co-simulation*, Host: Dr. Stefan Dutre, Senior Product Manager

08/2019 **Boeing Research and Technology Europe, Madrid**, *Hint-based Configuration of Co-simulations*, Host: Dr. Alejandro Torres Gámiz, Systems Modeling and Simulation Engineer

20/06/2018 **Austrian Institute for Sustainable Technologies, Graz, Austria**, *Introduction to Co-simulation*, Host: Dr. Georg Engel, Senior Researcher

19/06/2018 **TU Graz, Austria**, *Introduction to Co-simulation*, Host: Dr. Gerald Schweiger, Head of Intelligent Systems Lab

5/09/2017 **CoSim-CPS Workshop, Trento, Italy**, *Keynote: Co-simulation, State of the Art*, Host: Prof. Cinzia Bernardeschi, Dr. Paolo Masci, and Prof. Peter Gorm Larsen, Co-organizers of the workshop.

13/04/2018 **Carnegie Mellon University, Pittsburgh, USA**, *Co-simulation: State of the Art*, Host: Prof. David Garlan, Associate Dean for Master's Programs in the School of Computer Science

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1/03/2017 **IFP Energies Nouvelles, Paris, France**, *Input Approximations in Co-simulation*, Host: Dr. Laurent Duval, Researcher and Data science project manager

17/08/2016 **Université Catholique de Louvain, Louvain-la-Neuve, Belgium**, *Stable Optimization of Co-simulation: a Switched Systems Approach*, Host: Prof. Raphaël Jungers, Department of Applied Mathematics

22/03/2016 **MPM4CPS Training, Tallinn, Estonia**, *Model-based Multi-disciplinary Co-simulation*, Host: Hans Vangheluwe, head of the MSDL research group

Community Building

Scientific Event Organization

10/2025 **Publicity Chair**, *2nd Engineering Digital Twins Conference*, Michigan, United States

09/2024 **Publicity Chair**, *1st Engineering Digital Twins Conference*, Linz, Austria

04/2024 **Chair**, *SETSS 2024 Workshop*, Chongqing, China

07/2023 **Track Chair**, *Annual Modeling and Simulation Conference*, Hamilton, ON, Canada

10/2022 **Guest Editor**, *Engineering of Dependable Digital Twins*, SIMULATION Journal Special Issue

09/2022 **Co-Chair**, *6th Workshop on Formal Co-Simulation of Cyber-Physical Systems*, Berlin, Germany

07/2022 **Track Chair**, *Annual Modeling and Simulation Conference*, Virtual

12/2021 **Co-Chair**, *5th Workshop on Formal Co-Simulation of Cyber-Physical Systems*, Virtual

07/2021 **Co-Chair**, *Annual Modeling and Simulation Conference*, Virtual

09/2020 **Co-Chair**, *4th Workshop on Formal Co-Simulation of Cyber-Physical Systems*, Virtual

07/2020 **Chair**, *CPS Track of Summersim Conference*, Virtual

09/2019 **Co-Chair**, *3rd Workshop on Formal Co-Simulation of Cyber-Physical Systems*, Oslo, Norway

Program Committee Activities

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2025 Simultech

2025 Isola

2025 Taros

2025 MoDELS

2025 Modelica

2023/2024/2025 Annual Modeling and Simulation

2024 Isola

2024/2025 EDTConf

2023/2024 MPM4CPS Workshop

2022 Workshop on Formal Co-Simulation of Cyber-Physical Systems

2022 Isola

2022 International Symposium on Distributed Simulation and Real Time Applications

2021 Annual Modeling and Simulation

2021 ACM Conference on Principles of Advanced Discrete Simulation

2016/2018/2019/2020 TMS/DEVS Track – Spring simulation Multi-Conference

2020 Summer Simulation

2019 JuliaCon

2019 Workshop on Modeling and Simulation of Software-Intensive Systems

2018 Workshop on Distributed Estimation and Control in Networked Systems

2018/2019/2020 Workshop on Formal Co-Simulation of Cyber-Physical Systems

2016 Winter Simulation

2016 IEEE RIVF International Conference on Computing and Communication Technologies: Research, Innovation, and Vision for the Future

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Journal Reviewing Activities

2025 IEEE Industrial Informatics
2025 Software and Systems Modeling
2025 Journal of Manufacturing Systems
2025 TOMACS
2024 SIMPAT
2024 Software and Systems Modeling
2023 Applied Soft Computing Journal
2023 Data Science and Management
2023 mdpi Complex Systems
2023 Software and Systems Modeling
2023 IEEE Transactions on Automation Science and Engineering
2023 F1000 Research
2022 Transactions on Embedded Computing Systems
2022 Simulation
2022 Robotics and Autonomous Systems
2022 Engineering with Computers
2021 Software and Systems Modeling
2021 Simulation
2021 Science of Computer Programming
2021 Parallel Computing
2021 Computers and Electronics in Agriculture
2021 Simulation: Transactions of the Society for Modeling and Simulation
2021 Sensors and Actuators
2018/2019/2020/2021 International Journal on Software and Systems Modeling
2019/2021 Parallel Computing
2018/2020 Machine Theory and Practice journal
2018/2019 Simulation Modelling Practice and Theory journal
2018 Oil & Gas Science and Technology journal
2017 Engineering with Computers journal

Professional Experience

22/11/2013–01/02/2015 **Software developer**, *Altitude Software*, Lisbon
Front and Backend engineer of a real-time web application for telephony scripts and customer relations, specified by a Domain Specific Language.

Languages

Portuguese Native
English Professional working proficiency
Danish Intermediate

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Publications

Peer Reviewed Journals

[1] Yon Vanommeslaeghe, **Cláudio Gomes**, Bert Van Acker, Joachim Denil, and Paul De Meulenaere. Adapting parallel DEVS semantics to FMI 3.0 co-simulation using synchronous clocks. *SIMULATION*, page 00375497251393255, December 2025.

[2] Julien Deantoni, Paula Muñoz, **Cláudio Gomes**, Clark Verbrugge, Rakshit Mittal, Robert Heinrich, Stijn Bellis, and Antonio Vallecillo. Quantifying and combining uncertainty for improving the behavior of Digital Twin Systems. *at - Automatisierungstechnik*, 73(2):81–99, February 2025.

[3] Valdemar Tang Evans, **Cláudio Gomes**, and Daniel Lucani. When Every Transmission Counts: Event-Trigger Threshold Regulation for STL Properties. *IEEE Internet of Things Journal*, pages 1–1, 2025.

[4] **Cláudio Gomes**, Morten Haahr Kristensen, Mikkel Schmidt Andersen, Prasad Talasila, Hao Feng, Thomas Wright, and Peter Gorm Larsen. Digital Twin Tutorial: The Incubator Case Study. In *Lecture Notes in Computer Science*, pages 68–101, Singapore, 2025. Springer Nature Singapore.

[5] Prasad Talasila, **Cláudio Gomes**, Lars B Vosteen, Hannes Iven, Martin Leucker, Santiago Gil, Peter H Mikkelsen, Eduard Kamburjan, and Peter G Larsen. Composable digital twins on Digital Twin as a Service platform. *SIMULATION*, page 00375497241298653, December 2024.

[6] Santiago Gil, Bentley J Oakes, **Cláudio Gomes**, Mirgita Frasheri, and Peter G Larsen. Toward a systematic reporting framework for Digital Twins: A cooperative robotics case study. *SIMULATION*, page 00375497241261406, August 2024.

[7] F. Nordtorp, E. E. Baş, **Cláudio Gomes**, and G. Abbiati. A Hybrid Testing Framework for Wind Turbine Mechanical Components. *Journal of Physics: Conference Series*, 2767(5):052046, June 2024.

[8] Simon Thrane Hansen, Casper Thule, **Cláudio Gomes**, Kenneth Guldbrandt Lausdahl, Frederik Palludan Madsen, Giuseppe Abbiati, and Peter Gorm Larsen. Co-simulation at different levels of expertise with Maestro2. *Journal of Systems and Software*, 209:111905, March 2024.

[9] Santiago Gil, Peter H. Mikkelsen, **Cláudio Gomes**, and Peter G. Larsen. Survey on open-source digital twin frameworks–A case study approach. *Software: Practice and Experience*, page spe.3305, January 2024.

[10] Sergiy Bogomolov, **Cláudio Gomes**, Carlos Isasa, Sadegh Soudjani, Paulius Stankaitis, and Thomas Wright. Reachability Analysis of FMI Models Using Data-Driven Dynamic Sensitivity. *SIMULATION*, 2024.

[11] Peter G. Larsen, Shaukat Ali, Roland Behrens, Ana Cavalcanti, **Cláudio Gomes**, Guoyuan Li, Paul De Meulenaere, Mikkel L. Olsen, Nikolaos Passalis, Thomas Peyrucain, Jesús Tapia, Anastasios Tefas, and Houxiang Zhang. Robotic safe adaptation in unprecedented situations: The RoboSAPIENS project. *Research Directions: Cyber-Physical Systems*, 2:e4, 2024.

[12] Valdemar Tang, **Cláudio Gomes**, and Daniel E. Lucani. Precision on Demand: Propositional Logic for Event-Trigger Threshold Regulation. *IEEE Internet of Things Journal*, pages 1–1, 2024.

[13] Till Böttjer, Daniella Tola, Fatemeh Kakavandi, Christian R. Wewer, Devarajan Ramanujan, **Cláudio Gomes**, Peter G. Larsen, and Alexandros Iosifidis. A review of unit level digital twin applications in the manufacturing industry. *CIRP Journal of Manufacturing Science and Technology*, 45:162–189, October 2023.

[14] Giuseppe Abbiati, Ecem E. Baş, **Cláudio Gomes**, and Peter Gorm Larsen. Hybrid fire testing using FMI-based co-simulation. *Fire Safety Journal*, 139:103832, August 2023.

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[15] Zahra Kazemi, Jonas Kjaer Rask, **Cláudio Gomes**, Emre Yildiz, and Peter Gorm Larsen. Movable factory—A systematic literature review of concepts, requirements, applications, and gaps. *Journal of Manufacturing Systems*, 69:189–207, August 2023.

[16] Qamar Alfalouji, Thomas Schranz, Basak Falay, Sandra Wilfling, Johannes Exenberger, Thorsten Mattausch, **Cláudio Gomes**, and Gerald Schweiger. Co-simulation for buildings and smart energy systems — A taxonomic review. *Simulation Modelling Practice and Theory*, 126:102770, July 2023.

[17] Mirgita Frasheri, Henrik Ejersbo, Casper Thule, **Cláudio Gomes**, Jakob Levisen Kvistgaard, Peter Gorm Larsen, and Lukas Esterle. Addressing Time Discrepancy between Digital and Physical Twins. *Robotics and Autonomous Systems*, 161(March 2023, 104347):104347, 2023.

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[19] Farshid Naseri, Santiago Gil, Corneliu Barbu, Erdal Cetkin, Gulsah Yarimca, Anders Jensen, Peter Gorm Larsen, and **Cláudio Gomes**. Digital Twin of Electric Vehicle Battery Systems: Comprehensive Review of the Use Cases, Requirements, and Platforms. *Renewable and Sustainable Energy Reviews*, 179:113280, 2023.

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[21] Simon Thrane Hansen, Casper Thule, **Cláudio Gomes**, Jaco van de Pol, Maurizio Palmieri, Emin Oguz Inci, Frederik Madsen, Jesús Alfonso, José Ángel Castellanos, and José Manuel Rodriguez. Verification and synthesis of co-simulation algorithms subject to algebraic loops and adaptive steps. *International Journal on Software Tools for Technology Transfer*, 24(6):999–1024, December 2022.

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[23] Christian Møldrup Legaard, Thomas Schranz, Gerald Schweiger, Ján Drgoňa, Basak Falay, **Cláudio Gomes**, Alexandros Iosifidis, Mahdi Abkar, and Peter Gorm Larsen. Constructing Neural Network-Based Models for Simulating Dynamical Systems. *ACM Computing Surveys*, page 3567591, 2021.

[24] Bentley James Oakes, **Cláudio Gomes**, Franz Rudolf Holzinger, Martin Benedikt, Joachim Denil, and Hans Vangheluwe. Hint-Based Configuration of Co-simulations with Algebraic Loops. *Simulation and Modeling Methodologies, Technologies and Applications*, 1260:1–28, 2021.

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Peer Reviewed Conferences

[29] Carlos Isasa, Noah Abou El Wafa, **Cláudio Gomes**, Peter Gorm Larsen, and André Platzer. Safe Temperature Regulation: Formally Verified and Real-World Validated. In Ferruccio Damiani and Marie Farrell, editors, *Integrated Formal Methods*, volume 16194, pages 143–161. Springer Nature Switzerland, Cham, 2026.

[30] Morten Haahr Kristensen, Thomas Wright, **Cláudio Gomes**, Lukas Esterle, and Peter Gorm Larsen. DynSRV: Dynamically Updated Properties for Stream Runtime Verification. In Bettina Könighofer and Hazem Torfah, editors, *Runtime Verification*, pages 101–119, Cham, 2026. Springer Nature Switzerland.

[31] Mikkel Schmidt Andersen, **Cláudio Gomes**, Sophia Thompson, and Peter Gorm Larsen. Probabilistic Update Scheduling for Digital Twins: A Semi-Markov Approach. In *2025 ACM/IEEE 28th International Conference on Model Driven Engineering Languages and Systems Companion (MODELS-C)*, pages 250–256, October 2025.

[32] Fatemeh Kakavandi, Peihua Han, Tim Brix Nerenst, Roger de Reus, **Cláudio Gomes**, and Peter Gorm Larsen. Comparative Study in Fault Detection under Data Scarcity for Pharmaceutical Device Manufacturing. In *2025 International Conference on Control, Automation and Diagnosis (ICCAD)*, pages 1–6, July 2025.

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[36] Bentley Oakes, **Cláudio Gomes**, Eduard Kamburjan, Giuseppe Abbiati, Elif Ecem Bas, and Sebastian Engelsgaard. Towards Ontological Service-Driven Engineering of Digital Twins. In *Proceedings of the ACM/IEEE 27th International Conference on Model Driven Engineering Languages and Systems*, MODELS Companion '24, pages 464–469, New York, NY, USA, October 2024. Association for Computing Machinery.

[37] Morten Haahr Kristensen, Alberto Bonizzi, **Cláudio Gomes**, Simon Thrane Hansen, Carlos Isasa, Hannes Iven, Eduard Kamburjan, Peter Gorm Larsen, Martin Leucker, Prasad Talasila, Valdemar Trøjgård Tang, Stefano Tonetta, Lars B. Vosteen, and Thomas Wright. Runtime Verification of Autonomous Systems Utilizing Digital Twins as a Service. In *2024 IEEE International Conference on Autonomic Computing and Self-Organizing Systems Companion (ACSOS-C)*, pages 121–127, September 2024.

[38] Elif Ecem Baş, Giuseppe Abbiati, **Cláudio Gomes**, Uwe Jassmann, and Peter Gorm Larsen. Digitalization of Large-Scale Testing Facilities for the Wind Industry: DIGIT-BENCH Digital Twin. *Journal of Physics: Conference Series*, 2767(4):042033, June 2024.

[39] Istvan David, Guodong Shao, **Cláudio Gomes**, Dawn M. Tilbury, and Bassam Zarkout. Interoperability of Digital Twins: Challenges, Success Factors, and Future Research Directions. In *Leveraging Applications of Formal Methods, Verification and Validation: Tools and Trends*, volume 15223, pages 27–46, Crete, Greece, 2024. Springer Nature Switzerland.

[40] Aaron John Buhagiar, Rikke Fanøe Christensen, Peter Gorm Larsen, Leo Freitas, William E Scott, and **Cláudio Ângelo Gonçalves Gomes**. Understanding pancreas-machine interactions during preservation: A mathematical approach. In *Transplantation*, volume 107, pages 34–35, October 2023.

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[41] Prasad Talasila, **Cláudio Gomes**, Peter Høgh Mikkelsen, Santiago Gil Arboleda, Eduard Kamburjan, and Peter Gorm Larsen. Digital Twin as a Service (DTaaS): A Platform for Digital Twin Developers and Users. In *2023 IEEE Smart World Congress (SWC)*, pages 1–8, Portsmouth, United Kingdom, June 2023. IEEE.

[42] Simon Thrane Hansen, **Cláudio Gomes**, and Zahra Kazemi. Synthesizing Orchestration Algorithms for FMI 3.0. In *2023 Annual Modeling and Simulation Conference*, pages 184–195, Ontario, Canada, 2023.

[43] Emin Oguz Inci, **Cláudio Gomes**, Jan Croes, and Wim Desmet. Error Estimators for Adaptive Scheduling Algorithm for Serial Co-simulation. In *Annual Modelling and Simulation Conference*, pages 73–83, Ontario, Canada, 2023.

[44] Bentley Oakes, **Cláudio Gomes**, Peter Gorm Larsen, Joachim Denil, Julien DeAntoni, João Cambeiro, and John Fitzgerald. Examining Model Qualities and Their Impact on Digital Twins. In *Annual Modelling and Simulation Conference*, pages 220–232, Ontario, Canada, 2023.

[45] Lukas Esterle, Henrik Ejersbo, Mirgita Frasheri, **Cláudio Gomes**, Hugo Daniel Macedo, and Peter Gorm Larsen. Digital Twins for Autonomous Intelligent Systems: From Development to Deployment. In *2022 IEEE International Conference on Autonomic Computing and Self-Organizing Systems Companion (ACSOS-C)*, pages 53–54, CA, USA, September 2022. IEEE.

[46] Hao Feng, **Cláudio Gomes**, Santiago Gil, Peter H. Mikkelsen, Daniella Tola, Peter Gorm Larsen, and Michael Sandberg. Integration Of The Mape-K Loop In Digital Twins. In *2022 Annual Modeling and Simulation Conference (ANNSIM)*, pages 102–113, San Diego, CA, USA, July 2022. IEEE.

[47] Fatemeh Kakavandi, Roger De Reus, **Cláudio Gomes**, Negar Heidari, Alexandros Iosifidis, and Peter Gorm Larsen. Product Quality Control in Assembly Machine under Data Restricted Settings. In *2022 IEEE 20th International Conference on Industrial Informatics (INDIN)*, pages 735–741, Perth, Australia, July 2022. IEEE.

[48] Emil Madsen, Daniella Tola, Carlos Hansen, **Cláudio Gomes**, and Peter Gorm Larsen. AURT: A Tool for Dynamics Calibration of Robot Manipulators. In *2022 IEEE/SICE International Symposium on System Integration (SII)*, pages 190–195, Narvik, Norway, January 2022. IEEE.

[49] Daniella Tola, Emil Madsen, **Cláudio Gomes**, Lukas Esterle, Christian Schlette, Casper Hansen, and Peter Gorm Larsen. Towards Easy Robot System Integration: Challenges and Future Directions. In *2022 IEEE/SICE International Symposium on System Integration (SII)*, pages 77–82, Narvik, Norway, January 2022. IEEE.

[50] Tomas Kulik, **Cláudio Gomes**, Hugo Daniel Macedo, Stefan Hallerstede, and Peter Gorm Larsen. Towards Secure Digital Twins. In Tiziana Margaria and Bernhard Steffen, editors, *Leveraging Applications of Formal Methods, Verification and Validation. Practice*, volume 13704, pages 159–176, Cham, 2022. Springer Nature Switzerland.

[51] Thomas Wright, **Cláudio Gomes**, and Jim Woodcock. Formally Verified Self-adaptation of an Incubator Digital Twin. In *Leveraging Applications of Formal Methods, Verification and Validation. Practice*, volume 13704, pages 89–109, Switzerland, 2022. Springer Nature.

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[53] Simon Thrane Hansen, **Cláudio Gomes**, Peter Gorm Larsen, and Jaco Van de Pol. Synthesizing Co-Simulation Algorithms with Step Negotiation and Algebraic Loop Handling. In *2021 Annual Modeling and Simulation Conference (ANNSIM)*, pages 1–12, Fairfax, VA, USA, July 2021. IEEE.

[54] Emin Oguz Inci, Jan Croes, Wim Desmet, **Cláudio Gomes**, Casper Thule, Kenneth Lausdahl, and Peter Gorm Larsen. The Effect and Selection of Solution Sequence in Co-Simulation. In *2021 Annual Modeling and Simulation Conference (ANNSIM)*, pages 1–12, Fairfax, VA, USA, July 2021. IEEE.

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[55] Till Böttjer, Georg Ørnskov Rønsch, **Cláudio Gomes**, Devarajan Ramanujan, Alexandros Iosifidis, and Peter Gorm Larsen. Data-Driven Identification of Remaining Useful Life for Plastic Injection Moulds. In *Towards Sustainable Customization: Bridging Smart Products and Manufacturing Systems*, pages 431–439, Cham, 2021. Springer International Publishing.

[56] **Cláudio Gomes**, Giuseppe Abbiati, and Peter Gorm Larsen. Seismic Hybrid Testing using FMI-based Co-Simulation. In *Proceedings of the 14th International Modelica Conference*, pages 287–295, online, 2021. Linköping University Electronic Press, Linköpings Universitet.

[57] **Cláudio Gomes**, Masoud Najafi, Torsten Sommer, Matthias Blesken, Irina Zacharias, Oliver Kotte, Pierre Mai, Klaus Schuch, Karl Wernersson, Christian Bertsch, Torsten Blochwitz, and Andreas Junghanns. The FMI 3.0 Standard Interface for Clocked and Scheduled Simulations. In *Proceedings of the 14th International Modelica Conference*, pages 27–36, online, 2021. Linköping University Electronic Press, Linköpings Universitet.

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[59] Andreas Junghanns, Torsten Blochwitz, Christian Bertsch, Torsten Sommer, Karl Wernersson, Andreas Pillekeit, Irina Zacharias, Matthias Blesken, Pierre Mai, Klaus Schuch, Christian Schulze, **Cláudio Gomes**, and Masoud Najafi. The Functional Mock-up Interface 3.0 - New Features Enabling New Applications. In *Proceedings of the 14th International Modelica Conference*, pages 17–26, online, 2021. Linköping University Electronic Press, Linköpings Universitet.

[60] Bentley James Oakes, **Cláudio Gomes**, Franz Rudolf Holzinger, Martin Benedikt, Joachim Denil, and Hans Vangheluwe. Hint-Based Configuration of Co-simulations with Algebraic Loops. *Simulation and Modeling Methodologies, Technologies and Applications*, 1260:1–28, 2021.

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[62] Jim Woodcock, **Cláudio Gomes**, Hugo Daniel Macedo, and Peter Gorm Larsen. Uncertainty Quantification and Runtime Monitoring Using Environment-Aware Digital Twins. In *Leveraging Applications of Formal Methods, Verification and Validation: Tools and Trends*, volume 12479 of *LNCS*, pages 72–87. Springer International Publishing, 2021.

[63] Benoît Legat, **Cláudio Gomes**, Paschalis Karalis, Raphaël M. Jungers, Eva M. Navarro-López, and Hans Vangheluwe. Stability of Planar Switched Systems under Delayed Event Detection. *arXiv:2102.10390 [cs, eess]*, September 2020.

[64] **Cláudio Gomes**, Casper Thule, Levi Lúcio, Hans Vangheluwe, and Peter Gorm Larsen. Generation of Co-simulation Algorithms Subject to Simulator Contracts. In Javier Camara and Martin Steffen, editors, *Software Engineering and Formal Methods*, volume 12226 of *Lecture Notes in Computer Science*, pages 34–49, Oslo, Norway, 2020. Springer International Publishing.

[65] Christian Møldrup Legaard, **Cláudio Gomes**, Peter Gorm Larsen, and Frederik F. Foldager. Rapid Prototyping of Self-Adaptive-Systems using Python Functional Mockup Units. In *Proceedings of the 2020 Summer Simulation Conference*, SummerSim '20, pages 1–12, Virtual Event, Spain, 2020. Society for Computer Simulation International, San Diego, CA, United States.

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[67] **Cláudio Gomes**, Bentley James Oakes, Mehrdad Moradi, Alejandro Torres Gamiz, Juan Carlos Mendo, Stefan Dutre, Joachim Denil, and Hans Vangheluwe. HintCO - Hint-Based Configuration of Co-Simulations. In *International Conference on Simulation and Modeling Methodologies, Technologies and Applications*, pages 57–68, Prague, Czech Republic, 2019.

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[73] **Cláudio Gomes**, Yentl Van Tendeloo, Joachim Denil, Paul De Meulenaere, and Hans Vangheluwe. Hybrid System Modelling and Simulation with Dirac Deltas. In *Proceedings of the Symposium on Theory of Modeling & Simulation: DEVS Integrative M&S Symposium*, page Article No. 7, Virginia Beach, Virginia, USA, 2017. Society for Computer Simulation International.

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[76] Levi Lúcio, Bentley James Oakes, **Cláudio Gomes**, Gehan Selim, Juergen Dingel, James R. Cordy, and Hans Vangheluwe. SyVOLT: Full Model Transformation Verification Using Contracts. In *8th International Conference on Model Driven Engineering Languages and Systems - Demo*, pages 6019–635, Ottawa, Canada, September 2015. Springer International Publishing.

[77] **Cláudio Gomes**, Bruno Barroca, and Vasco Amaral. Classification of Model Transformation Tools: Pattern Matching Techniques. In Juergen Dingel, Wolfram Schulte, Isidro Ramos, Silvia Abrahão, and Emilio Insfran, editors, *Model-Driven Engineering Languages and Systems*, volume 8767 of *Lecture Notes in Computer Science*. Springer International Publishing, 2014.

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