

Cláudio Gomes

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Key Academic Skills at a Glance

- Researcher**
- Participated in 24 journal and 40 conference publications (peer reviewed).
 - Google H-Index is 22, ResearchGate score is 944, and most cited paper has 494 citations. 1879 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).
- 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).
 - Assistant Professor since 2022.
- Learner**
- Contributed to surveys in new fields (e.g., [23, 26, 69]).
 - Applied knowledge from other fields to problems on own field (e.g., [64]).
 - Co-authored contributions outside own field (e.g., [61, 55]).
- 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 3 conferences (Springsim, RIVF, ANNSIM), 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 papers in the past 3 years for journals such as SIMULATION, Sensors and Actuators, SoSym, and SIMPAT.

Department of Electrical and Computer Engineering, Aarhus University – 8200 Aarhus N
Denmark

📞 +45 93 52 29 81 • ✉ claudio.gomes@ece.au.dk • 🌐 <https://clagms.github.io/>
in clagms • 🆔 0000-0003-2692-9742 • 🔖 PLq1Lv8AAAAJ • 📄 Claudio-Gomes-6

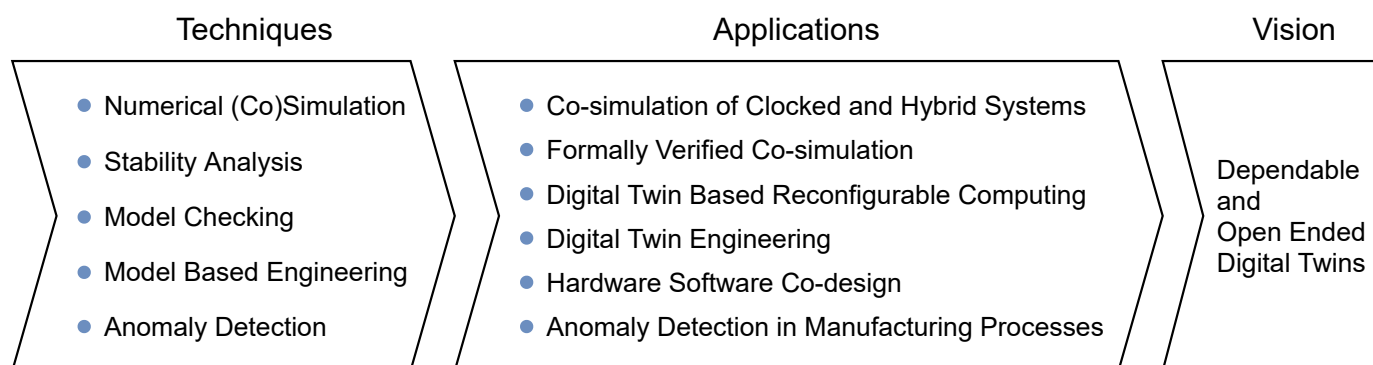
Employment

- 01/2022 – **Assistant Professor**, *Aarhus University*, Aarhus, Middle Jutland, Denmark
Present Supervision, teaching, and conducting research with a focus on co-simulation, digital twin engineering, and machine learning for digital twins.
- 01/2020 – **Postdoctoral Researcher**, *Aarhus University*, Aarhus, Middle Jutland, Denmark
01/2022 Supervision and research with a focus on co-simulation, digital twin engineering, and machine learning for digital twins.
- 11/2019 – **Visiting Researcher**, *Carnegie Mellon University*, Greater Pittsburgh Area
12/2019 Collaborated with Prof. Andre Platzer and Stefan Mitsch on runtime monitoring of co-simulations.
- 03/2015 – **FWO Fellow Phd Student**, *University of Antwerp*, Antwerp Area, Belgium
09/2019 Pursued a Ph.D. in Computer Science with a focus on co-simulation.
- 07/2013 – **Software Engineer**, *Altitude Software*, Lisbon
01/2015 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 – **Assistant Lecturer**, *NOVA School of Science and Technology*, Almada
01/2013 Taught practical (lab) classes involving C and Octave programming languages.
- 10/2009 – **Researcher in the SOLAR group**, *NOVA School of Science and Technology*, Almada
07/2012 Participated in research focused on the methodology for prototype transformations and transformational semantics in a control system specification language.

Education

- 01/03/2015– **PhD**, *University of Antwerp*, Property Preservation in Co-simulation, Antwerp, Belgium
31/12/2019 *Supervisor:* Prof. Hans Vangheluwe.
- 01/09/2011– **MSc and BSc degree, Mark: 18 (out of 20, honors)**, *New University of Lisbon*, A Framework for
22/11/2013 Efficient Model Transformations, Lisbon, Portugal
Supervisor: Prof. Vasco Amaral.

Scientific Focus Areas



Project, Grants & Awards (Selected)

- 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.

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- 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

- 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

- 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.

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- 1/2020–**Synopsys, ESI ITI GmbH, Robert Bosch GmbH, Dassault Systemes, dSPACE GmbH, AVL List GmbH, TLK-Thermo GmbH, Altair, FMI Standardization Committee**, Aarhus, Denmark
Now Designing version 3.0 of the FMU standard. Joint publications: [51, 49, 34],[20].
- 10/2021–**ScubaTx Ltd.**, *Organ preservation digital twins*, Aarhus, Denmark
Now Joint publications: [32].
- 10/2021–**R&D Test Systems A/S**, *Hybrid testing digital twins*, Aarhus, Denmark
Now Joint publications: [12],[28].
- 10/2022–**FORCE Technology A/S**, *Hybrid testing digital twins*, Aarhus, Denmark
12/2024 Part of DLTE project.
- 10/2020–**Novo Nordisk**, *Anomaly Detection for Manufacturing Processes*, Aarhus, Denmark
10/2023 Application of state of the art anomaly detection methods to the production of dose pens. Joint publications: [39].
- 10/2020–**Lego**, *Anomaly Detection for Machining Processes*, Aarhus, Denmark
10/2023 Joint publications: [47].
- 10/2020–**Vestas**, *Enabling Mobile Manufacturing*, Aarhus, Denmark
10/2023 Joint publications: [13].
- 10/2020–**Technicon**, *Automated Configuration of Robot Manufacturing Cells*, Aarhus, Denmark
10/2023 Joint publications: [53, 41, 40].
- 08/2019–**Boeing Research and Technology Europe**, *Hint-Based Configuration of Co-simulations*, Madrid, Spain
10/2019 Joint publications: [59, 52].
- 09/2016 **Fortiss GmbH**, *Model Transformation Engine Optimization*, Munich, Germany
Joint publications: [68].

Ongoing Applications for Funding

- 01/2025 **TWIN-GROW**, *Danida*, Aarhus, Denmark. Role: PI; Status: **Submitted**.
- 11/2024 **SAILING**, *Horizon Doctoral Network, 8 partners*, Aarhus, Denmark. Role: PI; Status: **Submitted**.
- 11/2024 **EngDT**, *Horizon Doctoral Network, 8 partners (Budget: $\approx 4.3\text{M€}$, AU Part: $\approx 0.6\text{M€}$)*, Aarhus, Denmark. Role: PI and WPLoad; Status: **Submitted**.
- 10/2024 **ESPECIALS**, *COST Action*, Aarhus, Denmark. Role: PI; Status: **Submitted**.
- 03/2024 **VECTRON**, *Horizon Europe*, Aarhus, Denmark. Role: PI; Status: **Rejected**.
- 02/2024 **Alapple**, *Danida*, Aarhus, Denmark. Role: PI; Status: **Rejected**.
- 01/2024 **ROBOSAPIENS: Robotic Self Adaptation in Novel Environments**, *Horizon Europe CL4 RIA Project (Budget: $\approx 4\text{M€}$, ≈ 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: $\approx 15\text{MDKK}$)*, 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: $\approx 389\text{KNOK}$)*, Aarhus, Denmark. Role: PI; Status: **Accepted**.
- 10/2023 **WindExcel**, *Horizon Europe*, Aarhus, Denmark. Role: PI and WPLoad; Status: **Rejected**.
- 04/2023 **ACCME**, *DFF Thematic*, Aarhus, Denmark. Role: PI; Status: **Rejected**.
- 04/2023 **PROMOTE**, *Novo Foundation*, Aarhus, Denmark. Role: PI; Status: **Rejected**.

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- 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: $\approx 4M\text{€}$, ≈ 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**.
- 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 Hallerstedte 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.

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- Fall 2019 / **Modelling of Software-Intensive Systems**, *Teaching assistant with Prof. Hans Vangheluwe on causal block diagrams*, Antwerp, Belgium
- Fall 2018 / 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 2016 /
- Fall 2015
- Fall 2018 / **Model Driven Engineering**, *Teaching assistant with Prof. Hans Vangheluwe on Domain Specific Languages and Model Transformations*, Antwerp, Belgium
- Fall 2017 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 / **Domain Specific Languages**, *Teaching assistant on Domain Specific Languages with Prof. Vasco Amaral*, Lisbon, Portugal
- Fall 2012 Tasks: Helping with lab assignments and projects, delivering practical lectures, correcting part of the exam and assignments. Program: MSc in Computer Science.
- Spring 2012 **Formal languages and automata theory**, *Teaching assistant on Automata, Grammars, and Regular Expressions with Prof. Vasco Amaral*, Lisbon, Portugal
- / Spring 2011 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 **Springsim, RIVF, ANNSIM, EDTConf, Isola, conferences.**
- Committees
- Conference **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.**
- Organization
- Editor **Guest editor for the SIMULATION journal, special issues on Digital Twins and dependability.**
- Reviews **Reviewer for 8 different journals in the past 2 years.**
- PhD **1**
- Committee

Supervision

- Post Docs **2 Ongoing**
- PhD **4 Completed, 2 Ongoing**
- Students
- MSc **8 Completed, 1 Ongoing**
- Students
- BSc **4 Completed**
- Students

Dissemination

- 05/2025 **SPACERAISE, L'Aquila, 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

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- 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
- 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***

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- 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
- 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

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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

2025	Simultech	2021	Annual Modeling and Simulation
2025	Isola	2021	ACM Conference on Principles of Advanced Discrete Simulation
2025	Taros		
2025	MoDELS	2016/2018	TMS/DEVS Track –
2025	Modelica	/2019/2020	Spring simulation Multi-Conference
2024	Annual Modeling and Simulation	2020	Summer Simulation
2024	Isola	2019	JuliaCon
2024	EDTConf	2019	Workshop on Modeling and Simulation of Software-Intensive Systems
2024	MPM4CPS Workshop	2018	Workshop on Distributed Estimation and Control in Networked Systems
2023	MPM4CPS Workshop		
2023	Annual Modeling and Simulation	2018/2019	Workshop on Formal Co-Simulation of Cyber-Physical Systems
2022	Workshop on Formal Co-Simulation of Cyber-Physical Systems	/2020	
2022	Isola	2016	Winter Simulation
2022	International Symposium on Distributed Simulation and Real Time Applications	2016	IEEE RIVF International Conference on Computing and Communication Technologies: Research, Innovation, and Vision for the Future

Journal Reviewing Activities

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

*Department of Electrical and Computer Engineering, Aarhus University – 8200 Aarhus N
Denmark*

☎ +45 93 52 29 81 • ✉ claudio.gomes@ece.au.dk • 🌐 <https://clagms.github.io/>
in clagms • ⓘ 0000-0003-2692-9742 • 🔖 PLq1Lv8AAAAJ • 📄 Claudio-Gomes-6

Professional Experience

22/11/2013– **Software developer**, *Altitude Software*, Lisbon
01/02/2015 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

Publications

Peer Reviewed Journals

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- [9] 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.
- [10] 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.
- [11] 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

*Department of Electrical and Computer Engineering, Aarhus University – 8200 Aarhus N
Denmark*

☎ +45 93 52 29 81 • ✉ claudio.gomes@ece.au.dk • 🌐 <https://clagms.github.io/>
in clagms • 🆔 0000-0003-2692-9742 • 🔖 PLq1Lv8AAAAJ • 📄 Claudio-Gomes-6

- [12] 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.
- [13] 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.
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- [35] 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.
- [36] 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.
- [37] 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.

Department of Electrical and Computer Engineering, Aarhus University – 8200 Aarhus N
Denmark

☎ +45 93 52 29 81 • ✉ claudio.gomes@ece.au.dk • 🌐 <https://clagms.github.io/>
in clagms • 🆔 0000-0003-2692-9742 • 🔖 PLq1Lv8AAAAJ • 📄 Claudio-Gomes-6

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- [46] 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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- [48] **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.
- [49] **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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*Department of Electrical and Computer Engineering, Aarhus University – 8200 Aarhus N
Denmark*

☎ +45 93 52 29 81 • ✉ claudio.gomes@ece.au.dk • 🌐 <https://clagms.github.io/>
 in clagms • ⓘ 0000-0003-2692-9742 • 🔖 PLq1Lv8AAAAJ • 📄 Claudio-Gomes-6

- [51] 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, Linköping Universitet.
- [52] 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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Department of Electrical and Computer Engineering, Aarhus University – 8200 Aarhus N
Denmark

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Department of Electrical and Computer Engineering, Aarhus University – 8200 Aarhus N
Denmark

☎ +45 93 52 29 81 • ✉ claudio.gomes@ece.au.dk • 🌐 <https://clagms.github.io/>
in clagms • 🆔 0000-0003-2692-9742 • 🔖 PLq1Lv8AAAAJ • 📄 Claudio-Gomes-6

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*Department of Electrical and Computer Engineering, Aarhus University – 8200 Aarhus N
Denmark*

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