

EDUCATION

- 2022 **HDR**, French Habilitation to lead research, University of Paris-Saclay, France
- 2010 **PhD**, Computer Science and Electrical Engineering, INSA Lyon, France
- 2006 **MS**, Computer Engineering and Electrical Engineering, Nice Sophia Antipolis University, France
- 2004 **BS**, Electrical Engineering and signal Processing, Nice Sophia Antipolis University, France

POSITIONS

- 2022~ **Full Professor**, ENS Paris-Saclay, LURPA, Gif-sur-Yvette, France
- 2011~2022 **Associate Professor**, ENS Cachan, LURPA, Cachan, France
- 2009~2011 **Assistant Professor**, AMPERE Lab. INSA Lyon, France
- 2008~2009 **Research Scholar**, University of Michigan, Ann Arbor, MI, US

RESEARCH INTERESTS: DISCRETE EVENT SYSTEMS

- Behavior identification of complex systems
- Resilient controller for hybrid event systems
- Digital Twin & behaviors equivalence
- Health care system & AAL modelling

PROFESSIONAL ACTIVITIES

Member of the IPC of Workshop of Discrete Event System (WODES)

Ass. Ed. of the journal IEEE Transaction on Automation Science and Engineering (T-ASE) of the IEEE Robotics & Automation Society

Co-chair of the Technical Committee “Automation in Healthcare Management” (TC AHM) at IEEE Robotics and Automation Society (IEEE RAS)

Ass. Ed. of IEEE Int. Conf. on Automation Science and Engineering (CASE) and Int. Conf. on Systems, Man, and Cybernetics (SMC).

Member of CNU’61: “National Council of Universities” in the thematic Computer Science, Signal Processing, Control and Manufacturing systems.

National Organizing Committee of 12th IFAC Workshop on Discrete Event Systems (WODES’14), 14-16 May 2014, Cachan (France)

PROJECTS

International projects

VALIDATOR : Evaluation and optimization of clinical pathways using formal methods, leader Cristian Mahulea, Zaragoza University. Project in collaboration with France, Spain and Italy.

PUBLICATIONS

All publications are on HAL and listed on <https://scholar.google.com/citations?user=uJIVqLQAAAAJ>

Relevant Journal Papers:

- F. Delaine and **G. Faraut**, “Mathematical Criteria for a Priori Performance Estimation of Activities of Daily Living Recognition,” *Sensors*, vol. 22, no. 7, p. 2439, Mar. 2022, doi: 10.3390/s22072439.
- K. Viard, M. P. Fanti, **G. Faraut** and J.-J. Lesage, "Human Activity Discovery and Recognition Using Probabilistic Finite-State Automata," *IEEE Transactions on Automation Science and Engineering*, vol. 17, no. 4, pp. 2085-2096, Oct. 2020.
- F. Basile, **G. Faraut**, L. Ferrara, J.-J. Lesage, « An Optimization-Based Approach to Discover the Unobservable Behavior of a Discrete-Event System Through Interpreted Petri Nets », *IEEE Transactions on Automation Science and Engineering*, 2019, pp.1-15.
- J. Saives, **G. Faraut**, J.-J. Lesage. “Automated Partitioning of Concurrent Discrete-Event Systems for Distributed Behavioral Identification”, *IEEE Transactions on Automation Science and Engineering*, 2017, 0(99), pp.1-10.
- A. Guignard, J.-M. Faure, **G. Faraut**, “Model-based testing of PLC programs with appropriate conformance relations”. *IEEE Transactions on Industrial Informatics*, Institute of Electrical and Electronics Engineers, 2017

- M. P. Fanti, **G. Faraut**, J.-J. Lesage, M. Roccotelli, "An Integrated Framework for Binary Sensor Placement and Inhabitants Location Tracking". *IEEE Trans. on Systems, Man and Cybernetics, Part A: Systems and Humans*, Institute of Electrical and Electronics Engineers, 2016,
- J. Saives, C. Pianon, **G. Faraut**. "Activity Discovery and Detection of Behavioural Deviations of an Inhabitant from Binary Sensors", *IEEE Transactions on Automation Science and Engineering*, 2015, 12 (4), pp.1211 - 1224.

Articles in refereed conference or symposium proceedings (includes invited papers)

- R. Thibert, **G. Faraut** and S. Amari, "Construction of Model-based Diagnosis of Cyber-Attack in Cyber-Physical Systems Using Labeled Petri Nets," 2023 IEEE 28th International Conference on Emerging Technologies and Factory Automation (ETFA), Sinaia, Romania, 2023, pp. 1-6
- Y. Monier, **G. Faraut**, B. Denis, N. Anwer, "Inferring Moore Machine for adaptive online Hybrid Automaton Identification", IFAC-PapersOnLine, Volume 56, Issue 2, 2023, Pages 8641-8647, ISSN 2405-8963,
- K. Fouquet, **G. Faraut** and J. -J. Lesage, " Long-Term Deviation Detection in Human Behavior," IEEE 17th International Conference on Automation Science and Engineering (CASE), 2021, August 23-27, Lyon, France.
- K. Fouquet, **G. Faraut** and J. -J. Lesage, "Model-Based Approach for Anomaly Detection in Smart Home Inhabitant Daily Life," 2021 American Control Conference (ACC), 2021, 25-28 May, New Orleans, USA.
- K. Fouquet, **G. Faraut** and J. -J. Lesage, "Life Habits Modeling with Stochastic Timed Automata in Ambient Assisted Living," 2020 IEEE International Conference on Systems, Man, and Cybernetics (SMC), 2020, pp. 2740-2745, doi: 10.1109/SMC42975.2020.9282900.
- F. Basile, **G. Faraut**, L. Ferrara, J.-J. Lesage. "Discovering of the unobservable behaviour of an Interpreted Petri Net model". 58th IEEE Conf. on Decision and Control (CDC'19), Dec 2019, Nice, France. pp.2021-2026.
- M.P. Fanti, M. Roccotelli, **G. Faraut**, J.-J. Lesage, "Smart Placement of Motion Sensors in a Home Environment". IEEE SMC 2017 - IEEE International Conference on Systems, Man, and Cybernetics (SMC), Oct 2017, Banff, Canada. pp.894-899, 2017,
- K. Viard, M.P. Fanti, **G. Faraut**, J.-J. Lesage, "Recognition of Human Activity Based on Probabilistic Finite-State Automata". 22nd IEEE International Conference on Emerging Technologies And Factory Automation (ETFA'17), Sep 2017, Limassol, Cyprus.
- K. Viard, M.P. Fanti, **G. Faraut**, J.-J. Lesage, "An Event-Based Approach for Discovering Activities of Daily Living by Hidden Markov Models", 15th IEEE Int. Conf. on Ubiquitous Computing and Communications, (IUCC 2016), Dec 2016, Granada, Spain
- J. Saives, **G. Faraut**, J.-J. Lesage, « Identification comportementale des Systèmes à Événements Discrets réactifs ». *Modélisation des Systèmes Réactifs (MSR 2015)*, Nov. 2015, Nancy, France
- M.P. Fanti, M. Roccotelli, J.-J. Lesage, **G. Faraut**, "Motion Detector Placement Optimization in Smart Homes for Inhabitant Location Tracking". 21st IEEE Int. Conf. on Emerging Technologies and Factory Automation, Sep 2016, Berlin, Germany, (ETFA'16)
- J. Saives, **G. Faraut**, J.-J. Lesage. "Identification of Discrete Event Systems Unobservable Behaviour by Petri nets using Language Projections". *IEEE European Control Conference 2015, ECC'15*, Jul 2015, Linz, Austria. 14th European Control Conference, ECC'15. <hal-01180594>
- J. Saives, **G. Faraut**, "Automated Generation of Models of Activities of Daily Living", 12th IFAC Int. Workshop on Discrete Event Systems (WODES'14), Paris, France.