

Yuriy Zacchia Lun, Ph.D.

Curriculum Vitae et Studiorum

✉ yuriy.zacchialun@univaq.it

🌐 <https://zacchialun.com/>

🌐 https://www.linkedin.com/in/yuriyzacchialun/?locale=en_US



🎓 Education

- 2017 📖 **Ph.D. Comput. sci., Gran Sasso Science Institute (GSSI) / IMT Lucca (joint program).**
Diss. title: *Stability and optimal control of polytopic time-inhomogeneous Markov jump linear systems.*
Advisors: Prof. Maria Domenica Di Benedetto and Prof. Alessandro D’Innocenzo.
- 2012 📖 **M.Sc. Telecom. Eng., University of L’Aquila.** Final score: 110/110.
Diss. title: *Algorithm for refinement of telecommunication network infrastructure localization.*
- 2008 📖 **B.Sc. Telecom. Eng., University of L’Aquila.** Final score: 110/110.

📁 Employment History

- Since 2022 📖 **Assistant professor (non-tenure track: RTDa),** Department of Information Engineering, Computer Science and Mathematics (DISIM), University of L’Aquila.
- 2018–2022 📖 **Research collaborator,** SysMA research unit, IMT School for Advanced Studies Lucca.
Projects: Industrial cybersecurity—SINCERA; Cyber range scenario design and management; Methodologies and tools for data network security.
- 2017–2018 📖 **Research collaborator,** University of L’Aquila and Center of Excellence DEWS.
Project: Formal verification for security in cyber-physical systems.
- 2013 📖 **Industrial R&D Assistant Researcher,** WEST Aquila S.r.l.
- 2012–2013 📖 **ICT Training Analyst,** CONSEL—ELIS Consortium.
Activities: Design of the vocational master on "Development of applications and services in the cloud" and teaching of the "Administration of salesforce.com" course.

🏛️ Visiting Positions

- 2017/02–2017/07 📖 **Visiting Ph.D. student** within ERASMUS+ for Traineeship programme, OXCAV group, Department of Computer Science, University of Oxford.

🏆 Awards

- 2019 📖 **Best work in progress paper award,** 15th IEEE International Workshop on Factory Communication Systems (WFCS).







🔧 Skills

- Languages 📖 Strong reading, writing and speaking competencies for English, Italian, and Russian.
- Coding 📖 Strong proficiency with MATLAB and \LaTeX .


👤 Professional Associations

- IEEE 📖 **Member** since 2016.
- ACM 📖 **Member** since 2024.

Teaching at the University of L'Aquila (UnivAQ)

- Since 2023  ICT Security—F4Z, I4W, and I3N—6 ECTS credits. Principal lecturer: Dr. Walter Tiberti. Activities: 32 hours of lessons (4 ECTS credits).
- Since 2022  Industrial communications—I4S—9 ECTS credits. Principal lecturer: Prof. Piergiuseppe Di Marco. Activities: 30 hours of lessons (3 ECTS credits).
- 2022–2026  *Complementi di analisi dei segnali e campi elettromagnetici* (Complements of signal analysis and electromagnetic fields, conducted in Italian)—I3D—3 ECTS credits. Activities: 15 hours of lessons and exercises (3 ECTS credits).
- 2023–2024  *Metodologie e strumenti per l'insegnamento di tecnologie e sistemi di telecomunicazioni* (Methodologies and tools for teaching telecommunications technology and systems, conducted in Italian)—University pathways for initial training of secondary school teachers: the A-40 Class—Electrical and electronic science and technology—1 ECTS credit. Activities: 6 hours of lessons (1 ECTS credit).
-  *Laboratorio di didattica di segnali, trasmissioni e reti* (Signals, transmission, and networks teaching laboratory, conducted in Italian)—University pathways for initial training of secondary school teachers: the A-40 Class—Electrical and electronic science and technology—1 ECTS credit. Activities: 12 hours of laboratory experiences (1 ECTS credit).
- 2021–2022  *Analisi dei segnali e campi elettromagnetici* (Signals analysis and electromagnetic fields, conducted in Italian)—I3D—9 ECTS credits. Principal lecturer: Prof. Fortunato Santucci. Activities: 20 hours of lessons (2 ECTS credits) within the Signals analysis course unit.

Research Interests

-  Automatic control of wireless networked control systems; communication, computation, and control co-design; stochastic hybrid systems, formal methods, and security in cyber-physical domains.

Research Publications

Journal Articles

- 9 **Zacchia Lun**, Y., Santucci, F., & D'Innocenzo, A. (2026). Output-feedback control with wireless channel state detection and actuation message dropout compensation. *Nonlinear Analysis: Hybrid Systems*, 61, 101742. [doi:10.1016/j.nahs.2026.101742](https://doi.org/10.1016/j.nahs.2026.101742)
- 8 **Zacchia Lun**, Y., Santucci, F., & D'Innocenzo, A. (2025). Wireless control with channel state detection and message dropout compensation. *IEEE Control Systems Letters*, 9, 1399–1404. [doi:10.1109/LCSYS.2025.3580048](https://doi.org/10.1109/LCSYS.2025.3580048)
- 7 **Zacchia Lun**, Y., Smarra, F., & D'Innocenzo, A. (2025). Optimal control over Markovian wireless communication channels under generalized packet dropout compensation. *Automatica*, 176, 112240. [doi:10.1016/j.automatica.2025.112240](https://doi.org/10.1016/j.automatica.2025.112240)
- 6 **Zacchia Lun**, Y., Santucci, F., & D'Innocenzo, A. (2024). Robust linear quadratic regulation over polytopic time-inhomogeneous Markovian channels under generalized packet dropout compensation. *IEEE Control Systems Letters*, 8, 3315–3320. [doi:10.1109/LCSYS.2024.3521656](https://doi.org/10.1109/LCSYS.2024.3521656)
- 5 **Zacchia Lun**, Y., Rinaldi, C., D'Innocenzo, A., & Santucci, F. (2024). Co-designing wireless networked control systems on IEEE 802.15.4-based links under Wi-Fi interference. *IEEE Access*, 12, 71157–71183. [doi:10.1109/ACCESS.2024.3402082](https://doi.org/10.1109/ACCESS.2024.3402082)
- 4 Impicciatore, A., **Zacchia Lun**, Y., Pepe, P., & D'Innocenzo, A. (2024). Optimal output-feedback control over Markov wireless communication channels. *IEEE Transactions on Automatic Control*, 69(3), 1643–1658. [doi:10.1109/TAC.2023.3328268](https://doi.org/10.1109/TAC.2023.3328268)






- 3 Soderi, S., Masti, D., & **Zacchia Lun**, Y. (2023). Railway cyber-security in the era of interconnected systems: A survey. *IEEE Transactions on Intelligent Transportation Systems*, 24(7), 6764–6779. [doi:10.1109/TITS.2023.3254442](https://doi.org/10.1109/TITS.2023.3254442)
- 2 **Zacchia Lun**, Y., D’Innocenzo, A., & Di Benedetto, M. D. (2019). Robust stability of polytopic time-inhomogeneous Markov jump linear systems. *Automatica*, 105, 286–297. [doi:10.1016/j.automatica.2019.03.031](https://doi.org/10.1016/j.automatica.2019.03.031)
- 1 **Zacchia Lun**, Y., D’Innocenzo, A., Smarra, F., Malavolta, I., & Di Benedetto, M. D. (2019). State of the art of cyber-physical systems security: An automatic control perspective. *Journal of Systems and Software*, 149, 174–216. [doi:10.1016/j.jss.2018.12.006](https://doi.org/10.1016/j.jss.2018.12.006)

Conference Proceedings












- 18 D’Innocenzo, A., Rehman, K. U., & **Zacchia Lun**, Y. (2025, December). Data driven finite abstractions by simulation relations with probabilistic guarantees using regression trees. In *Proceedings of the 64th IEEE Conference on Decision and Control (CDC)* (pp. 7044–7049). IEEE. [doi:10.1109/CDC57313.2025.11312108](https://doi.org/10.1109/CDC57313.2025.11312108)
- 17 Fasciani, A., **Zacchia Lun**, Y., Smarra, F., & D’Innocenzo, A. (2025, August). Model predictive control for speed regulation of autonomous vehicles at road intersections and performance evaluation in a V2X communication scenario. In *Proceedings of the 21st IEEE International Conference on Automation Science and Engineering (CASE)* (pp. 2710–2715). IEEE. [doi:10.1109/CASE58245.2025.11164147](https://doi.org/10.1109/CASE58245.2025.11164147)
- 16 Khan, M. A., **Zacchia Lun**, Y., Di Marco, P., Mahmood, A., Santucci, F., & Gidlund, M. (2025, June). Analysis of communication and control performance of multi-hop IEEE 802.15.4-based WNCSSs under Wi-Fi interference. In *Proceedings of the 21st IEEE International Conference on Factory Communication Systems (WFCS)* (pp. 1–8). IEEE. [doi:10.1109/WFCS63373.2025.11077614](https://doi.org/10.1109/WFCS63373.2025.11077614)
- 15 **Zacchia Lun**, Y., Rinaldi, C., Santucci, F., & D’Innocenzo, A. (2023, July). Wireless networked control over lossy uplinks abstracted by finite-state Markov channels. In *Proceedings of the 22nd IFAC World Congress: IFAC-PapersOnLine (56) 2* (pp. 3041–3047). Elsevier. [doi:10.1016/j.ifacol.2023.10.1432](https://doi.org/10.1016/j.ifacol.2023.10.1432)
- 14 Impicciatore, A., Tsiamis, A., **Zacchia Lun**, Y., D’Innocenzo, A., & Pappas, G. J. (2022, December). Secure state estimation over Markov wireless communication channels. In *Proceedings of the 61st IEEE Conference on Decision and Control (CDC)* (pp. 2935–2940). IEEE. [doi:10.1109/CDC51059.2022.9992668](https://doi.org/10.1109/CDC51059.2022.9992668)
- 13 Florenzan Reyes, L. F., Smarra, F., **Zacchia Lun**, Y., & D’Innocenzo, A. (2021, June). Learning Markov models of fading channels in wireless control networks: a regression trees based approach. In *Proceedings of the 29th Mediterranean Conference on Control and Automation (MED)* (pp. 232–237). IEEE. [doi:10.1109/MED51440.2021.9480310](https://doi.org/10.1109/MED51440.2021.9480310)
- 12 Impicciatore, A., **Zacchia Lun**, Y., Pepe, P., & D’Innocenzo, A. (2021, May). Optimal output-feedback control and separation principle for Markov jump linear systems modeling wireless networked control scenarios. In *Proceedings of the 2021 American Control Conference (ACC)* (pp. 2700–2706). IEEE. [doi:10.23919/ACC50511.2021.9482674](https://doi.org/10.23919/ACC50511.2021.9482674)
- 11 **Zacchia Lun**, Y., Rinaldi, C., Alrish, A., D’Innocenzo, A., & Santucci, F. (2020, July). On the impact of accurate radio link modeling on the performance of WirelessHART control networks. In *Proceedings of the 2020 IEEE Conference on Computer Communications (INFOCOM)* (pp. 2430–2439). IEEE. [doi:10.1109/INFOCOM41043.2020.9155285](https://doi.org/10.1109/INFOCOM41043.2020.9155285)
- 10 **Zacchia Lun**, Y., & D’Innocenzo, A. (2019, December). Stabilizability of Markov jump linear systems modeling wireless networked control scenarios. In *Proceedings of the 58th IEEE Conference on Decision and Control (CDC)* (pp. 5766–5772). IEEE. [doi:10.1109/CDC40024.2019.9029202](https://doi.org/10.1109/CDC40024.2019.9029202)

- 9 **Zacchia Lun**, Y., Abate, A., & D’Innocenzo, A. (2019, June). Linear quadratic regulation of polytopic time-inhomogeneous Markov jump linear systems. In *Proceedings of the 17th European Control Conference (ECC)* (pp. 4094–4099). IEEE. [doi:10.23919/ECC.2019.8796279](https://doi.org/10.23919/ECC.2019.8796279)
- 8 Alrish, A., **Zacchia Lun**, Y., D’Innocenzo, A., & Santucci, F. (2019, May). Work in Progress: Systematic Derivation of Accurate Analytic Markov Channel Models for Industrial Control. In *Proceedings of the 15th IEEE International Workshop on Factory Communication Systems (WFCS)* (pp. 1–4). IEEE. [doi:10.1109/WFCS.2019.8757917](https://doi.org/10.1109/WFCS.2019.8757917)
- 7 **Zacchia Lun**, Y., Wheatley, J., D’Innocenzo, A., & Abate, A. (2018, July). Approximate abstractions of Markov chains with interval decision processes. In *Proceedings of the 6th IFAC Conference on Analysis and Design of Hybrid Systems (ADHS): IFAC-PapersOnLine* (51) 16 (pp. 91–96). Elsevier. [doi:10.1016/j.ifacol.2018.08.016](https://doi.org/10.1016/j.ifacol.2018.08.016)
- 6 **Zacchia Lun**, Y., D’Innocenzo, A., Abate, A., & Di Benedetto, M. D. (2017, December). Optimal robust control and a separation principle for polytopic time-inhomogeneous Markov jump linear systems. In *Proceedings of the 56th IEEE Conference on Decision and Control (CDC)* (pp. 6525–6530). IEEE. [doi:10.1109/CDC.2017.8264642](https://doi.org/10.1109/CDC.2017.8264642)
- 5 **Zacchia Lun**, Y., D’Innocenzo, A., & Di Benedetto, M. D. (2017a, July). Robust LQR for time-inhomogeneous Markov jump switched linear systems. In *Proceedings of the 20th IFAC World Congress: IFAC-PapersOnLine* (50) 1 (pp. 2199–2204). Elsevier. [doi:10.1016/j.ifacol.2017.08.281](https://doi.org/10.1016/j.ifacol.2017.08.281)
- 4 **Zacchia Lun**, Y., D’Innocenzo, A., & Di Benedetto, M. D. (2017b, July). Robust stability of time-inhomogeneous Markov jump linear systems. In *Proceedings of the 20th IFAC World Congress: IFAC-PapersOnLine* (50) 1 (pp. 3418–3423). Elsevier. [doi:10.1016/j.ifacol.2017.08.838](https://doi.org/10.1016/j.ifacol.2017.08.838)
- 3 **Zacchia Lun**, Y., D’Innocenzo, A., & Di Benedetto, M. D. (2016, December). On stability of time-inhomogeneous Markov jump linear systems. In *Proceedings of the 55th IEEE Conference on Decision and Control (CDC)* (pp. 5527–5532). IEEE. [doi:10.1109/CDC.2016.7799118](https://doi.org/10.1109/CDC.2016.7799118)
- 2 **Zacchia Lun**, Y., Tennina, S., Di Renzo, M., Graziosi, F., & Verikoukist, C. (2013, November). WSN-Aided People Localization: A Ray Tracing Network Planning and Performance Analysis Tool. In *Proceedings of the 11th ACM Conference on Embedded Networked Sensor Systems (SenSys)* (Article 36). ACM. [doi:10.1145/2517351.2517406](https://doi.org/10.1145/2517351.2517406)
- 1 Tennina, S., Kartsakli, E., Lalos, A., Antonopoulos, A., Mekikis, P.-V., Di Renzo, M., ... Verikoukis, C. (2013, October). WSN_{4QoL}: Wireless Sensor Networks for quality of life. In *Proceedings of the 15th IEEE International Conference on e-Health Networking, Applications and Services (HealthCom)* (pp. 277–279). IEEE. [doi:10.1109/HealthCom.2013.6720683](https://doi.org/10.1109/HealthCom.2013.6720683)

Selected Talks at Conferences and Seminars

- 2026/01/13  Speaker at the 22nd Italian Networking Workshop (INW 2026)—Bardonecchia, Italy—presenting the ongoing research under the title “Towards an automated testbed for wireless networked control in industrial settings”
- 2025/12/11  Speaker at the 64th IEEE Conference on Decision and Control (CDC)—Rio De Janeiro, Brazil—presenting the journal paper [J8] above
- 2025/09/04  Speaker at the 2025 Automatica.it Conference—Perugia, Italy—presenting the research outcomes under the title “Optimal Wireless Control With Channel State Detection and Message Dropout Compensation”
- 2025/07/09  Speaker at the 2025 American Control Conference (ACC)—Denver, CO, USA—presenting the journal paper [J6] above
- 2025/06/04  Speaker at the 10th IFAC Conference on Networked Systems (NecSys 25)—Hong Kong, China—presenting the poster of the journal paper [J7] above

Selected Talks at Conferences and Seminars (continued)

- 2023/07/11  Speaker at the 22nd IFAC World Congress—Yokohama, Japan—presenting the conference paper [C15] above
- 2020/07/09  Speaker at the 2020 IEEE Conference on Computer Communications (INFOCOM)—Virtual due to the COVID-19 pandemic—presenting the conference paper [C11] above
- 2019/12/13  Speaker at the 58th IEEE Conference on Decision and Control (CDC)—Nice, France—presenting the conference paper [C10] above
- 2019/06/28  Speaker at the 17th European Control Conference (ECC)—Naples, Italy—presenting the conference paper [C9] above
- 2019/04/17  Speaker at the Cyberspace and cybersecurity seminar (organized by the Chamber of Commerce of Lucca, conducted in Italian under the title *Cyber spazio e Cyber security*)—Lucca, Italy—giving a talk on cloud platforms for ICT security monitoring with an Italian title “*Le piattaforme CLOUD per il monitoraggio della sicurezza ICT*”
- 2018/07/11  Speaker at the 6th IFAC Conference on Analysis and Design of Hybrid Systems (ADHS)—Oxford, OX, UK—presenting the conference paper [C7] above
- 2017/12/15  Speaker at the 56th IEEE Conference on Decision and Control (CDC)—Melbourne, VIC, Australia—presenting the conference paper [C6] above
- 2017/09/12  Speaker at the 2017 Automatica.it Conference—Milan, Italy—presenting the research outcomes under the title “Stability and optimal control of polytopic time-inhomogeneous Markov jump linear systems”
- 2017/07/10  Speaker at the 20th IFAC World Congress—Toulouse, France—presenting the conference papers [C4] and [C5] above
- 2016/12/14  Speaker at the 55th IEEE Conference on Decision and Control (CDC)—Las Vegas, NV, USA—presenting the conference paper [C3] above
- 2013/11/11  Speaker at the 11th ACM Conference on Embedded Networked Sensor Systems (SenSys)—Rome, Italy—presenting the poster [C2] above

Editorial and Reviewing Activities

- 2026–present  **Technical Program Committee** member for the 2026 IEEE Global Communications Conference (GLOBECOM) [IoT and Sensor Networks Symposium (IoTSN)].
- 2025–present  **Technical Program Committee** member for the 2026 IEEE International Conference on Communications (ICC) [Selected Areas in Communications (SAC) symposium on Machine Learning for Communications and Networking].
 -  **Associate Editor** for the 23rd IFAC World Congress 2026 [Technical Committee 1.3 — Discrete Event and Hybrid Systems].
- 2024–present  **Associate Editor** for the European Control Conference (ECC’25 and ECC’26).
- 2015–present  Technical **reviewer** for several international journals and conferences, including ACM TCPS, Elsevier Automatica, Nonlinear Analysis: Hybrid Syst., and Eur. J. Control, IEEE TAC, L-CSS, T-ITS, TVT, JSAC, COMML, ICC, GLOBECOM, ICMLCN, and CDC.
 - 2025  Co-chair of a regular session at the 2025 American Control Conference (WeCo6: Stochastic Control).
 - 2019  Co-chair of a regular session at the 18th European Control Conference (FrC5: Sliding and Switched Control).
 - 2017  Co-chair of a regular session at the 56th IEEE Conference on Decision and Control (FrC11: Switched Systems III; in lieu of Prof. Patrizio Colaneri).
 -  Co-chair of a regular session at the 20th IFAC World Congress (MoP24: Stability and Stabilization of Hybrid Systems).

☆ Editorial and Reviewing Activities (continued)

- 2016 📖 Co-chair of a regular session at the 55th IEEE Conference on Decision and Control (WeA12: Stability of Hybrid Systems; in lieu of Prof. Alessandro D’Innocenzo).

📁 Projects

- 2024–present 📖 **HD-MOTION**—Hub for the Digital MObility TransformatIOn—European Digital Innovation Hubs Network project 🌐 <https://hdmotion.eu>
Position: **Scientific committee member** and **coordinator** for the UnivAQ
- 2023–present 📖 **Resilient Trust**—Trusted SMEs for Sustainable Growth of Europeans Economical Backbone to Strengthen the Digital Sovereignty—Horizon Europe Grant 101112282
Position: **Researcher** and **task leader** coordinating the development of machine-learning-based radio frequency anomaly and malicious attack detection mechanisms
- 📖 **DigInTraCE**—A Digital value chain Integration Traceability framework for process industries for Circularity and low Emissions by waste reduction and use of secondary raw materials—Horizon Europe Grant 101091801 🌐 <https://www.digintrace.eu>
Position: **Researcher**