Yuriy Zacchia Lun, Ph.D.

Curriculum Vitae et Studiorum

yuriy@zacchialun.com 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.*

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 2018 **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.

Professional Activities

2015 – present — Technical **reviewer** for several international journals and conferences, including ACM TCPS, Elsevier Automatica, Nonlinear Analysis: Hybrid Syst., and European J. Control, IEEE TAC, L-CSS, and CDC.

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 20th IFAC World Congress (MoP24: Stability and Stabilization of Hybrid Systems).

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 domain.

Research Publications

Journal Articles

1. **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

2. **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

Conference Proceedings

1. Florenzan Reyes, L. F., Smarra, F., **Zacchia Lun**, Y., & D'Innocenzo, A. (2021). 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

2. Impicciatore, A., **Zacchia Lun**, Y., Pepe, P., & D'Innocenzo, A. (2021). 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

3. **Zacchia Lun**, Y., Rinaldi, C., Alrish, A., D'Innocenzo, A., & Santucci, F. (2020). 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

4. **Zacchia Lun**, Y., & D'Innocenzo, A. (2019). 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

5. **Zacchia Lun**, Y., Abate, A., & D'Innocenzo, A. (2019). 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

6. Alrish, A., **Zacchia Lun**, Y., D'Innocenzo, A., & Santucci, F. (2019). 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

7. **Zacchia Lun**, Y., Wheatley, J., D'Innocenzo, A., & Abate, A. (2018). 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

8. **Zacchia Lun**, Y., D'Innocenzo, A., Abate, A., & Di Benedetto, M. D. (2017). 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

9. **Zacchia Lun**, Y., D'Innocenzo, A., & Di Benedetto, M. D. (2017a). 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

10. **Zacchia Lun**, Y., D'Innocenzo, A., & Di Benedetto, M. D. (2017b). 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

11. **Zacchia Lun**, Y., D'Innocenzo, A., & Di Benedetto, M. D. (2016). 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

12. **Zacchia Lun**, Y., Tennina, S., Di Renzo, M., Graziosi, F., & Verikoukist, C. (2013). 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

13. Tennina, S., Kartsakli, E., Lalos, A., Antonopoulos, A., Mekikis, P.-V., Di Renzo, M., … Verikoukis, C. (2013). WSN4QoL: 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

Personal Characteristics

- Flexibility and adaptability, breadth of interest, ambition, curiosity and enthusiasm, ability to organize and regulate the work, with a flair for problem solving and goal-oriented work.

I hereby authorize the use of my personal details solely for circulation within the organization according to the GDPR 679/16 and Italian Legislative Decree n. 196/2003.

I hereby declare that the above written particulars are true to the best of my knowledge and belief.

Lucca, December 31, 2021 Yuriy Zacchia Lun