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Visa: Tier 2 until Sept/2021

## Research Interest

My own sphere of special interest in the field of Computer Science is comprised by the challenge of supporting the development of high-quality, correct-by-construction software and systems, featuring predictability, efficiency, re-usability, maintainability and modularity that are essential in contemporary information technology systems (such as embedded systems or service oriented architectures).

## Education

- 2013–2017 Ph.D., Computer Science, IMT School for Advanced Studies, Italy  
Thesis: A Foundational Theory for Attribute-based Communication  
Supervisors: Rocco De Nicola and Michele Loreti
- 2010–2013 M.Sc., Computer Science, Philadelphia University, Jordan  
Thesis: A Denotational Semantics for the Language Cloud#  
Supervisor: Mourad Maouche
- 2004–2009 B.Sc., Computer Engineering, Philadelphia University, Jordan  
Thesis: Design and Implementation of a Real-Time Obstacles Avoidance Mobile Robot  
Supervisor: Mohammad Mahdi



- [2] **Alrahman, Y.A et al.**(2018). Programming Interactions in Collective-Adaptive Systems by relying on Attribute-based Communication. **Submitted** (arXiv draft available at: [1711.06092](https://arxiv.org/abs/1711.06092))

## Conferences

- [1] **Alrahman, Y.A et al.**(2018). A Distributed Communication Infrastructure for Attribute-based Interaction. In C. Baier & L. Caires (Eds.). Formal Techniques for Distributed Objects, Components, and Systems - 38th IFIP WG 6.1 International Conference, FORTE 2018, Madrid, Spain, June 18-21, 2018, Proceedings (pp. 1–20). DOI: [10.1007/978-3-319-92612-4\\_1](https://doi.org/10.1007/978-3-319-92612-4_1)
- [2] **Alrahman, Y.A et al.**(2016). On the Power of Attribute-Based Communication. In T. Margaria & B. Steffen (Eds.), Formal Techniques for Distributed Objects, Components, and Systems - 36th IFIP WG 6.1 International Conference, FORTE 2016, Heraklion, Crete, Greece, June 6-9, 2016, Proceedings (pp. 1–18). DOI: [10.1007/978-3-319-39570-8\\_1](https://doi.org/10.1007/978-3-319-39570-8_1)
- [3] **Alrahman, Y.A et al.**(2016). Programming of CAS Systems by Relying on Attribute-Based Communication. In T. Margaria & B. Steffen (Eds.), 7th International Symposium, ISoLA 2016 Imperial, Corfu, Greece, October 10–14, 2016 Proceedings, Part I (pp. 539–553). DOI: [10.1007/978-3-319-47166-2\\_38](https://doi.org/10.1007/978-3-319-47166-2_38)
- [4] **Alrahman, Y.A et al.**(2015). A Calculus for Attribute-based Communication. SAC '15 Proceedings of the 30th Annual ACM Symposium on Applied Computing (pp. 1840–1845). DOI: [10.1145/2695664.2695668](https://doi.org/10.1145/2695664.2695668)
- [5] **Alrahman, Y.A et al.**(2018). Goat: Attribute-based Interaction in Google Go. ISOLA2018 (Accepted). In T. Margaria & B. Steffen (Eds.), 8th International Symposium, ISoLA 2018, Cyprus, October 2018 (pp. 1–16). DOI: [10.1007/978-3-030-03424-5\\_19](https://doi.org/10.1007/978-3-030-03424-5_19)
- [6] **Alrahman, Y.A et al.**(2018). A Model for Operation Control in Power Distribution Grids. (Working paper...).

## Book chapters

- [1] **Alrahman, Y.A et al.**(2014). Can We Efficiently Check Concurrent Programs Under Relaxed Memory Models in Maude?. Santiago Escobar (Ed.), 10th International Workshop, WRLA 2014 Held as a Satellite Event of ETAPS Grenoble, France, April, 2014. DOI: [10.1007/978-3-319-12904-4\\_2](https://doi.org/10.1007/978-3-319-12904-4_2)

## Presentations

- [1] **Alrahman, Y.A.**(2015). A Calculus for Attribute-based Communication, CINA meeting, Turin, Italy, February 2015.
- [2] **Alrahman, Y.A.**(2015). A Calculus for Attribute-based Communication, SAC'15, Salamanca, Spain, April 2015.

- [3] **Alrahman, Y.A.**(2015). On Expressiveness and Behavioural Theory of Attribute-based Communication, QUANTICOL meeting, Lucca, Italy, December 2015.
- [4] **Alrahman, Y.A.**(2016). On the Expressiveness of Attribute-based Communication, PEPA CLUB, Edinburgh, UK, January 2016.
- [5] **Alrahman, Y.A.**(2016). On the Power of Attribute-based Communication, FORTE'16, Heraklion, Greece, June 2016.
- [6] **Alrahman, Y.A.**(2017). A Distributed Coordination Infrastructure for Attribute-based Communication, QUANTICOL meeting, Pisa, Italy., February 2017.
- [7] **Alrahman, Y.A.**(2018). A Theoretical Framework for Collective-Adaptive Systems, Camerino, Italy, January 2018.
- [8] **Alrahman, Y.A.**(2018). A Distributed Communication Infrastructure for Attribute-based Interaction, FORTE'18, Madrid, Spain, June 2018.

## Professional Activities

- Elsevier Journal of Logical and Algebraic Methods in Programming: Reviewer, JLAMP 2018.
- ACM Transactions on Modelling and Computer Simulation Journal: Reviewer, Special Issues for FORECAST 2016 and QEST 2017.
- Sub-Reviewer, MFCS17, TTCS 2017, TASE 2017, COORDINATION 2016 and 2017, FACS 2014 and 2017, FoCAS@SASO14, and WRLA 2014: additional reviewer.

## Software

Open source code from my work on Attribute-based communication can be found on Github:

<https://github.com/lazkany/AbC>

<https://github.com/lazkany/AbCSimulator>

## Technical Skills

- Theorem prover: coq
- Maude: An executable rewriting logic framework
- Programming Languages: Java

## Spoken Languages

- Arabic (native).
- English (fluent).

- Italian (basic).