Yehia Abd Alrahman, Ph.D.

Department of Computer Science
IMT School for Advanced Studies
Piazza San Francesco, 19 55100
Lucca, Italy
Nationality: Syrian
Gender: Male

Phone: +39 (389) 1470408
Email: yehia.abdalrahman@imtlucca.it
ORCID: orcid.org/0000-0002-4866-6931
Skype: yehia_syr

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

Appointments

2018–2019	Postdoctoral Researcher Fellow, IMT School for Advanced Studies
2017–2018	Postdoctoral Researcher Fellow, IMT School for Advanced Studies
1/2016–6/2016	Visiting Research Student, University of Edinburgh, UK
9/2016–12/2016	Research Intern, Max Planck Institute for Software Systems, Germany

Selected Honours and Awards

2016	Scholarship from Max Planck Institute for Software Systems for 3-months Internship, Germany, Saarbrucken.
2016	Grant of 50% increase from IMT 638 for 6-months visiting period at the University of Edinburgh, UK.
2016	Erasmus+ Traineeship scholarship for 6-months visiting period at the University of Edinburgh. UK.
2013	Ph.D. in Computer Science Scholarship from IMT Institute for Advanced Studies, Italy, Lucca.
2010	M.Sc. in Computer Science Scholarship from Philadelphia University, Jordan, Amman.
2004	B.Sc. in Computer Engineering Scholarship from Philadelphia University, Jordan, Amman.

Publications

Preprint URLs available at https://orcid.org/0000-0002-4866-6931

Journals

[1] **Alrahman, Y.A et al**.(2018). A Behavioural Theory for Interactions in Collective-Adaptive Systems. **Submitted** (arXiv draft available at: 1711.09762)

[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)

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

[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

[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

[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

[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

[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

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).