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## PROFILE

I am a capable lecturer in computer science in general and a qualified researcher in formal verification of security protocols in particular. I designed and implemented the Security Protocol Specification language (SPS) in which one can specify security protocols in the intuitive Alice-and-Bob notation, and then formally verify the specified protocols using the state-of-the-art tools: Proverif and OFMC. I designed and implemented several BSc courses at Albalqa' Applied University and Amman Arab University in accordance with the ABET accreditation system. I also coordinated some courses in both universities like C++. Moreover, I participated in curricula development in the Information Technology department at Albalqa' Applied University in light of the ACM and IEEE standards. Finally, I am fluent programmer in a range of programming languages, including structured and object-oriented, functional, and scripting languages.

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## EDUCATION

Dec 2012 - Dec 2015	<b>PhD in Computer Science</b> , The Technical University of Denmark, Denmark
Thesis	<i>Security Protocols: Specification, Verification, Implementation, and Composition</i>
Supervisors	Sebastian Mödersheim and Hanne Riis Nielson
Abstract	My thesis shows that we can simplify the formal verification of protocols in several ways. First, I introduce the SPS (Security Protocol Specification) language, that enables users, without requiring deep expertise in formal models, to specify, verify, and auto-generate implementations for a wide range of real-world protocols in a simple and intuitive way. Despite the generality of SPS semantics, it is mathematically simpler than any previous attempt. Second, I present two types of relative soundness results that reduce complex verification problems into simpler ones. The first kind shows that if a security protocol that fulfils a number of sufficient conditions has an attack then it has a well-typed attack. The second shows that if the parallel composition of two protocols, that fulfil a number of sufficient conditions, allows for an attack then one of the protocols, at least, has an attack in isolation.
Institute Ranking	<a href="#">QS 116</a> , by subject "Engineering and Technology" <a href="#">QS 43</a>
Sep 2010 - Jul 2012	<b>MSc in Computer Science</b> , The University of Trento, Italy
Thesis	<i>Cross-Cultural Analysis of Academic Social Networks</i>
Abstract	My thesis shows a correlation between the culture of users and their usage pattern on the academic social network site academia.edu. The study uses the cultural model of Hofstede.
Relevant Courses	Computer Security, Network Security, Formal Methods, Mathematical Logic, Computability, Concurrency theory, Computational Complexity.
Institute Ranking	<a href="#">QS 441-450</a>
Oct 1998 to Feb 2002	<b>BSc in Computer Science</b> , Jordan University of Science and Technology, Jordan
Relevant Courses	Artificial Intelligence, Programming in C, C++, Java, Compiler Design, Algorithms, Database systems.
Institute Ranking	<a href="#">QS 601-651</a>

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## JOB EXPERIENCES

January 2018 to present	<b>Assistant Professor</b> , Jordan University of Science and Technology, Jordan
July 2016 to January 2018	<b>Assistant Professor</b> , Amman Arab University, Jordan
Mar 2015 to Jun 2015	<b>Visitor researcher</b> , King's College- London, UK
Sep 2004 to Aug 2010	<b>Lecturer</b> , AlBalqa Applied University, Jordan
Jul 2002 - Jul 2003	<b>Administrative</b> , The University of Jordan, Jordan

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## PUBLICATIONS

- [1] **Omar Almousa**, Sebastian Mödersheim and Luca Viganó. Security Protocol Specification Language. In Progress.
- [2] **Omar Almousa**. Probable Secure Channels in SPS language. In New Trends in Information Technology Conference NTIT-2017. Amman, Jordan. 2017.
- [3] **Omar Almousa**, Sebastian Mödersheim, Paolo Modesti and Luca Viganó. Typing and Compositionality for Security Protocols: A Generalization to the Geometric Fragment. In the 20th European Symposium on Research in Computer Security ESORICS 2015. Vienna. Austria. 2015. [BEST PAPER](#)
- [4] **Omar Almousa**, Sebastian Mödersheim and Luca Viganó. Alice and Bob: Reconciling Formal Models and Implementation. 2015. Programming languages with applications to biology and security. Revised Selected and Invited Papers.
- [5] **Omar Almousa**, Sebastian Mödersheim and Luca Viganó. Alice and Bob: Reconciling Formal Models and Implementation (extended abstract), CryptoForma Workshop at Computer Security Foundation Symposium (CSF 2015). Verona, Italy.
- [6] **Omar Almousa** and Sebastian Mödersheim. The APS Language, FOSAD 2014.
- [7] **Omar Almousa**, Users' Classification and Usage-Pattern Identification in Academic Social Networks, IEEE AEECT 2011, Amman, Jordan.
- [8] Basim ALhadidi, Hussam Fakhouri , **Omar Almousa**. cDNA Microarray Genome Image Processing Using Fixed Spot Position, American Journal of Applied Science, 2006.

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## RESEARCH INTERESTS

Specification, verification, implementation, and composition of security protocols.  
Formal methods in computer security

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## OTHER ACADEMIC ACTIVITIES

Curricula development for BSc in Computer Science and Software engineering at Albalqa' Applied University

Course coordination at Albalqa' Applied University and Amman Arab University

Course design at Albalqa' Applied University and Amman Arab University

Participation in students' affairs committee and library committee

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## ACHIEVEMENTS

ESORICS 2015 Best Student Paper Award

FutureID project Innovative work for the authentication specification language of the project

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## REFERENCES

Sebastian Mödersheim	DTU, Denmark	samo@dtu.dk
Luca Viganó	King's College-London, UK	luca.vigano@kcl.ac.uk
Heiko Rossnagel	Farunhofer IAO, Germany	heiko.rossnagel@iao.fraunhofer.de
Paolo Modesti	The University of Sunderland, UK	paolo.modesti@sunderland.ac.uk
Yahya Tashtoush	JUST, Jordan	yahya-t@just.edu.jo