Mohamad Jaber

Curriculum Vitae

American University of Beirut,
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Professional Experience

Sep. 2012 - current — **Assistant Professor**, *American University of Beirut*, Beirut, Lebanon.

January 2015 — **Research Visitor**, *TU Darmstadt and Purdue University*.

June 2014 — **Research Visitor**, *Laboratoire Informatique de Grenoble (LIG)*, Grenoble, France.

January 2014 — **Research Visitor**, *Laboratoire Informatique de Grenoble (LIG)*, Grenoble, France.

Jun. 2013 - Aug. 2013 — **Research Visitor**, *Ecole Polytechnique Fédérale de Lausanne*, Lausanne, EPFL.
with Professor Joseph Sifakis Topic: Architecture Internalization and Externalization in BIP:
- Formalization of Architecture Agnostic Model: I/O components.
- Implementation of Multi-threading Java-based BIP toolset.

Jan. 2012 - Aug. 2012 — **Post-doc**, *TIMA laboratory*, Grenoble, France.
Topic: Software/Hardware Design for Multiprocessor System-on-Chip:
- Communication in Heterogeneous Hierarchical MPSoCs.
- Runtime task migration.

Oct. 2010 - Dec. 2011 — **Post-doc**, *Verimag laboratory*, Grenoble, France.
Topic: development theory, methods and tools for building dynamic systems:
- Definition of a semantic model and an associated modeling methodology.
- Definition of a sophisticated language (ANTLR, JAVA, EMF, . . .).
- Generate centralized and distributed implementations (Binary Decision Diagram, C/C++, TCP Socket, MPI).

Feb. May 2011 — **Research Visitor**, *Microsoft Research*, Redmond, WA, USA.
- Advisor: Ethan Jackson (Foundations of Software Engineering Group).
- Topic: Bounded Symbolic Model Checking in Formula (Logic Programming, *FORMULA*, Model checking, C#).

Sep. 2009 — **Research Intern**, *ISIS Laboratory - Vanderbilt University*, Nashville, Tennessee, USA.
- Advisor: Janos Sztipanovits.
- Topic: Extend ESMoL modeling language to import BIP (Behavior Interaction Priority) models.

2006 – 2007 — **M.Sc. Intern**, *Verimag Laboratory*, Grenoble, France.
- Advisors: Jean-Claude Fernandez and Jean-Luc Richier.
- Topic: Towards Automatic Integration of an Or-BAC Security Policy.

2005 – 2006 — **B.Sc. Intern**, *Terravision Computer Company*, Beirut, Lebanon.
- Advisors: Zaher Zaraket and Bilal Chebaro.
- Topic: Web Application for project management in the company (ASP.net, SQL server).

Diploma

2007 – 2010	**Ph.D. Computer Science**, *University of Grenoble - Verimag Laboratory*, France.
	○ Advisors: Jean-Claude Fernandez and Joseph Sifakis.
	○ Topic: Centralized and Distributed Implementations of Correct-by-construction Component-based Systems by using Source-to-source Transformations in BIP.
2006 – 2007	**M.Sc. Computer Science**, *University of Grenoble*, France, Systems and Software.
	Main courses: Distributed Systems, Verification, Test, Neural Network, Multimedia & WEB, Neural Network, etc.
2002 – 2006	**Maîtrise Computer Science**, *Lebanese University*, Lebanon, Systems and Software.

Teaching

Spring 2015 – 2016	Assistant Professor at the American University of Beirut (AUB)
	○ CMPS 396T: Distributed Systems
Fall 2015 – 2016	Assistant Professor at the American University of Beirut (AUB)
	○ CMPS 272: Operating Systems (sections 1 and 2)
	○ CMPS 299: Software Graduation Project
Fall 2014 – 2015	Assistant Professor at the American University of Beirut (AUB)
	○ CMPS 272: Operating Systems (sections 1 and 2)
	○ CMPS 200: Introduction to Programming (sections 1, 2, and 3)
Spring 2013 – 2014	Assistant Professor at the American University of Beirut (AUB)
	○ CMPS 212: Intermediate Programming with Data Structures (sections 4, 5 and 2)
	○ CMPS 253: Software Engineering (section 1)
Fall 2013 – 2014	Assistant Professor at the American University of Beirut (AUB)
	○ CMPS 272: Operating Systems (sections 1 and 2)
	○ CMPS 200: Introduction to Programming (sections 1, 2, and 3)
Spring 2012 – 2013	Assistant Professor at the American University of Beirut (AUB)
	○ CMPS 253: Software Engineering (section 2)
	○ CMPS 200: Introduction to Programming (sections 1, 2, and 3)
Fall 2012 – 2013	Assistant Professor at the American University of Beirut (AUB)
	○ CMPS 272: Operating Systems (sections 1 and 2)
	○ CMPS 200: Introduction to Programming (sections 1, 2, and 7)
2011 – 2012	Teaching assistant at University of Grenoble (UJF) and University Pierre Mendès France for classes in Advanced Testing Techniques, Network (Intranet, TCP/IP, WIFI, ATM/MPLS, ADSL, Multiplexing, Congestion, etc.), Web Development (PHP, Zend Framework, MySQL).
2009 – 2010	Teaching assistant at University Pierre Mendès France (IUT2) for classes in Networks (Intranet, TCP/IP, WIFI, ATM/MPLS, ADSL, Multiplexing, Congestion, etc.).
2008 – 2009	Teaching assistant at University Pierre Mendès France (IUT2) for classes in ADA, Operating System (Unix/Linux), Advanced Data Structure.

2007 – 2008	Teaching assistant at University Pierre Mendès France (ESE) for classes in Algorithmic, Computer Architecture.

Grants

July 2015 – June 2016	**Computers & Communication Technology SAL - Offshore (Co-PI)**, White Space Management in Plants Industry 2D Piping Drawing, $20000. ○ Principal Investigator (PI): Wassim El-Hajj, Computer Science, AUB ○ Co- Principal Investigator (Co-PI): Mohamad Jaber, Computer Science, AUB
July 2015 – June 2016	**University Research Board Grant (PI)**, *American University of Beirut*, A General framework for the automatic integration of cross-cutting concerns in component-based systems, $6300.
July 2014 – June 2015	**University Research Board Grant (PI)**, *American University of Beirut*, Runtime Enforcement of Component-based Systems, $6300.
July 2013 – June 2014	**University Research Board Grant (PI)**, *American University of Beirut*, High-Level Modeling Language for the Android Platform, $5000.

Supervising Students

2014 – ongoing	**Programming ACM Coach**, *American University of Beirut*, Lead programming coach for talented students interested in participating in the Local, Regional, and International ACM Collegiate Programming Contest. . ○ In 2016, the Computer Science team won the first place and qualified to participate in the Regional ACM Collegiate Programming Contest ○ In 2015, the Computer Science team won the first place and qualified to participate in the Regional ACM Collegiate Programming Contest ○ In 2014, the Computer Science team won the 3nd place and qualified to participate in the Regional ACM Collegiate Programming Contest
September 2015 - ongoing	**Master Thesis**, *American University of Beirut*, Efficient Distributed Implementation of Component-based Systems, Salwa Kobeissi.
June 2015 - September 2015	**Research Assistant**, *American University of Beirut*, White Space Management in Plants Industry 2D Piping Drawing, Ali Cherri.
September 2015 - January 2016	**Research Assistant**, *American University of Beirut*, White Space Management in Plants Industry 2D Piping Drawing, Kinan Dak El Bab.
October 2014 - August 2015	**Master Thesis**, *American University of Beirut*, Aspect-Oriented Modeling for Component-based Design, Antoine Hokayem. Defense August 2015
October 2014 - August 2015	**Master Thesis**, *American University of Beirut*, High-Level Modeling for Android Platforms, John Abou Joudeh. Defense August 2015
Spring 2013-14	**Research Assistant**, *American University of Beirut*, High-Level Modeling for Android Platforms, Kinan Dak El Bab and Mostafa Katerji.

Spring 2013-14	**Master Thesis**, *American University of Beirut*, Real Time QoS Control For Video Tracking, Lea Boutros.
	Defense May 2014
Fall 2013-14	**Research Assistant and Graduation Project**, *American University of Beirut*, High-Level Modeling Language for the Android Platform, Ayman Bitar.
Fall 2013-14	**Graduation Project**, *American University of Beirut*, Runtime Enforcement for Component-Based System, Hadil Charafeddine and Khalil El Harake.
Summer 2013	**Summer Internship**, *Ecole Polytechnique Fédérale de Lausanne*, Translation of BIP models into NuSMV, Wajeb Saab (AUB ECE).

Computer skills

Programming and Tools	C/C++ (GDB, TCP/IP, MPI, PThreads), Java (AspectJ, JSP, ANTLR, EMF), .Net (C#), SQL, Matlab, SVN, git, etc.
Web	ASP.net, Javascript, HTML, PHP.
Publishing	LaTeX 2_ε, Office Suite.
O.S.	Unix/Linux, Windows, Mac.

Summer Schools

April 2009	International School on Model-Driven Development for Distributed, Realtime, Embedded Systems MDD4DRES 2008, Aussois, France.
July 2008	International Summer School on Advanced Computer Architecture and Compilation for Embedded Systems ACACES, Aquila, Italy.

Awards and Fellowships

2012	**Best Paper Award**, 2012, Software Composition, Prague, Czech Republic.
2011	**Best Paper Award**, 2010, SIES IEEE, University of Trento, Italy.
2010	Highly Competitive Microsoft Research Internship Position, Redmond, WA, USA.
2007-2010	Fellowship from Ministry of Research and Education, France

List of Publications

International Journal and Magazine

[1] Yliès Falcone and Mohamad Jaber. Fully Automated Runtime Enforcement of Component-based Systems with Formal and Sound Recovery. *International Journal on Software Tools for Technology Transfer*, 2016.

[2] Paul Attie, Eduard Baranov, Simon Bliudze, Mohamad Jaber and Joseph Sifakis. A General Framework for Architecture Composability. *Formal Aspects of Computing*, 2015.

[3] Marius Bozga, Yliès Falcone, Mohamad Jaber and Thanh-Hung Nguyen. Runtime Verification of Component-based Systems. *Software and Systems Modeling Journal*, 2013.

[4] Borzoo Bonakdarpour, Marius Bozga, Mohamad Jaber, Jean Quilbeuf, and Joseph Sifakis. A Framework for Automated Distributed Implementation of Component-based Models. *Springer Journal of Distributed Computing*, 2011.

[5] Ananda Basu, Saddek Bensalem, Marius Bozga, Jacques Combaz, Mohamad Jaber, Thanh-Hung Nguyen, and Joseph Sifakis. Rigorous Component-based System Design Using the BIP Framework. *IEEE Software Magazine*, 2011.

[6] Marius Bozga, Mohamad Jaber, and Joseph Sifakis. Source-to-source Architecture Transformation for Performance Optimization in BIP. *IEEE Transactions on Industrial Informatics*, 708–718, 2010.

International Conference

[1] Maya Safieddine, Fadi Zaraket, Mohamad Jaber, Rouwaida Kanj and Mazen Saghir. Automated FPGA Implementations of BIP Designs. SIES, IEEE International Symposium on Industrial Embedded Systems, 2016.

[2] Modularizing Crosscutting Concerns in Component-Based Systems. Antoine El-Hokayem, Ylies Falcone and Mohamad Jaber. SEFM, Software Engineering and Formal Methods, 2016.

[3] Simon Bliudze, Alessandro Cimatti, Mohamad Jaber, Sergio Mover, Marco Roveri, Wajeb Saab and Wang Qiang. Formal Verification of Infinite-sate BIP models. *ATVA, International Symposium on Automated Technology for Verification and Analysis*, 2015

[4] Hadil Charafedine, Khalil El-Harake, Yliès Falcone and Mohamad Jaber. Runtime Enforcement for Component-Based Systems. *SAC-SVT - Symposium On Applied Computing - Software Verification and Testing*, 2015.

[5] Maya Safieddine, Rouwaida Kanj, Fadi Zaraket, Ali Elzein and Mohamad Jaber. Separation of Concerns for Hardware Components of Embedded Systems in BIP. *ISQED - International Symposium on Quality Electronic Design*, 2015.

[6] Simon Bliudze, Mohamad Jaber, Mohamad Noureddine and Fadi A. Zaraket. Reduction and Abstraction Techniques for BIP. *FACS - International Symposium on Formal Aspects of Component Software*, 2014.

[7] P.C Attie, Eduard Baranov, Simon Bliudze, Mohamad Jaber and Joseph Sifakis. A General Framework for Architecture Composability. *SEFM - International Conference on Software Engineering and Formal Methods*, 2014.

[8] Simon Bliudze, Marius Bozga, Mohamad Jaber and Joseph Sifakis. Architecture Internalisation in BIP. *CBSE - International Symposium on Component Based Software Engineering*, 2014.

[9] P.C Attie, S. Bensalem, M. Bozga, M. Jaber, J. Sifakis, and F. Zaraket. An Abstract Framework for Deadlock Prevention in BIP. *FORTE/FMOODS*, 2013.

[10] Mohamad Jaber, Alexandre Chagoya-Garzon and Fédéric Rousseau. From System Model Formalization Towards Correct and Efficient HW/SW Design. *DTIS - Design and Technology of Integrated Systems*, 2013.

[11] Yliès Falcone, S. Currea and Mohamad Jaber. RV Droid: Runtime Verification and Enforcement for Android Applications. *RV: International conference on Runtime Verification*, 2012.

[12] Marius Bozga, Mohamad Jaber, Nikolaos Maris and Joseph Sifakis. Modeling Dynamic Architectures Using Dy-BIP. *SC - Software Composition 2012, Prague, Czech Republic*, 2012 **(best paper award)**.

[13] Imene Ben-Hafaiedh, Susanne Graf and Mohamad Jaber. Model-based design and Distributed Implementation of Bus Arbiter for Multiprocessors. *ICECS - IEEE International Conference on Electronics, Circuits, and Systems*, 2011.

[14] Marius Bozga, Yliès Falcone, Mohamad Jaber and Thanh-Hung Nguyen. Runtime Verification of Component-based Systems. *SEFM - Software Engineering and Formal Methods, Montevideo, Uruguay*, 2011.

[15] Borzoo Bonakdarpour, Marius Bozga, Mohamad Jaber, Jean Quilbeuf, and Joseph Sifakis. From High-level Component-based Models to Distributed Implementations. In *EMSOFT - ACM International Conference on Embedded Software, Scottsdale, Arizona, USA*, 209–218, 2010.

[16] Borzoo Bonakdarpour, Marius Bozga, Mohamad Jaber, Jean Quilbeuf, and Joseph Sifakis. Automated Conflict-free Distributed Implementation of Component-based Models. In *SIES - IEEE International Symposium on Industrial Embedded Systems, Trento, Italy*, 108–117, 2010 **(best paper award)**.

[17] Yliès Falcone and Mohamad Jaber. Towards Automatic Integration of OR-BAC Security Policies using Aspects. In *SERP - International Conference on Software Engineering Research and Practice, Las Vegas, Nevada, USA*, 495–499, 2010.

[18] Mohamad Jaber, Ananda Basu, and Simon Bliudze. Symbolic Implementation of Connectors in BIP. In *ICE - Interaction and Concurrency Experience, Bologna, Italy*, 41–55, 2009.

[19] Marius Bozga, Mohamad Jaber, and Joseph Sifakis. Source-to-source Architecture Transformation for Performance Optimization in BIP. In *SIES - IEEE International Symposium on Industrial Embedded Systems, EPFL, Switzerland*, 152–160, 2009.

[20] Mohamad Jaber, Jacques Combaz, Loïc Strus, and Jean-Claude Fernandez. Using Neural Networks for Quality Management. In *ETFA - IEEE International Conference on Emerging Techonologies and Factory Automation, Germany, Hamburg*, 1441–1448, 2008.