

Curriculum Vitae

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Sidi Mohamed Beillahi

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IRIF

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❖ Summary

I am interested in algorithmic verification, formal methods, and applying programming language techniques to improve asynchronous, concurrent, and distributed systems and smart contracts.

❖ Education

PhD — Computer Science

Thesis Title: [Automated Reasoning about Weak Consistency in Distributed Software](#)

Advisors: Ahmed Bouajjani and Constantin Enea

Dec 2017 – present

Université de Paris, France

Master of Applied Science — Computer Engineering

Thesis Title: [Towards the Design Automation of Quantum Circuits](#)

Advisor: Sofiène Tahar

Sep 2014 – Nov 2016

Concordia University, Canada

Bachelor of Engineering — Polytechnicien

Thesis Title: [Formalization of Signal-Flow Graphs in HOL](#)

Advisor: Sofiène Tahar

Sep 2011 – Jun 2014

Tunisia Polytechnic School, Tunisia

DEUPC — Mathematics and Physics

Sep 2009 – Jun 2011

Sfax Preparatory Engineering Institute

University of Sfax, Tunisia

❖ Experience

Research Assistant, Université de Paris

Advisors: Ahmed Bouajjani and Constantin Enea

Dec 2017 – present

Paris, France

Teaching Assistant, Université de Paris

Sep 2018 – present

Research Intern, SRI International

Advisor: Michael Emmi

Apr 2019 – Aug 2019

New York City, USA

Software Programmer, TRU Simulation + Training

May 2017 – Dec 2017

Montréal, Canada

Research Assistant, Concordia University

Advisor: Sofiène Tahar

Mar 2014 – Nov 2016

Montréal, Canada

Teaching Assistant, Concordia University

Sep 2015 – May 2016

Research Engineer, Marinvent inc.

Advisor: Sofiène Tahar

Mar 2016 – Nov 2016

Montréal, Canada

Intern, STMicroelectronics

Advisor: Mohamed Ben Ahmed

Jul 2013 – Aug 2013

Tunis, Tunisia

Intern, Mauritel S.A

Advisor: Mohamed Moujtaba

Aug 2012 – Aug 2012

Nouakchott, Mauritania

❖ Awards and Recognitions

- Best Undergraduate Thesis, Tunisia Polytechnic School, 2014.

- Ranked 31st in National Grandes Ecoles Exam, Tunisia, 2011.
- Olympian in International Mathematical Olympiad, Germany, 2009.
- Ranked 3rd in National Mathematical Olympiad, Mauritania, 2009.
- Ranked 1st in National Bac Exam in Mathematics, Mauritania, 2009.

❖ Grants and Scholarships

- VMW Scholarship Award for CAV 2016, USD 650.
- Concordia Graduate Student Association Conference Funding for CAV 2016, CAD 100.
- Concordia University Conference and Exposition Award for NFM 2016, CAD 1,000.
- Graduate Student Support Program, Concordia University, 2014 – 2016, CAD 20,000.
- National Scholarship, Mauritania, 2009 – 2014, EUR 13,500.

❖ Service

- Co-organizer, IRIF Verification Seminar, Mar 2020 – present.
- Sub-Reviewer: CAV 2020, VMCAI 2020, FTSCS 2016.
- Student Volunteer: CAV 2016.

❖ Journal Publications

- | | | |
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| J2 | Robustness Against Transactional Causal Consistency
Sidi Mohamed Beillahi, Ahmed Bouajjani, Constantin Enea
<i>Logical Methods in Computer Science (under submission)</i>
Invited Special Issue from CONCUR 2019 | Dec 2019 |
| J1 | A Modeling and Verification Framework for Optical Quantum Circuit
Sidi Mohamed Beillahi, Mohamed Yousri Mahmoud, Sofiène Tahar
<i>Formal Aspects of Computing, 31(3): 321 – 351</i> | Mar 2019 |

❖ Conference Publications

- | | | |
|----|---|----------|
| C5 | Behavioral Simulation for Smart Contracts
Sidi Mohamed Beillahi, Gabriela Ciocarlie, Michael Emmi, Constantin Enea
<i>In Proc. 41st annual ACM SIGPLAN conference on Programming Language Design and Implementation (PLDI), 2020</i> | Jun 2020 |
| C4 | Robustness Against Transactional Causal Consistency
Sidi Mohamed Beillahi, Ahmed Bouajjani, Constantin Enea
<i>In Proc. 30th International Conference on Concurrency Theory (CONCUR), 2019</i>
Invited to a Special Issue | Sep 2019 |
| C3 | Checking Robustness Against Snapshot Isolation
Sidi Mohamed Beillahi, Ahmed Bouajjani, Constantin Enea
<i>In Proc. 31st International Conference on Computer Aided Verification (CAV), 2019</i> | Jul 2019 |
| C2 | Hierarchical Verification of Quantum Circuits
Sidi Mohamed Beillahi, Mohamed Yousri Mahmoud, Sofiène Tahar
<i>In Proc. 8th International Symposium NASA Formal Methods (NFM), 2016</i> | Jun 2016 |
| C1 | Formal Analysis of Power Electronic Systems
Sidi Mohamed Beillahi, Umair Siddique, Sofiène Tahar
<i>In Proc. 17th International Conference on Formal Engineering Methods (ICFEM), 2015</i> | Nov 2015 |

❖ Workshop Publications

- W2 **Formal Analysis of Engineering Systems Based on Signal-Flow-Graph Theory** *Jul 2016*
Sidi Mohamed Beillahi, Umair Siddique, Sofiène Tahar
In Proc. 9th International Workshop Numerical Software Verification (NSV-CAV), 2016
- W1 **On the Formal Analysis of Photonic Signal Processing Systems** *Jun 2015*
Umair Siddique, Sidi Mohamed Beillahi, Sofiène Tahar
In Proc. 20th International Workshop Formal Methods for Industrial Critical Systems (FMICS), 2015
- W0 **A Tool for the Formal Verification of Quantum Optical Computing Systems** *Apr 2016*
Sidi Mohamed Beillahi, Mohamed Yousri Mahmoud, Sofiène Tahar
In Proc. Automated Reasoning Workshop (ARW), 2015

❖ Teaching

- Teaching assistantships at Université de Paris
 - Java Programming for 1st Year Computer Science Students, Sep 2019 – Dec 2019.
 - Principles of Object-Oriented Programming in Java for 2nd Year Computer Science Students, Sep 2019 – Dec 2019.
 - Python Programming for 1st Year Social Science Students, Sep 2018 – Dec 2018.
 - Relational Databases and SQL for 2nd Year Computer Science Students, Sep 2018 – Dec 2018.
- Teaching assistantships at Concordia University
 - Hardware Functional Verification for Senior Undergraduate and Graduate Students, Jan 2016 – Apr 2016.
 - Computer Architecture and Design for Graduate Students, Jan 2016 – Apr 2016.
 - Digital Design for Undergraduate Students, Jan 2016 – Apr 2016.
 - Microprocessors and their Applications for Graduate Students, Sep 2015 – Dec 2015.

❖ Talks

- Robustness Against Transactional Causal Consistency**
IRIF Verification Seminar, Université de Paris *Dec 2019*
CONCUR 2019, Amsterdam, Netherlands *Sep 2019*
- Checking Robustness Against Snapshot Isolation**
ANR Project AdeCoDS Kick-off Meeting, Paris, France *Nov 2019*
CAV 2019, New York City, USA *Jul 2019*
- Formal Analysis of Engineering Systems Based on Signal-Flow-Graph Theory** *Jul 2016*
NSV-CAV 2016 *Toronto, Canada*
- Hierarchical Verification of Quantum Circuits** *Jun 2016*
NFM 2016 *Minneapolis, USA*
- Formal Analysis of Power Electronic Systems** *Oct 2015*
Hardware Verification Group Meeting *Concordia University*
- On the Formal Analysis of Photonic Signal Processing Systems** *May 2015*
Hardware Verification Group Meeting *Concordia University*