

Curriculum Vitae – Dr.-Ing. Nabila Abdessaied

Personal Data

Birth August 21th, 1983 in Enfidha, Tunisia
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Studies

2012-2015: DOCTOR OF PHILOSOPHY IN COMPUTER SCIENCE
Topic: Reversible logic and quantum computing.
University of Bremen, Germany.

2007-2009: MASTER DEGREE IN COMPUTER SCIENCE.
Topic: Micro-electronic embedded systems.
National Engineering School of Sousse, Tunisia.

2002-2007: ENGINEERING DEGREE IN COMPUTER SCIENCE.
Topic: Networks and distributed systems.
University of sciences of Tunis, Tunisia.

Professional Experiences

Sept. 2016 - now: SENIOR SOFTWARE ENGINEER

Design and Development of softwares for specific applications as well as contrubuting on developing software development methodologies.

Infineon Technologies AG, Munich, Germany..

MAIN PROJECTS:

- Embedded Software development environment (EDEN): providing standard embedded software development methodology that consists of workflows, integrated-tools, best practices, training, support and knowledge exchange.
- Infineon's C coding guidelines: Updating the Infineon coding guidelines with respect to MISRA 2012 and ISO26262.
- Alternator Control IC with LIN interface (ACIC-10): contribution on gathering the specification, development, and unit testing of the product firmware project.
- Automotive Realtime Integrated NeXt Generation Architecture (AURIX2G): Development and unit testing of the software checker for the product firmware. As well as, Automatic generation of the activity diagrams from the firmware C code.
- Infineon's XMC Microcontroller Boards for Arduino (XMC-for-Arduino): Development of the Arduino interface package for the XMC series.

DEVELOPMENT ENVIRONMENT: Eclipse, IntelliJ.
REQUIREMENT ENGINEERING: Jama.
PROGRAMMING LANGUAGES: C, Python, Groovy.
DEPENDENCY AND PACKAGE MANAGEMENT: Conan.
BUILD SYSTEMS: Make, CMake.
CODE ANALYSIS: ISO26262 guidelines, Misra C 2012, PC-Lint, Polyspace, SonarQube.
UNIT TESTING: Ceedling, Unity.
CODE COVERAGE: Gcov.
REVISION CONTROL SYSTEMS: Bitbucket, Gerrit, GIT, SVN.
CHANGE AND CONFIGURATION MANAGEMENT: Jira
CONTINUOUS INTEGRATION: Jenkins.

Nov. 2013 - July 2016: RESEARCH & DEVELOPMENT ENGINEER

Automated translation and quality-driven requirements engineering using NLP techniques.
Framework: ECLIPSE (Java, Stanford CoreNLP library, Wordnet, SPARQL, Weka).
German Research Center for Artificial Intelligence (DFKI), Bremen, Germany

Jan. 2012 - Dec. 2015: RESEARCH & DEVELOPMENT ENGINEER

Optimization of reversible and quantum circuits.
Framework: ECLIPSE (C++, RevKit).
Institute of Computer Science at University of Bremen, Germany

Feb. 2011 - Dec. 2011: ASSISTANT RESEARCHER

Collecting instruction information in the simulation of multicore architecture.
Framework: ECLIPSE (C++, LLVM).
University of sciences of Tunis, Tunisia.

Sept. 2009 - Dec. 2011: ASSISTANT RESEARCHER

Teaching and supervising students.
Modules: *Operating systems, data bases, C, algorithms and data structures*.
Institute of Computer Science of Ariana, Tunisia.

Nov. 2007 - Dec. 2008: SOFTWARE ENGINEER

Development of information systems (tax systems, salaries management, etc.)
Framework: *Instant developer* (DBMS: Oracle, server: Apache Tomcat)
EREAIT: Italian company, based in Tunis, Tunisia.

Internships

December 2009: RESEARCH VISITOR

Complexity analysis of reversible circuits.
Framework: ECLIPSE (C++, PiDD).
Research group of Prof. Shin-ichi Minato (ERATO PROJECT), Hokkaido university, Japan.

Jan. - July. 2009: RESEARCH INTERN

Design and development of a Java Simulator for Fast Prototyping of System-on-chip.
Framework: ECLIPSE (Java).
Synchronous team, VERIMAG Research Lab in Grenoble, France.

Feb. - Jun. 2007: WEB DEVELOPMENT INTERN

Study and implementation of a web application for the management system of the service after sale.

Framework: .NET (C#.net, asp.net, DBMS: SQL Server Express).

ASTER Informatique company, based in Tunis, Tunisia.

Aug. - Sept. 2006: SOFTWARE ENGINEERING INTERN

Design and implementation of an information system for the management of an agency for hotel rooms reservation.

Framework: *Oracle Developer 2000* (FORMS, REPORTS, SQL, PLSQL).

University of sciences in Tunis, Tunisia.

July 2005: SUMMER INTERN

Realization of an application that tests the validity of a network creation project.

Framework: TURBO C++.

Tunisia Telecoms, based in Sousse, Tunisia.

Software

Rev-quantum-addon: Optimization algorithms for reversible and quantum circuits.
Add-on in the CirKit framework for circuits and logic synthesis.
C++11, boost, Boolector SMT solver, CUDD.

Skills

- **Programming Languages:** C/C++, Java, script shell, c#.net.
- **Functional verification:** e HVL language, VHDL, GTKWave simulator.
- **DBMS:** Oracle, SQL Server.
- **Methodologies of Design:** UML, Merise.
- **Editors:** TeX/LaTeX, Microsoft office, Open office.
- **OS:** Unix, Windows.

Language Skills

- **Arabic:** Native language
- **French:** Very good
- **English:** Very good
- **German:** B2 level

Publications

Books

- [Abd15] Nabila Abdessaied. *Design of a Java Simulator for Fast Prototyping of System-on-chip*. LAP LAMBERT Academic Publishing, 2015.
- [AD16] Nabila Abdessaied and Rolf Drechsler. *Reversible and Quantum Circuits: Optimization and Complexity Analysis*. Springer, 2016.

Books Contribution

- [SAD14] Mathias Soeken, Nabila Abdessaied, and Rolf Drechsler. “Problems and New Solutions in the Boolean Domain”. In: ed. by Bernd Steinbach. Cambridge: Cambridge Scholars Publishing, 2014. Chap. A framework for reversible circuit complexity.

Journal Articles

- [Abd+14] Nabila Abdessaied et al. “Upper bounds for reversible circuits based on Young subgroups”. In: *Information Processing Letters* 114.6 (2014), pp. 282–286.
- [Abd+16a] Nabila Abdessaied et al. “Complexity of reversible circuits and their quantum implementations”. In: *Theoretical Computer Science* 618 (2016), pp. 85–106.

Conference Papers

- [Abd+13a] Nabila Abdessaied et al. “Exact template matching using Boolean satisfiability”. In: *International Symposium on Multiple-Valued Logic*. 2013, pp. 328–333.
- [Abd+13b] Nabila Abdessaied et al. “Reducing the depth of quantum circuits using additional circuit lines”. In: *Reversible Computation*. Springer, 2013, pp. 221–233.
- [ASD14] Nabila Abdessaied, Mathias Soeken, and Rolf Drechsler. “Quantum circuit optimization by Hadamard gate reduction”. In: *Reversible Computation*. Springer, 2014, pp. 149–162.
- [Soe+14a] Mathias Soeken et al. “Automating the Translation of Assertions Using Natural Language Processing Techniques”. In: *Forum on Specification and Design Languages*. 2014.
- [Soe+14b] Mathias Soeken et al. “Quality Assessment for Requirements based on Natural Language Processing”. In: *Forum on Specification and Design Languages*. 2014.

- [ASD15] Nabila Abdessaied, Mathias Soeken, and Rolf Drechsler. “Technology mapping for quantum circuits using Boolean functional decomposition”. In: *Reversible Computation*. Springer, 2015, pp. 149–162.
- [Abd+15] Nabila Abdessaied et al. “Reversible circuit rewriting with simulated annealing”. In: *International Conference on Very Large Scale Integration*. 2015, pp. 286–291.
- [Abd+16b] Nabila Abdessaied et al. “Technology mapping of reversible circuits to Clifford+ T quantum circuits”. In: *International Symposium on Multiple-Valued Logic*. 2016.
- [SAD16] Mathias Soeken, Nabila Abdessaied, and Giovanni De Micheli. “Enumeration of reversible functions and its application to circuit complexity”. In: *Reversible Computation*. Springer, 2016.