Dr. Nabila Abdessaied

Software Engineer

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Summary

Highly skilled Senior Software Engineer with extensive experience in cloud applications, embedded software, and research in natural language processing, reversible logic and quantum computing. Proficient in multiple programming languages, cloud platforms, and agile methodologies. Proven track record in developing and improving software systems for leading technology companies.

Professional Experiences

Jan. 2022 - now: Senior software Engineer
Microsoft, London, United Kingdom..

- Integrate an end-to-end solution testing that allows to deploy the infrastructure, install the application and run the tests in CI.
- Improve the availability and scalability of the voicemail solution by enabling Azure capacity reservation and Azure VM Scale Sets.
- Enable live configuration of the voicemail solution.
- Provide an automated process in CI to easy deploy voicemail components in an existing infrastructure.

Sept. 2016 - Dec. 2021: Senior software Engineer
Infineon Technologies AG, Munich, Germany..

- CI ownership: Design and implementation of a groovy shared library that contains common functionalities needed for embedded software pipelines in Jenkins. This library is used by the majority of software teams at Infineon.
- Define and create docker images that integrates tools, methods, and best practices to perform embedded software development tasks hence increase developers productivity.
- Embedded Software development and unit testing using C and Unity.

Nov. 2013 - July 2016: Research & Development Engineer
German Research Center for Artificial Intelligence (DFKI), Bremen, Germany

- Automate the translation of natural language assertions into System Verilog Assertions using natural language processing techniques.
- Implement a requirements quality assessment appraoch based on static syntactic, semantic analysis, and requirement guidelines using NLP techniques.

Jan. 2012 - Dec. 2015: Research & Development Engineer
Institute of Computer Science at University of Bremen, Germany
Optimization and complexity analysis of reversible and quantum circuits.

Sept. 2009 - Dec. 2011: Assistant Researcher
Institute of Computer Science of Ariana, Tunisia.
Teaching and supervising students at university.
Modules: *Operating systems, data bases, C, algorithms and data structures.*

Nov. 2007 - Dec. 2008: Software Engineer
EREAIT: Italian company, based in Tunis, Tunisia.
Implementation of software and web applications focused on tax and salary management.

Studies

2012 - 2015: PhD in Computer Science
Topic: Reversible logic and quantum computing.
University of Bremen, Germany.

2007 - 2009: Master in Computer Science.
Topic: Micro-electronic embedded systems.
National Engineering School of Sousse, Tunisia.

2002 - 2007: Engineer in Computer science
Topic: Networks and distributed systems.
University of sciences of Tunis, Tunisia.

Licenses and Certifications

ISO 26262 Automotive Functional Safety
TÜV SÜD, *Oct 2018*

Software Development Processes
University of Minnesota - Coursera, *Mar 2020*

Software Design and Architecture
University of Alberta - Coursera, *Aug 2020*

Data Structures and Algorithms
University of California - Coursera, *Nov 2020*

AlgoExpert Certificate
AlgoExpert, *Mar 2021*

Moving from Developer to Eng. Manager
LinkedIn Learning, *Jun 2021*

Communicating with Confidence
LinkedIn Learning, *Jun 2021*

C++: Advanced Topics
LinkedIn Learning, *Aug. 2021*

C++ Design Patterns: Creational
LinkedIn Learning, *Nov. 2021*

Languages

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

Skills

- **DevOps & CI/CD**: Docker, Jenkins, GitLab, ADO.
- **Infrastructure as code (IaC)**: Terraform, Azure Resource Manager
- **Cloud Computing Platform**: Azure.
- **DBMS:** Oracle, sql Server.
- **Container Orchestration**: Kubernetes, helm.
- **Analysis/Monitori**: Grafana, SonarQube.
- **NLP**: Stanford CoreNLP library.
- **Agile framework:** Scrum, Kanban.
- **Agile project management**: Jira, ADO.
- **languages & Frameworks**: C/C++, Python, Groovy, Java, shell,
- **Code Analysis**: ISO26262 guidelines, Misra C 2012, PC-Lint, Polyspace.
- **IDE:** Eclipse, IntelliJ, VSCode, PyCharm.
- **Build systems:** Make, CMake.
- **Revision control systems**: ADO, Bitbucket, Git, SVN, Gerrit.
- **Unit testing**: Ceedling, Unity, PyTest.
- **Code coverage**: Gcov, Python Coverage.
- **AI tools**: Weka, Copilot.
- **Editors:** TeX/LaTeX, Microsoft office.

Volunteer Experience

Nov. 2018 - now: Supporting children with disabilities in Tunisia by funding their education and health intuitions
TunisAid e.V.

Oct. 2017 - Feb.2018: Arabic teacher
Zahr Aljasmin

Oct. 2014 - Oct. 2015: Observer in the parliamentary and presidential election
Mourakiboun

Software

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

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.