MATTEO D'ADDATO

ELECTRONIC ENGINEER, PHD STUDENT

PERSONAL INFORMATION

Nationality: Italian
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EDUCATION

Ph.D. course in Electronics, Telecommunications, and Information Technologies, University of Bologna
2019 - present (currently in the last year of course)
Research project title: *Ultra-low-power integrated circuits and architectures for Wake-Up Radio receivers*
Supervisors: Prof. Eng. Antonio Gnudi, Prof. Eng. Eleonora Franchi Scarselli

Master Degree in Electronics Engineering, University of Bologna
Graduated with honors in 2019
Thesis: *Design of an ultra-low-power analog PLL for Wake-Up Radio systems*
Thesis supervisors: Prof. Eng. Antonio Gnudi, Prof. Eng. Eleonora Franchi Scarselli

Bachelor Degree in Electronics and Telecommunications, University of Bologna
Graduated in 2016
Thesis: *TCAD model for charge transport in integrated circuits packages in humid conditions*
Thesis supervisors: Prof. Eng. Susanna Reggiani, Prof. Eng. Antonio Gnudi

RESEARCH ACTIVITY

Research fellow
January 2021 - April 2021
Research project title: *Design and realization of an input matching network for a Wake-Up Radio receiver*
Supervisor: Prof. Eng. Eleonora Franchi Scarselli

Research fellow
April 2019 - October 2019
Research project title: *Ultra-low-power integrated circuits design in a smart power technology for Internet of Things applications*
Supervisors: Prof. Eng. Antonio Gnudi, Prof. Eng. Eleonora Franchi Scarselli

MAIN RESEARCH TOPIC

Wake-Up Radio receivers for Internet of Things applications
Design of ultra-low-power analog and digital integrated circuits in STMicroelectronics 90-nm BCD and CMOS technologies. The research activity has also involved the study of ultra-lightweight cryptographic algorithms to counteract the so-called Denial-of-Sleep attacks in Wake-Up Radio receivers.

PUBLICATIONS

Journal papers

- M. D'Addato et al., *A Gated Oscillator Clock and Data Recovery Circuit for Nanowatt Wake-Up and Data Receivers*, Electronics, Mar. 2021. ***Rated as Editor's choice article***

Contribution in conference proceedings

- M. D'Addato et al., *A Gated Oscillator Clock and Data Recovery Circuit for Nanowatt Wake-Up and Data Receivers*, the 52nd annual meeting of the Associazione Societá Italiana di Elettronica (SIE), Jul. 2021.
- M. D'Addato et al., *Nanowatt Clock and Data Recovery for Ultra-Low Power Wake-Up Radio Receivers*, Proceedings of the 2020 International Conference on Embedded Wireless Systems and Networks (EWSN '20), Feb. 2020.

TEACHING ACTIVITY

Teaching assistance
University of Bologna
June 2021 - present
Course: Digital Systems and Introduction to Computer Architectures

Co-supervisor for the Bachelor thesis
Pusateri L., *Design of a Printed Circuit Board for custom Wake-Up Radio testing,* University of Bologna, 2020.
Supervisors: Prof. Eng. Elena Gnani, Eng. Matteo D'Addato

Co-supervisor for the Master thesis
Mazdadi A., *Design of an ultra-lightweight cryptographic unit to counteract Denial-of-Sleep attacks in Wake-Up Radio receivers,* University of Bologna, 2021. Supervisors: Prof. Eng. Eleonora Franchi Scarselli, Eng. Matteo D'Addato

TECHNICAL AND PROFESSIONAL SKILLS

Electronics Engineering skills

- Digital integrated circuits: design and functional verification of the HDL code (VHDL and SystemVerilog) using QuestaSim, synthesis using Synopsys Design Compiler and place and route.

- Advanced analog integrated circuits design and custom-layout: design and simulation in Cadence Virtuoso using Spectre/Eldo simulator, system modeling and verification using Verilog-A, reliability simulations (Process, Voltage and Temperature variations, Monte Carlo simulations), layout with Cadence Virtuoso layout suite.

- Design and layout of Printed Circuit Boards.

- Testing and laboratory instrumentation: multimeter, function generator, oscilloscope, network analyzer, spectrum analyzer.

Programming languages
C, Matlab, Phyton, VHDL, SystemVerilog, Verilog-A

Softwares
Cadence Virtuoso, Modelsim, Keysight Advanced Design System, LTSpice, Microsoft Office

Language skills
Italian (mothertongue) and English (advanced)

CONFERENCES ATTENDANCE

The 52nd Annual Meeting of the Associazione Società Italiana di Elettronica (SIE)
July 7th, 2021 - July 9th, 2021
University of Trieste, Italy

2020 International Conference on Embedded Wireless Systems and Networks (EWSN'20)
February 17th, 2020 - February 19th, 2020
INSA Lyon, France

AWAKE: Wake-Up Radio Technologies for Next Generation Wireless Communications
February 17th, 2020
INSA Lyon, France

COURSES ATTENDANCE

English Course on Academic English Skills
March 1st, 2021 - April 30th, 2021
University of Bologna, Italy

NiPS Winter School 2020
December 15th, 2020 - December 18th, 2020
University of Perugia, Italy

2020 Topics on Microelectronics
September 8th, 2020 - September 10th, 2020
University of Milan-Bicocca, Italy

Elements of Applied Data Security
February 19th, 2020 - June 4th, 2020
University of Bologna, Italy

PERSONAL DATA

I hereby authorize the use of my personal data.