

## PERSONAL INFORMATION

**Riccardo Della Sala**

## EDUCATION AND TRAINING

 2020 – Present **PhD candidate in Electronic Engineering**

“La Sapienza” University of Rome, Course in Information and Communication Technology (ICT)

My PhD research is mainly focused on ultra-lightweight Cryptographic primitives, such as True Random Number Generators and Physical Unclonable Functions, for Resource Constrained Device such as FPGA and ASIC. Furthermore, in the context of analog design, I’m focused on Ultra Low Voltage and Ultra Low Power architectures for IoT interfaces, such as OTAs, Filters, LNAs, Comparators and Sense Amplifiers.

 2019-2020 **Master’s degree in Electronic Engineering: Summa Cum Laude**

“La Sapienza” University of Rome, Course in Information and Communication Technology (ICT)

My Master’s degree thesis was focused on Physical Unclonable Function, both from an analog and a digital perspective. In the context of the analog design, I was focused on Regulated Cascode Current Mirrors, deepening in highly robust interface with respect to PVT variations. With respect to digital design on FPGA, I get into detail of Ultra Compact and Lightweight architectures, focusing on the Xilinx’s FPGA.

 2017-2018 **Bachelor’s Degree in Electronic Engineering: Summa Cum Laude**

“La Sapienza” University of Rome, Course in Information and Communication Technology (ICT)

My Bachelor’s degree thesis was focused on 6th order Butterworth filter for Neural Recording Applications, the project of the filter was also published in [1].

## PERSONAL SKILLS

Mother tongue Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user  
[Common European Framework of Reference for Languages](#)

Communication skills

Excellent communication and interpersonal skills including respect, empathy and clarity acquired through years of private teaching of Physics, Mathematics, Electronics and Computer Science for University and High School students.

- Organisational / managerial skills** Good organizational and management skills acquired through years of sport accompanied by school studies and classical music. Determination, dynamism and resilience acquired through years of individual sports at a competitive level such as men's artistic gymnastics and modern pentathlon. Team spirit, adaptability and flexibility acquired through years of volleyball at a competitive level, playing up to the Serie D championships.
- Job-related skills**
- In-depth knowledge of Linux and Linux based operating systems including Ubuntu, Fedora, Red Hat, Arch-Linux, Debian, Chrome OS;
  - Good knowledge of office programs such as Microsoft Office suites, OpenOffice, Libre Office;
  - Excellent knowledge of LaTeX;
  - Excellent knowledge of software tools for the design and analysis of electronic circuits such as the Orcad suite, Cadence, Modelsim, Vivado, Xilinx-ISE;
  - Excellent programming skills with C, C ++, Bash, Python, TCL, Verilog, VHDL.
- Awards and Recognitions**
- The paper [5] entitled “0.3 V, Rail-to-Rail, Ultralow-Power, Non-Tailed, Body-Driven, Sub-Threshold Amplifier” has been selected among the top 20 cited papers in 2021 in the Section “Energy Science and Technology” of MDPI, link to the news: <https://www.mdpi.com/about/announcements/5235>.
  - The paper [3] entitled “A 0.3 V, Rail-to-Rail, Ultralow-Power, Non-Tailed, Body-Driven, Sub-Threshold Amplifier” has resulted among the highly cited papers in Section “Energy Science and Technology” of Applied Sciences MDPI.

## PUBLICATIONS

- [1] **Riccardo Della Sala**, Pietro Monsurrò, Giuseppe Scotti, and Alessandro Trifiletti. “Area-Efficient Low-Power Bandpass Gm-C Filter for Epileptic Seizure Detection in 130nm CMOS”. In: *2019 26th IEEE International Conference on Electronics, Circuits and Systems (ICECS)*. IEEE, Nov. 2019, pp. 298–301. URL: <https://ieeexplore.ieee.org/abstract/document/8964753>.
- [2] Davide Bellizia, **Riccardo Della Sala**, and Giuseppe Scotti. “SC-DDPL as a Countermeasure against Static Power Side-Channel Attacks”. In: *Cryptography* 5.3 (June 2021), p. 16. URL: <https://www.mdpi.com/2410-387X/5/3/16>.
- [3] Francesco Centurelli, **Riccardo Della Sala**, Pietro Monsurrò, Giuseppe Scotti, and Alessandro Trifiletti. “A 0.3 V Rail-to-Rail Ultra-Low-Power OTA with Improved Bandwidth and Slew Rate”. In: *Journal of Low Power Electronics and Applications* 11.2 (Apr. 2021), p. 19. URL: <https://www.mdpi.com/2079-9268/11/2/19>.
- [4] Francesco Centurelli, **Riccardo Della Sala**, Pietro Monsurrò, Giuseppe Scotti, and Alessandro Trifiletti. “A Novel OTA Architecture Exploiting Current Gain Stages to Boost Bandwidth and Slew-Rate”. In: *Electronics* 10.14 (July 2021), p. 1638. URL: <https://www.mdpi.com/2079-9292/10/14/1638>.
- [5] Francesco Centurelli, **Riccardo Della Sala**, Giuseppe Scotti, and Alessandro Trifiletti. “A 0.3 V, Rail-to-Rail, Ultralow-Power, Non-Tailed, Body-Driven, Sub-Threshold Amplifier”. In: *Applied Sciences* 11.6 (Mar. 2021), p. 2528. URL: <https://www.mdpi.com/2076-3417/11/6/2528>.
- [6] **Riccardo Della Sala**, Davide Bellizia, and Giuseppe Scotti. “A Novel Ultra-Compact FPGA-Compatible TRNG Architecture Exploiting Latched Ring Oscillators”. In: *IEEE Transactions on Circuits and Systems II: Express Briefs* 69.3 (Oct. 2021), pp. 1672–1676. URL: <https://ieeexplore.ieee.org/abstract/document/9581292>.
- [7] **Riccardo Della Sala**, Davide Bellizia, and Giuseppe Scotti. “A Novel Ultra-Compact FPGA PUF: The DD-PUF”. In: *Cryptography* 5.3 (Sept. 2021), p. 23. URL: <https://www.mdpi.com/2410-387X/5/3/23>.
- [8] Francesco Centurelli, **Riccardo Della Sala**, Pietro Monsurrò, Giuseppe Scotti, and Alessandro Trifiletti. “A Tree-Based Architecture for High-Performance Ultra-Low-Voltage Amplifiers”. In: *Journal of Low Power Electronics and Applications* 12.1 (Feb. 2022), p. 12. URL: <https://www.mdpi.com/2079-9268/12/1/12>.

- [9] Francesco Centurelli, **Riccardo Della Sala**, Pietro Monsurró, Pasquale Tommasino, and Alessandro Trifiletti. “An Ultra-Low-Voltage class-AB OTA exploiting local CMFB and Body-to-Gate interface”. In: *AEU - International Journal of Electronics and Communications* 145 (Feb. 2022), p. 154081. URL: <https://www.sciencedirect.com/science/article/pii/S1434841121004787>.
- [10] Francesco Centurelli, **Riccardo Della Sala**, and Giuseppe Scotti. “A Standard-Cell-Based CMFB for Fully Synthesizable OTAs”. In: *Journal of Low Power Electronics and Applications* 12.2 (May 2022), p. 27. URL: <https://www.mdpi.com/2079-9268/12/2/27>.
- [11] **Riccardo Della Sala**, Davide Bellizia, and Giuseppe Scotti. “A Lightweight FPGA Compatible Weak-PUF Primitive Based on XOR Gates”. In: *IEEE Transactions on Circuits and Systems II: Express Briefs* 69.6 (Mar. 2022), pp. 2972–2976. URL: <https://ieeexplore.ieee.org/abstract/document/9728744>.
- [12] **Riccardo Della Sala**, Davide Bellizia, and Giuseppe Scotti. “High-Throughput FPGA-Compatible TRNG Architecture Exploiting Multistimuli Metastable Cells”. In: *IEEE Transactions on Circuits and Systems I: Regular Papers* 69.12 (Aug. 2022), pp. 4886–4897. URL: <https://ieeexplore.ieee.org/abstract/document/9868141>.
- [13] **Riccardo Della Sala**, Francesco Centurelli, Pietro Monsurró, and Giuseppe Scotti. “High-efficiency 0.3V OTA in CMOS 130nm technology using current mirrors with gain”. In: *2022 17th Conference on Ph.D Research in Microelectronics and Electronics (PRIME)*. IEEE, June 2022, pp. 69–72. URL: <https://ieeexplore.ieee.org/abstract/document/9816823>.
- [14] **Riccardo Della Sala**, Francesco Centurelli, Pietro Monsurró, and Giuseppe Scotti. “Sub- $\mu$ W Front-End Low Noise Amplifier for Neural Recording Applications”. In: *2022 17th Conference on Ph.D Research in Microelectronics and Electronics (PRIME)*. IEEE, June 2022, pp. 305–308. URL: <https://ieeexplore.ieee.org/abstract/document/9816833>.
- [15] **Riccardo Della Sala**, Francesco Centurelli, Pietro Monsurró, Giuseppe Scotti, and Alessandro Trifiletti. “A body-driven rail-to-rail 0.3 V operational transconductance amplifier exploiting current gain stages”. In: *International Journal of Circuit Theory and Applications* n/a.n/a (Dec. 2022). URL: <https://doi.org/10.1002/cta.3520>.
- [16] **Riccardo Della Sala**, Francesco Centurelli, and Giuseppe Scotti. “A Novel Differential to Single-Ended Converter for Ultra-Low-Voltage Inverter-Based OTAs”. In: *IEEE Access* 10 (Sept. 2022), pp. 98179–98190. URL: <https://ieeexplore.ieee.org/abstract/document/9889717>.
- [17] **Riccardo Della Sala**, Francesco Centurelli, and Giuseppe Scotti. “Enabling ULV Fully Synthesizable Analog Circuits: The BA Cell, a Standard-Cell-Based Building Block for Analog Design”. In: *IEEE Transactions on Circuits and Systems II: Express Briefs* 69.12 (Aug. 2022), pp. 4689–4693. URL: <https://ieeexplore.ieee.org/abstract/document/9858088>.
- [18] **Riccardo Della Sala**, Francesco Centurelli, Giuseppe Scotti, Pasquale Tommasino, and Alessandro Trifiletti. “A Differential-to-Single-Ended Converter Based on Enhanced Body-Driven Current Mirrors Targeting Ultra-Low-Voltage OTAs”. In: *Electronics* 11.23 (Nov. 2022), p. 3838. URL: <https://www.mdpi.com/2079-9292/11/23/3838>.
- [19] **Riccardo Della Sala** and Giuseppe Scotti. “The DD-Cell: a Double Side Entropic Source exploitable as PUF and TRNG”. In: *2022 17th Conference on Ph.D Research in Microelectronics and Electronics (PRIME)*. IEEE, June 2022, pp. 353–356. URL: <https://ieeexplore.ieee.org/abstract/document/9816824>.
- [20] **Riccardo Della Sala**, Davide Bellizia, Francesco Centurelli, and Giuseppe Scotti. “A Monostable Physically Unclonable Function Based on Improved RCCMs with 0–1.56% Native Bit Instability at 0.6–1.2 V and 0–75 °C”. In: *Electronics* 12.3 (Feb. 2023), p. 755. URL: <https://www.mdpi.com/2079-9292/12/3/755>.

- [21] **Riccardo Della Sala**, Francesco Centurelli, Pietro Monsurrò, Giuseppe Scotti, and Alessandro Trifiletti. “A 0.3 V Three-Stage Body-Driven OTA”. In: *Proceedings of SIE 2022*. Cham, Switzerland: Springer, Feb. 2023, pp. 21–26. URL: [https://link.springer.com/chapter/10.1007/978-3-031-26066-7\\_4](https://link.springer.com/chapter/10.1007/978-3-031-26066-7_4).
- [22] **Riccardo Della Sala**, Francesco Centurelli, Pietro Monsurrò, Giuseppe Scotti, and Alessandro Trifiletti. “A 0.3V Rail-to-Rail Three-Stage OTA With High DC Gain and Improved Robustness to PVT Variations”. In: *IEEE Access* 11 (Feb. 2023), pp. 19635–19644. URL: <https://ieeexplore.ieee.org/abstract/document/10050798>.
- [23] **Riccardo Della Sala**, Francesco Centurelli, and Giuseppe Scotti. “A High Performance 0.3 V Standard-Cell-Based OTA Suitable for Automatic Layout Flow”. In: *Applied Sciences* 13.9 (Apr. 2023), p. 5517. URL: <https://www.mdpi.com/2076-3417/13/9/5517>.
- [24] **Riccardo Della Sala** and Giuseppe Scotti. “A Novel FPGA Implementation of the NAND-PUF with Minimal Resource Usage and High Reliability”. In: *Cryptography* 7.2 (Apr. 2023), p. 18. URL: <https://www.mdpi.com/2410-387X/7/2/18>.
- [25] **Riccardo Della Sala**, Valerio Spinogatti, Cristian Bocciarelli, Francesco Centurelli, and Alessandro Trifiletti. “A 0.15-to-0.5 V Body-Driven Dynamic Comparator with Rail-to-Rail ICMR”. In: *Journal of Low Power Electronics and Applications* 13.2 (May 2023), p. 35. URL: <https://www.mdpi.com/2079-9268/13/2/35>.