

Leo Filippini

3141 Chestnut St
Drexel University – ECE Dept
Philadelphia, PA 19104
☎ +1 267 439 5485
✉ lf458@gmail.com
📧 vlsi.ece.drexel.edu

Summary I am a PhD candidate focusing on charge recovery logic and low-power VLSI systems, with a strong background in analog IC design and layout in deep-submicron CMOS. I have cleanroom and tapeout experience and a sound understanding of transistor level design and device physics.

Education

- Present **PhD candidate**, *Drexel University*, Philadelphia (PA).
Electronics Engineering
- 2013 **Master Degree**, *University of Brescia*, Brescia (Italy), *summa cum laude*.
Electronics Engineering
- 2010 **Bachelor Degree**, *University of Brescia*, Brescia (Italy).
Information Engineering

Experience

- Present **Research Assistant**, *Drexel University*, Philadelphia, PA (USA).
My research is focused on low-power methodologies for VLSI circuits. In particular I am working on logic synthesis and power prediction for charge recovery logic systems, and how to apply charge recovery principles to analog circuits.
- Present **Teaching Assistant**, *Drexel University*, Philadelphia, PA (USA).
I have been the lab instructor for several undergraduate classes: Digital Electronics, Advanced Electronics I, Analog Electronics, and Electronic Devices. I conduct laboratory sessions, grade homeworks and lab reports, and I help students with the classes' final project.
- 2017 **Instructor**, *Drexel University*, Philadelphia, PA (USA).
I was the co-instructor for Advanced Electronics I, a class focusing on analog design for integrated circuits.
- 2017 **Senior Design Project Advising**, *Drexel University*, Philadelphia, PA (USA).
I, along with two faculty members, advised one of the senior design teams of academic year 16/17. During our weekly meetings, we discuss research ideas and their feasibility.
- 2016 **Undergraduate Mentoring**, *Drexel University*, Philadelphia, PA (USA).
Drexel University STAR initiative allows undergraduate students to spend their freshman summer doing research. I was part of the team that mentored several students, one of which closely worked with me and helped me in my research.
- 2013 **Intern**, *Imec Belgium*, Heverlee (Belgium).
During this internship, which is also my Master's thesis, I designed an integrated transimpedance amplifier for capacitive ultrasonic transducers (CMUT).

2010 **Intern**, *University of Brescia – Physics Department*, Brescia (Italy).

For four months I worked on my Bachelor's thesis: *Synthesis and integration of quantum dot semiconductors in third generation excitonic solar cells*. Along with my supervisors, we chemically synthesized different types of quantum-dots and realized many cells. I, in particular, took care of the substrate deposition and characterization, of the construction of the cells, and of their optical and electrical characterization. To do so, I used the following instruments: electronic load with 4-point probe, solar simulator, monochromator, lock-in amplifier (in order to measure cells' IPCE).

Honors & Awards

2017 Weggel Family Fellowship

2016 Joseph and Shirley Carleone Endowed Fellowship

2011 Winner of European *Lifelong Learning Program* scholarship

Publications

- [1] L. Filippini, L. Khuon, and B. Taskin, "Charge recovery implementation of an analog comparator: Initial results," in *(to appear) IEEE International Midwest Symposium on Circuits and Systems (MWSCAS)*, August 2017.
- [2] L. Filippini and B. Taskin, "A charge recovery logic system bus," in *IEEE System Level Interconnect Prediction (SLIP)*, June 2017.
- [3] R. Kuttappa, L. Filippini, S. Lerner, and B. Taskin, "Stability of Rotary Traveling Wave Oscillators under Process Variations and NBTI," in *IEEE International Symposium on Circuits and Systems (ISCAS)*, May 2017.
- [4] L. Filippini, D. Lim, L. Khuon, and B. Taskin, "Wireless charge recovery system for implanted electroencephalography applications in mice," in *IEEE International Symposium on Quality Electronic Design (ISQED)*, March 2017, pp. 342–345.
- [5] L. Filippini and B. Taskin, "Charge Recovery Logic for Thermal Harvesting Applications," in *IEEE International Symposium on Circuits and Systems (ISCAS)*, May 2016, pp. 542–545.
- [6] L. Filippini, E. Salman, and B. Taskin, "A Wirelessly Powered System with Charge Recovery Logic," in *IEEE International Conference on Computer Design (ICCD)*, October 2015, pp. 505–510.
- [7] C. Sitik, E. Salman, L. Filippini, S. J. Yoon, and B. Taskin, "FinFET-Based Low-Swing Clocking," *ACM Journal of Emerging Technologies in Computing Systems (JETC)*, vol. 12, no. 2, September 2015.
- [8] C. Sitik, L. Filippini, E. Salman, and B. Taskin, "High Performance Low Swing Clock Tree Synthesis with Custom D Flip-Flop Design," in *IEEE Computer Society Annual Symposium on VLSI*, July 2014, pp. 498–503.