Curriculum Vitae

PERSONAL INFORMATION Elisabetta Moisello

Date of birth June 16th, 1993 | Nationality Italian
E-mail address: elisabetta.moisello@unipv.it

EXPERIENCE

DECEMBER 2020-PRESENT — Postdoctoral Research Fellow

University of Pavia

- Research topics: interface circuits for contactless integrated temperature sensors, temperature-to-digital converters, high efficiency switching dc-dc converters, wireless power and data transfer, bandgap voltage reference circuits, interface circuits for CMUT devices, isolated power converters systems, interface circuits for IR imagers

FEBRUARY 2021-PRESENT — Contract Professor

University of Pavia

- Module of Electronics I - 2 CFU (Elettronica I), in the frame of the Bachelor's Degree on Electronic and Computer Engineering

EDUCATION AND TRAINING

OCTOBER 2017-DECEMBER 2020 — Ph.D. in Microelectronics (XXXIII Cycle)

University of Pavia

- Thesis Title: "Integrated interface circuits for MEMS contact-less temperature sensors"

24 FEBRUARY-1 MARCH 2019 — Infineon WinterSchool 2019 "Chip Fab of the Future"

Infineon, Villach, Austria

12-16 MARCH 2018 — Ph.D. School in Organic Electronics

Polytechnic of Milan

OCTOBER 2015-OCTOBER 2017 — Master's Degree in Electronic Engineering — 110/110 (Summa Cum Laude)

University of Pavia

- Thesis Title: "Design of a chopper stabilized readout circuit for integrated thermopiles"

OCTOBER 2012-OCTOBER 2015 — Bachelor's Degree in Electronic Engineering and Computer Science — 107/110

University of Pavia

- Thesis Title: "Automation of voltage and current measurements for characterizing of a chip for electro-optical transmissions"

SEPTEMBER 2007-JULY 2012 — High School Degree — 100/100 (Summa Cum Laude)

Liceo Scientifico "N. Copernico" di Pavia

PERSONAL SKILLS

MOTHER TONGUE Italian

OTHER LANGUAGE

	UNDERSTANDING		SPEAKING		WRITING
	LISTENING	READING	SPOKEN INTERACTION	SPOKEN PRODUCTION	
English	C1	C1	C1	C1	C1

SOFTWARE AND HARDWARE SKILLS

- Competent with integrated circuits design software (Cadence, Verilog-A)
- Competent with printed circuit design software (Altium)
- Knowledge of Simplis simulator
- Knowledge of programming languages: C, Wiring for Arduino, Labview, basics of Visual Basic
- Competent with Matlab, Simulink
- Competent with Microsoft Office suite programs
- Competent with LaTeX
- Knowledge of Windows and Linux operative systems
- Experience with measurement instrumentation (oscilloscope, functions generator, digital multimeter, universal source, spectrum analyzer, dynamic signal analyzer, logic analyzer, climatic chamber, electronic load, LCR meter)
- Experience with PCB soldering
- Experience with chip bonding

TEACHING AND MENTORING ACTIVITY

- Module of Electronics I - 2 CFU (Elettronica I), in the frame of the Bachelor's Degree in Electronic and Computer Engineering (A.A. 2020/2021 – present)
- Experience as tutor (2018-2022): 90 hours for the "Elettronica I" course at University of Pavia (exercises at the blackboard, assistance during laboratory activities, assistance during exams); 30 hours for the "Circuiti Elettrici Lineari" course at University of Pavia (exercises at the blackboard, assistance during exams)
- Exercise and Laboratory (2 hours) for the "Integrated Power Management" course, in the frame of the Masters's Degree in Electronic Engineering (A.A. 2023/2024)
- Bachelor's thesis supervisor for
  - Luca Manfredi, "Experimental characterization of thermopile-based integrated sensors"
  - Luca Torretta, "Experimental characterization of coils for wireless power transfer"
- Bachelor's thesis co-supervisor for
  - Alessandro Portesan, "Development of a data acquisition program for the characterization of a sensor for presence detection"
- Master's thesis co-supervisor for
  - Samuele Fusetto, "Design of a high efficiency inverting buck-boost converter for OLED displays"
  - Daniele La Cognata, "Design of a novel active rectifier circuit for wireless charging applications"
- PhD thesis co-supervisor for
  - Samuele Fusetto, "Design of a high efficiency switched-capacitor 3-level inverting buck-boost converter for OLED displays"
  - Alessandro Liotta, "Design of a capacitive-inductive simultaneous wireless information and power transfer system"
  - Daniele La Cognata, "Design of a receiver for wireless power transfer compatible with AirFuel standard"
  - Francesco Romano, "Design of a control system for dual-active bridge dc-dc converters"

PUBLICATIONS

- E. Moisello, M. Vaiana, M. E. Castagna, G. Bruno, E. Bonizzoni and P. Malcovati, "A Chopper Interface Circuit for Thermopile-Based Thermal Sensors", presented at International Symposium on

Circuits and Systems (ISCAS 2019), 26-29 May 2019, Sapporo, Japan, doi: 10.1109/ISCAS.2019.8702506.

- E. Moisello, M. Vaiana, M. E. Castagna, G. Bruno, P. Malcovati and E. Bonizzoni, "An Integrated Micromachined Thermopile Sensor with a Chopper Interface Circuit for Contact-less Temperature Measurements", in *IEEE Transactions on Circuits and Systems I: Regular Papers*, vol. 66, no. 9, Sep. 2019, doi: 10.1109/TCSI.2019.2928717.
- E. Moisello, M. Vaiana, M. E. Castagna, G. Bruno, P. Malcovati and E. Bonizzoni, "An Integrated Thermopile-Based Sensor with a Chopper-Stabilized Interface Circuit for Presence Detection", in *Sensors*, vol. 19, no. 18, Sep. 2019, doi: 10.3390/s19183999.
- E. Moisello, P. Malcovati, E. Bonizzoni. "Thermal Sensors for Contactless Temperature Measurements, Occupancy Detection, and Automatic Operation of Appliances during the COVID-19 Pandemic: A Review", in *Micromachines*, vol. 12, no. 148, Feb. 2021, doi: 10.3390/mi12020148.
- E. Moisello, M. Vaiana, M. E. Castagna, G. Bruno, I. Brouk, T. Blank, S. Bar-Lev, Y. Nemirovsky, P. Malcovati and E. Bonizzoni. "Study of a Voltage-Mode Readout Configuration for Micromachined CMOS Transistors for Uncooled IR Sensing", presented at Latin American Symposium on Circuits and Systems (LASCAS 2021), Feb. 2021, Virtual Format, doi: 10.1109/LASCAS51355.2021.9459117.
- E. Moisello, M. Vaiana, M. E. Castagna, G. Bruno, I. Brouk, Y. Nemirovsky, P. Malcovati and E. Bonizzoni "A MEMS-CMOS Microsystem for Contact-Less Temperature Measurements," in *IEEE Transactions on Circuits and Systems I: Regular Papers*, doi: 10.1109/TCSI.2021.3091839.
- S. Fusetto, E. Moisello, F. Cannillo, P. Malcovati and E. Bonizzoni. "A Power Switch Size Optimization Strategy for Multi-Switch DC-DC Converters", presented at International Conference on Electronics, Circuits, and Systems (ICECS 2021), doi: 10.1109/ICECS53924.2021.9665603
- A. Aprile, E. Moisello, P. Malcovati and E. Bonizzoni. "An Extensive Investigation and Analysis of Temperature-to-Digital Converter FoMs", International Conference on Electronics, Circuits, and Systems (ICECS 2021), doi: 10.1109/ICECS53924.2021.9665502.
- E. Moisello, M. E. Castagna, A. La Malfa, G. Bruno, P. Malcovati, and E. Bonizzoni, "High Responsivity Thermopile Sensors Featuring a Mosaic Structure," in *Micromachines*, vol. 13, no. 6, p. 934, Jun. 2022, doi: 10.3390/mi13060934.
- E. Moisello, M. E. Castagna, A. La Malfa, G. Bruno, P. Malcovati, and E. Bonizzoni , "A Novel CMOS-SOI High-Responsivity Thermopile for Thermal Sensing Applications", presented at International Symposium on Circuits and Systems (ISCAS 2022), May 28th-June 1st 2022, Austin, USA doi: 10.1109/ISCAS48785.2022.9937944.
- A. Aprile, E. Moisello, P. Malcovati and E. Bonizzoni. "Performance Comparison of BJT and MOS Devices as Temperature Sensing Elements", International Conference on Electronics, Circuits, and Systems (ICECS 2022), doi: 10.1109/ICECS202256217.9970964.
- S. Fusetto, E. Moisello, H. Petersen, S. Abedinpour, P. Malcovati and E. Bonizzoni. "An 87.2%-peak efficiency 4.1W-output power switched-capacitor 3-level inverting buck-boost dc-dc converter", presented at Custom Integrated Circuit Conference (CICC 2023), 23th-26th April 2023, San Antonio, USA, doi: 10.1109/CICC57935.2023.10121232
- E. Moisello, P. Malcovati and E. Bonizzoni. "A 0.756-ppm/°C Time-Domain-Based Curvature-Compensated Bandgap Reference", presented at International Symposium on Circuits and Systems (ISCAS 2023), 21st-15th May 2023, Monterey, USA, doi: 10.1109/ISCAS46773.2023.10181819.
- A. Liotta, E. Moisello, G. Frattini, P. Gianelli, P. Malcovati, E. Bonizzoni. "A Novel Capacitive-Inductive Channel for Wireless Power and Data Transmission", International Symposium on Circuits and Systems (ISCAS 2023), 21st-15th May 2023, Monterey, USA, doi: 10.1109/ISCAS46773.2023.10181831.
- A. Gemelli, M. Tambussi, S. Fusetto, A. Aprile, E. Moisello, E. Bonizzoni, and P. Malcovati. "Recent Trends in Structures and Interfaces of MEMS Transducers for Audio Applications: A Review", in *Micromachines*, Apr. 2023, doi: 10.3390/mi14040847
- E. Moisello, C. M. Ippolito, G. Bruno, P. Malcovati, and E. Bonizzoni, "A MOS-Based Temperature Sensor with Inherent Inaccuracy Reduction Enabled by Time-Domain Operation", in *IEEE Transactions on Instrumentation and Measurement*, vol. 72, pp. 1-10, 2023, Art no. 2004110, doi: 10.1109/TIM.2023.3276016.
- E. Moisello, M.E. Castagna, A. La Malfa, G. Bruno, P. Malcovati, and E. Bonizzoni, "Reference temperature sensor for TMOS-based thermal detectors", in "*IEEE Access*", doi: 10.1109/ACCESS.2023.3312620.
- E. Moisello, A. Liotta, P. Malcovati, and E. Bonizzoni, "Recent Trends and Challenges in Near-Field Wireless Power Transfer Systems", in *"IEEE Open Journal of the Solid State Circuits Society"*, doi: 10.1109/OJSSCS.2023.3313575.
- A. Liotta, E. Moisello, G. Frattini, P. Giannelli, P. Malcovati, and E. Bonizzoni, "An S-Matrix-Based Model of a Capacitive-Inductive Channel for Wireless Power and Data Transmission", accepted at

International Conference on Electronics, Circuits, and Systems (ICECS 2023), Istanbul, Turkiye, 2023, pp. 1-4, doi: 10.1109/ICECS58634.2023.10382847.

- E. Moisello, P. Malcovati, and E. Bonizzoni, "A Compact-Area Low-Power Temperature Sensor Featuring High Supply Voltage Scalability", accepted at International Conference on Electronics, Circuits, and Systems (ICECS 2023), Istanbul, Turkiye, 2023, pp. 1-4, doi: 10.1109/ICECS58634.2023.10382756.
- E. Moisello, L. Novaresi, E. Sarkar, T. L. Costa, P. Malcovati, and E. Bonizzoni, "PMUT and CMUT Devices for Biomedical Applications: A Review", in "*IEEE Access*", doi: 10.1109/ACCESS.2024.3359906.

MEMBERSHIPS AND ACTIVITY IN THE INTERNATIONAL SCIENTIFIC COMMUNITY

- Member of IEEE - Institute of Electrical and Electronics Engineers
- Member of CASS - Circuits and Systems Society
- Associate Editor for "IEEE Transactions on Circuits and Systems II – Express Briefs" (2024-2025 term)
- Young Professional representative on the CASS Board of Governors
- Member of the CASS Technical Activity Division
- Experience as Guest Editor for "IEEE Transactions on Circuits and Systems II – Express Briefs" (Special Issues on ISICAS 2021, LASCAS 2021, ISICAS 2022, ISCAS 2023)
- Experience as Reviewer for "IEEE Transactions on Circuits and Systems I – Regular Papers", "IEEE Transactions on Circuits and Systems II – Express Briefs" , "IEEE Transactions on Electron Devices", "IEEE Journal of Solid-State Circuits", "IEEE Sensors", "MDPI Applied Sciences", "Integration – Elsevier", ISCAS Conference, ICECS Conference, PRIME Conference, MWSCAS Conference, NEWCAS Conference
- Experience as Session Chair for ISCAS Conference, ICECS Conference, PRIME Conference
- Co-organizer of the Special Session on "Circuits and systems for non-contact sensing applications" at ISCAS 2022
- Member of the Technical Program Committee for PRIME 2022 Conference
- Member of the Organizing Committee for PRIME 2022 Conference – Publication Co-Chair and Finance Chair
- Special Issue Editor (Co-organizer and Guest Editor) for "MDPI Micromachines" – "Special Issue: Microsensors and Microsystems for the Human Body"
- Co-organizer of the Special Session on "Challenges and requirements in sensory circuit design" at ICECS 2022
- Member of the Technical Program Committee for ICECS 2022 Conference – Co-Track Chair of "Design of analog and mixed-signal circuits and systems"
- Organization support at ESSCIRC 2022
- Member of the Organizing Committee for PRIME 2023 Conference – Publication Co-Chair
- Member of the Technical Program Committee for PRIME 2023 Conference
- Special Issue Assistant Guest Editor for "MDPI Electronics" – "Special Issue: Ultra Low Power Integrated Circuits for IoT"
- Member of the Technical Program Committee for NEWCAS 2023 Conference – Track Chair of "Sensory Circuits and Systems"
- Member of the Technical Program Committee for MWSCAS 2023 Conference – Associate Editor for "Analog and Mixed Signal Circuits and Systems" Track
- Member of the Technical Program Committee for NEWCAS 2024 Conference – Track Chair of "Sensory Circuits and Systems"
- Young Professional representative for the CASS-North Italy Chapter
- Member of the IEEE Italy Section Young Professional Affinity Group
- Former Secretary of the IEEE Italy Section Young Professional Affinity Group (2020-2022)

RESEARCH EXPERIENCE

- Design of integrated interface circuits for MEMS contact-less sensors (p/n polysilicon thermopiles, TMOS)
- Design of integrated temperature-to-digital converter systems
- Design of high efficiency inverting buck-boost converters

- Design of wireless power and data transfer systems
- Design of bandgap voltage reference circuits
- Design of interface circuits for CMUT devices
- Design of isolated power converters systems
- Design of readout circuits for IR imagers

La sottoscritta, consapevole che – ai sensi dell'art. 76 del D.P.R. 445/2000 – le dichiarazioni mendaci, la falsità negli atti e l'uso di atti falsi sono puniti ai sensi del codice penale e delle leggi speciali, dichiara che le informazioni rispondono a verità.

La sottoscritta dichiara di aver ricevuto l'informativa sul trattamento dei dati personali.

Pavia, 4/06/2024