

University Academic Curriculum Vitae

Personal information Alessandro Torrisi

Education since leaving school

- 2016, bachelor's degree in Electronic and Telecommunication Engineering (University of Trento)
- 2019, master's degree (cum laude) in Electronic Engineering (University of Padova)
- 2023, doctorate (cum laude) in Electronic at Materials, Mechatronics and Systems Engineering programme (University of Trento)

Present appointment

- Electronic system L-8
- 30/09/2024
- Free University of Bolzano
- Teaching activities involving the design of electronic systems such as digital and programmable devices (MCUs), sensors and power management.

Experience in academic teaching

- Electronic circuit design L-8 (a.y. 2023/24) at the Free University of Bolzano. Teaching activities involving the design of analog and digital electronic circuit.
- Various tutorships at the Industrial Engineering department of the University of Trento: embedded electronics, laboratory of IoT, electrotechnics and measurements.

Research and scholarships

- Sustainable IoT by applying energy harvesting and battery-less techniques. Focus on RF backscatter ultra-low power communication for battery-less application.
- A. Torrisi, et al., A. Torrisi et al., "Magnetic resonant coupling wireless power transfer for lightweight batteryless UAVs" in 2020 International Symposium on Power Electronics, Electrical Drives, Automation and Motion, SPEEDAM, DOI: 10.1109/SPEEDAM48782.2020.9161953
- A. Torrisi, et al., "Zero Power Energy-Aware Communication for Transiently-Powered Sensing Systems" in ENSsys '20: Proceedings of the 8th International Workshop on Energy Harvesting and Energy-Neutral Sensing Systems, DOI:10.1145/3417308.3430269
- A. Torrisi, et al., "Enabling Transiently-Powered Communication via Backscattering Energy State Information" in Proceedings of Applications in Electronics Pervading Industry, Environment and Society: APPLEPIES 2020. Lecture Notes in Electrical Engineering, vol 738. Springer, Cham. DOI: 10.1007/978-3-030-66729-0_22

Publications

- A. Torrisi, et al., "Autonomous Energy Status Sharing and Synchronization for Batteryless Sensor Networks" in SenSys 2021: Proceedings of the 2021 19th ACM Conference on Embedded Networked Sensor Systems DOI: 10.1145/3485730.3493360
- A. Torrisi, et al., "Visible Light Communication for Intermittent Computing Battery-Less IoT Devices" in Proceedings of

International Conference on Applications in Electronics Pervading Industry, Environment and Society, APPLEPIES 2021 Lecture Notes in Electrical Engineering, vol 866. Springer, Cham.

DOI:10.1007/978-3-030-95498-7_22

- * A. *Torrise* et al., "Reliable Transiently-Powered Communication" in IEEE SENSORS JOURNAL, v. 2022, n. vol. 22, no. 9 (2022), p. 9124-9134.
DOI: 10.1109/JSEN.2022.3158736
- A. *Torrise* et al., "Battery Thermal Dissipation Characterization with External Coating Comparison," 2022 IEEE International Workshop on Metrology for Industry 4.0 & IoT: MetroInd4.0&IoT
DOI: 10.1109/MetroInd4.0IoT54413.2022.9831710.
- * A. *Torrise*, et al., "High dv/dt pulse generator based on series-connection SiC MOSFETs," 2022 International Symposium on Power Electronics, Electrical Drives, Automation and Motion SPEEDAM
DOI: 10.1109/SPEEDAM53979.2022.9842038
- * A. *Torrise* et al., "Visible Light Synchronization for Time-Slotted Energy-Aware Transiently-Powered Communication" in Proceedings of the ACM/IEEE International Symposium on Low Power Electronics and Design (ISLPED '22)
DOI: 10.1145/3531437.3539722
- * A. *Torrise*, et al., "Ultra-Low-Power Circuits for Intermittent Communication" in JOURNAL OF LOW POWER ELECTRONICS AND APPLICATIONS
DOI: 10.3390/jlpea12040060
- * A. *Torrise*, et al., "Low-Power Circuits and Energy-Aware Protocols for Connecting Batteryless Sensors" in IEEE Communications Magazine
DOI: 10.1109/MCOM.001.2200363
- A. *Torrise*, et al., "Transiently-Powered Batteryless Device-to-Device Communication Protocol Simulator" In Applications in Electronics Pervading Industry, Environment and Society. ApplePies 2022. Lecture Notes in Electrical Engineering, vol 1036. Springer, Cham
DOI: 10.1007/978-3-031-30333-3_37
- A. *Torrise*, et al., "Batteryless soil EIS sensor powered by Microbial Fuel Cell" in Proceedings of SIE 2022. SIE 2022. Lecture Notes in Electrical Engineering, vol 1005. Springer, Cham.
DOI: 10.1007/978-3-031-26066-7_43

Patent: *Alessandro Torrise*, et al., "Method and device to communicate the energy availability of a processing system based on intermittent microarchitectures, without electricity consumption",
WO2023281546A1, 2023-01-01

Entrepreneurship

Currently owner and content creator at AT Lab YouTube channel. The aims of this activity is to share the knowledge in electronic engineering with a broad audience with several projects.

Statement of interest

With the current teaching activity, *Alessandro Torrise* is committed to share his know-how in the theory behind electronic circuit. He is also strongly motivated in providing practical design considerations and laboratory experiences.

Language competence

Italian and English.