

Curriculum Vitae Europass



Informazioni personali

Nome / Cognome **Valentini Lorenzo**
 Indirizzo ~~Via Versilia 581, 41322 Cesena FC (Italy)~~
 Nazionalità Italiana
 Data di nascita 22-02-1995
 Email ~~lorenz.valentini12@gmail.it~~

Education and training

2017–2019 Master's degree
 Specialization Electronics and Telecommunications Engineering for Energy
 Institute Alma Mater Studiorum - University of Bologna, Italy
 Grade 110/110 (summa cum laude)
 Thesis "Quantum Error Correction for Quantum Networks"

2014–2017 Bachelor
 Specialization Electronics Engineering for Energy and Information
 Institute Alma Mater Studiorum - University of Bologna, Italy
 Grade 110/110 (summa cum laude)
 Thesis "Analisi e progetto di filtri a 2,45GHz per protezione da Electro-Static Discharge tra antenna e chip RF"

Work experience

Sep 2019 – present Teaching Tutor
 Institute University of Bologna
 Course Signal Processing
 Main Tasks Exercises, examinations, exam revisions, tutoring students

Mar 2022 – Jul 2022 Research Fellow
 Institute CNIT, WiLab
 Project Massive Multiple Access for 6G
 Main Tasks Synchronous and asynchronous schemes design for massive multiple access applications using coded slotted ALOHA (CSA)

Apr 2021 – Sep 2021 Research Fellow
 Institute CNIT, WiLab
 Project Massive Multiple Access for 6G
 Main Tasks Analysis of grant-free multiple access schemes for massive multiple access exploiting massive MIMO

Sep 2020 – Sep 2021 Project Engineer
 Institute CIRI AERO, University of Bologna
 Project 2Leg Deep Space Relay (CIRI AERO - ESA)
 Main Tasks Implementation of simulators for standard deep space error correcting codes (SCPPM and LDPC), optical link budget

Oct 2019 – Sep 2020	Research Fellow
Institute	CIRI ICT, University of Bologna
Project	CoACH (Cold management in Agro-food Chains: solutions for process digitalization)
Main Tasks	Implementation of a wireless sensor network which store data on the cloud, making them easily accessible from the other partners of the project.
Sep 2019 – Nov 2019	Research Fellow
Institute	DEI University of Bologna
Project	Construction of a simulator for Quantum Error Correcting Codes
Main Tasks	Implementation of a simulator for QLDPC (quantum low-density parity-check) codes in Matlab and C++

Personal skills

Mother tongue
Other Languages
Autovalutazione
Livello europeo⁽¹⁾

Italiano

Inglese

Comprensione				Parlato				Scritto	
Ascolto		Lettura		Interazione		Produzione orale			
B2	Livello intermedio	B2	Livello intermedio	B2	Livello intermedio	B2	Livello intermedio	B2	Livello intermedio

⁽¹⁾Quadro comune europeo di riferimento per le lingue (ERL)

Computer skills

Competent with LaTeX-based software.
Competent with program language: C, C++, Matlab.
Experience with VHDL, LabVIEW, KiCad, Inkscape.

Well-known topics

Coded Random Access
MIMO signal processing
Massive Multiple Access
Quantum Error Correction

Driving licence

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List of Publications

- [1] L. Valentini, M. Chiani, E. Paolini, "Massive Grant-Free Access with Massive MIMO and Spatially Coupled Replicas," *IEEE Transactions on Communications*, 2022.
- [2] D. Modenini, A. Locarini, L. Valentini, et al., "Two-Leg Deep Space Relay Architectures: Performance, Challenges, and Perspectives," *IEEE Transactions on Aerospace and Electronic Systems*, 2022.
- [3] L. Valentini, A. Giorgetti, M. Chiani, "Density Estimation in Randomly Distributed Wireless Networks," *IEEE Transactions on Wireless Communications*, 2022.
- [4] M. Chiani, L. Valentini, "Short Codes for Quantum Channels With One Prevalent Pauli Error Type," *IEEE Journal on Selected Areas in Information Theory*, 2020.
- [5] E. Paolini, L. Valentini, V. Tralli, M. Chiani, "Irregular Repetition Slotted ALOHA in an Information-Theoretic Setting," in *2022 IEEE International Symposium on Information Theory*, IEEE, 2022.
- [6] L. Valentini, M. Chiani, E. Paolini, "A Joint PHY and MAC Layer Design for Coded Random Access with Massive MIMO," in *Proc. 2022 IEEE Global Commun. Conf., Rio de Janeiro, Brazil*, 2022.
- [7] L. Valentini, A. Faedi, M. Chiani, E. Paolini, "Impact of Interference Subtraction on Grant-Free Multiple Access with Massive MIMO," in *2022 IEEE International Conference on Communications*, IEEE, 2022.
- [8] L. Valentini, A. Faedi, M. Chiani, E. Paolini, "Coded Random Access for 6G: Intra-Frame Spatial Coupling with ACKs," in *2021 IEEE Globecom Workshops*, IEEE, 2021.
- [9] L. Valentini, A. Faedi, E. Paolini, M. Chiani, "Analysis of Pointing Loss Effects in Deep Space Optical Links," in *2021 IEEE Globecom Symposium*, IEEE, 2021.
- [10] M. Chiani, L. Valentini, "Design of Short Codes for Quantum Channels with Asymmetric Pauli Errors," in *International Conference on Computational Science*, Springer, 2020.

Trattamento dei dati personali

Autorizzo il trattamento dei dati personali ai sensi dell'attuale Decreto Legislativo (art. 4 D.Lgs. 196/03)

27/10/2022 