Curriculum Vitae

PERSONAL INFORMATION

Surname	**Lusardi**
Name	**Nicola**
Address	**via Santa Maria delle Grazie,16. CAP: 29010 Gazzola, Piacenza (Italia)**
Telephone	**(+39) 333 5665851**
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E-mail	**nicola.lusardi@polimi.it**
Skype	**nicola.lusardi1**
Laboratory Web Page	**http://risorse.dei.polimi.it/digital/people.html**
Politecnico Web Page	**http://www.deib.polimi.it/ita/personale/dettagli/704282**
Nationality	Italian
Date of birth	25/11/1990

Education and training	• 2018: **PhD** in Information Technology (Electronics) – Electronic Systems Design from Politecnico di Milano in Milano. • 2014: Master Degree in Electronic Engineering – Electronic Systems Design from Politecnico di Milano in Milano (**final mark 110 cum Laude**) • 2014: Test of English for International Communication TOEIC (**final mark 915/990**) • 2012: Diploma of "Maestro di Clarinetto" from the Conservatorio "G.Nicolini" in Piacenza (**final mark 8/10**) • 2012: Bachelor Degree in Electronic Engineering from Politecnico di Milano (**final mark 110 cum Laude**) • 2009: Diploma of "Perito in Elettronica e Telecomunicazioni" from the "Istituto Tecnico Industriale G.Marconi" in Piacenza (**final mark 100/100**)

Date (from October 2014 – to February 2018)	
Name and address of firm/university	Politecnico di Milano; Piazza Leonardo da Vinci 32, 20133 Milano
Type of business or sector	Digital Electronics
Type of employment	PhD student
Main activities and responsibilities	Design, simulation and characterization of innovative architectures for implementing multi-channel high resolution Time-to-Digital converters (TDCs) in Field Programmable Gate Array (FPGA) and System-of-Chip (SoC) devices of manufacturers Altera and Xilinx. The activity was completed with transfer of proposed architectures to specific custom applications. Design of the hardware (analog front-end and digital stages) and ancillary software/firmware of read-out resources. From February 2015, chief responsible of activities carried out in the "Digital Electronics Laboratory" in DEIB at Politecnico di Milano supervised by professor A. Geraci.
Reference	Prof. Angelo Geraci

Date (from September 2012 – to October 2014)	
Name and type of organisation providing education and training	Politecnico di Milano; Piazza Leonardo da Vinci 32, 20133 Milano
Duration of the program of study	Two years
Principal subjects/occupational skills covered	Analysis of complex digital and analog electronic circuits. Study of the physics of electronic devices. Design of complex analog and digital circuits both discrete and integrated. Synthesis of complex architectures of processing in FPGA devices. Description of the electronic circuits in VHDL / Verilog. CAD design of low-noise and low-power analog electronic circuits, and high-speed digital circuits.
Title of qualification to be awarded	Master Degree in Electronic Engineering – Electronic Systems Design
Final mark obtained	**110 cum Laude**
Reference	Prof. Angelo Geraci

Date (from April 2014 – to June 2014)	
Name and type of organisation providing education and training	Wall Street English Institute, Piacenza
Duration of the program of study	Three months
Principal subjects/occupational skills covered	Improvement of listening and reading capability for international communication.
Title of qualification to be awarded	TOEIC Certificate
Final mark obtained	**915/990**

Date (from November 2004 – to October 2012)	
Name and type of organisation providing education and training	Conservatorio "G.Nicolini"; via Santa Franca 35, 29121 Piacenza
Duration of the program of study	Eight years
Principal subjects/occupational skills covered	Learning of instrumental techniques, theory and solfeggio. Knowledge of the history of music and of the main rules of harmony. Ability to work in group achieved through exercises of orchestral, choral and ensemble music.
Title of qualification to be awarded	Maestro di Clarinetto
Final mark obtained	**8/10**
Reference	Maestro Giuseppe Parmigiani

Date (from September 2009– to July 2012)	
Name and type of organisation providing education and training	Politecnico di Milano; Piazza Leonardo da Vinci 32, 20133 Milano
Duration of the program of study	Three years
Principal subjects/occupational skills covered	Analysis of basic digital and analog electronic circuits. Analysis of the main electronic devices. Study of mathematics and physics aimed to electronics (e.g. Fourier, Laplace, Z, Transforms, electromagnetism, optics, solid state physics) Ability to design basic circuits and systems with discrete electronic components. Study of the architecture of microprocessors and development of techniques for high-and low-level programming.
Title of qualification to be awarded	Bachelor Degree in Electronic Engineering
Final mark obtained	**110 cum Laude**

Date (from September 2004 – to July 2009)	
Name and type of organisation providing education and training	Istituto Tecnico Industriale "G.Marconi"; via IV Novembre 122, 29122 Piacenza
Duration of the program of study	Five years
Principal subjects/occupational skills covered	General studies of Italian, mathematics, science, chemistry, history and literature. Study and realization of simple analog and digital electronic circuits. Ability to relate and work in group with peers and teachers. The final annul project in 2008/2009 was the realization of a "Weather Station" using a microcontroller PIC platform programmed in assembler.
Title of qualification to be awarded	Perito in Elettronica e Telecomunicazioni
Final mark obtained	**100/100**
Reference	Prof. Claudio Rebecchi, Prof. Emilio Sivelli

Graduation thesis

Title	Advanced Methods, Techniques and Digital Architecture for High Speed Performance Timing of Event
Language	English
Supervisor	Prof. Angelo Geraci
Thesis Summary	The PhD Thesis is the deals with the high-performance measurement of time intervals by means of digital systems implemented in spatial computing configurable devices such as FPGAs and SoCs.
	These systems play a key role in the new generation of electronic circuits such as the Time-Mode ones that have extremely wide area of applications, for instance from Nuclear Physics, to Medical Imaging, and metrology. The main convenience that has driven the implementation of these system into the FPGAs/SoCs is the possibility of scaling down the architectures and realize systems with very high number of channels achieving high-resolution and precision (picoseconds) over a wide full-scale range (seconds) at high-rate (tens of megahertz).
	The research activity has led to conceiving, designing and prototyping of a modular and all-programmable hardware/firmware/software bundle addressed to timing measurements with substantial innovations not present not even in literature and on the market.
	Accordingly, the work has resulted in a significant number of international publications (39) and collaboration with university (TU Delft, EPFL), research organizations (CERN, Elettra, INFN) and industries (CAEN, CAENels).

Title	Sistemi innovativi di misura di tempo ad alta risoluzione in dispositivi FPGA (Innovative systems of high-resolution time measurement in FPGA devices)
Language	Italian
Supervisor	Prof. Angelo Geraci
Thesis Summary	The Master Degree Thesis deals with the high-resolution measurement of time intervals by means of systems implemented in spatial computing configurable devices (FPGA). These systems play a key role in an extremely wide area of applications, for instance from Nuclear Physics, where the high resolution is fundamental to distinguish different flavours of particles, to Medical Imaging, in order to achieve the necessary spatial resolution in scans of human tissues. The main convenience that has driven the implementation of these system into the FPGAs is the possibility of scaling down the architectures and realize systems with very high number of channels. The research activity has led to conceiving, designing and prototyping of several system many of which with substantial innovations not present not even in literature. Accordingly, the work has already resulted in a significant number of international publications.

Publications and articles submitted (56)

<table>
<tr><td colspan="2">INTERNATIONAL REFEREED JOURNALS (25)</td></tr>
<tr>
<td>2019 (2)</td>
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1. <u>Nicola Lusardi</u>, Fabio Garzetti, Angelo Geraci, "Digital instrument with configurable hardware and firmware for multi-channel time measures", RSI – Review of Scientific Instruments, Volume 90, May 2019, 055113 (2019).
doi: 10.1063/1.5028131.
Citation 0 (scopus 0)
Impact Factor 1.738

2. <u>Nicola Lusardi</u>, Fabio Garzetti, Angelo Geraci, "The role of sub-interpolation for Delay-Line Time-to-Digital Converters in FPGA devices", Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, Volume 916, 2019, Pages 204-214, ISSN 0168-9002.
doi: https://doi.org/10.1016/j.nima.2018.11.100.
Citation 1 (scopus 0)
Full Text View 5
Impact Factor 1.579

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<td>2018 (1)</td>
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3. E. Venialgo, <u>N. Lusardi</u>, F. Garzetti, A. Geraci, S. E. Brunner, D. R. Schaart, E. Charbon, "Towards a Full-Flexible and Fast-Prototyping TOF-PET Block Detector Based on TDC-on-FPGA," in IEEE Transactions on Radiation and Plasma Medical Sciences, vol. 3, no. 5, pp. 538-548, Sept. 2019.
doi: 10.1109/TRPMS.2018.2874358.
Citation 1
Full Text View 315
Impact Factor N.A.

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<td>2017 (1)</td>
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4. <u>N. Lusardi</u>, J. W. N. Los, R. B. M. Gourgues, G. Bulgarini, and A. Geraci, "Photon counting with photon number resolution through superconducting nanowires coupled to a multi-channel TDC in FPGA", RSI – Review of Scientific Instruments, Volume 88, 2017, Issue 3, Pages 035003.
doi: https://doi.org/10.1063/1.4977594.
Citation 8 (scopus 9)
Impact Factor 1.576

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<td>2016 (3)</td>
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5. LHCb Collaboration (A. Geraci, <u>N. Lusardi</u>), "Observation of the $B_s^0 \rightarrow$ ⊏ J/ψ ⊐ₕ ⊐ₕ ⊏ decay", JHEP - Journal of High Energy Physics, JHEP03(2016)040 (2016) [arXiv: 1601.05284], 7 March 2016.
doi: 10.1007/JHEP03(2016)040.
Citation 6 (scopus 3)
Full Text View 340
Impact Factor 3.951

6. LHCb Collaboration (A. Geraci, <u>N. Lusardi</u>), "Measurement of CP observables in $B^\pm \rightarrow DK^\pm$ and $B^\pm \rightarrow D\pi^\pm$ with two-and four-body D decays", Physics Letters B, Volume 760, 2016, Pages 117-131, ISSN 0370-2693,
doi: https://doi.org/10.1016/j.physletb.2016.06.022.
Citation 24 (scopus 24)
Full Text View 110
Impact Factor 5.075

7. LHCb Collaboration (A. Geraci, <u>N. Lusardi</u>), "Observation of $B_s^0 \rightarrow D^0 K_s^0$ and Evidence for $B_s^0 \rightarrow D^{*0} K_s^0$ Decays", Phys. Rev. Lett., Volume 116, Issue 16, Pages 161802-9, April 2016.
doi: 10.1103/PhysRevLett.116.161802.
Citation 3 (scopus 5)
Impact Factor 8.623

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8. LHCb Collaboration (A. Geraci, <u>N. Lusardi</u>), "Measurement of the properties of the Ξ_b^{*0} baryon", JHEP - Journal of High Energy Physics, Volume 2016, Issue 5, 1 May 2016.
doi: 10.1007/JHEP05(2016)161
Citation 9 (scopus 7)
Full Text View 383
Impact Factor 3.951

9. LHCb Collaboration (A. Geraci, <u>N. Lusardi</u>), "Observations of $\Lambda_0^b \rightarrow \Lambda K^+ \pi^-$ and $\Lambda_0^b \rightarrow \Lambda K^+ K^-$ decays and searches for other Λ_0^b and Ξ_0^b decays to $\Lambda h^+ h'^-$ final states", JHEP - Journal of High Energy Physics, Volume 2016, Issue 5, 2 May 2016.
doi: 10.1007/JHEP05(2016)081
Citation 13 (scopus 16)
Full Text View 367
Impact Factor 3.951

10. LHCb Collaboration (A. Geraci, <u>N. Lusardi</u>), "A new algorithm for identifying the flavour of B_s^0 mesons at LHCb", Journal of Instrumentation, Volume 11, Issue 5, 17 May 2016, Article number P05010
doi: 10.1088/1748-0221/11/05/P05010
Citation 13 (scopus 13)
Full Text View 371
Impact Factor 1.403

11. LHCb Collaboration (A. Geraci, <u>N. Lusardi</u>), "Measurement of the mass and lifetime of the Ω_b^- baryon", Physical Review D, Volume 93, Issue 9, 19 May 2016, Article number 092007.
doi: 10.1103/PhysRevD.93.092007
Citation 5 (scopus 8)
Impact Factor 4.738

12. LHCb Collaboration (A. Geraci, <u>N. Lusardi</u>), "Measurement of the $B_s^0 \rightarrow D_s^{(*)+} D_s^{(*)-}$ branching fractions", Physical Review D, Volume 93, Issue 9, 20 May 2016, Article number 092008.
doi: 10.1103/PhysRevD.93.092008
Citation 1 (scopus 2)
Impact Factor 4.738

13. LHCb Collaboration (A. Geraci, <u>N. Lusardi</u>), "Model-independent measurement of the CKM angle γ using $B^0 \rightarrow DK^{*0}$ decays with $D \rightarrow K_0^S \pi^+\pi^-$ and $K_0^S K^+K^-$", JHEP - Journal of High Energy Physics, Volume 2016, Issue 6, 1 June 2016.
doi: 10.1007/JHEP05(2016)081
Citation 6 (scopus 16)
Full Text View 390
Impact Factor 3.951

14. LHCb Collaboration (A. Geraci, <u>N. Lusardi</u>), "Search for Violations of Lorentz Invariance and CPT Symmetry in $B^0_{(s)}$ Mixing", Physical Review Letters Volume 116, Issue 24, 15 June 2016, Article number 241601
doi: 10.1103/PhysRevLett.116.241601
Citation 8 (scopus 16)
Impact Factor 8.623

15. LHCb Collaboration (A. Geraci, <u>N. Lusardi</u>), "First Observation of D^0-D^0 Oscillations in $D^0 \rightarrow K^+\pi^-\pi^+\pi^-$ Decays and Measurement of the Associated Coherence Parameters", Physical Review Letters Volume 116, Issue 24, 17 June 2016, Article number 241801
doi: 10.1103/PhysRevLett.116.241801
Citation 8 (scopus 21)
Impact Factor 8.623

	16. LHCb Collaboration (A. Geraci, <u>N. Lusardi</u>), "A precise measurement of the B^0 meson oscillation frequency", European Physical Journal C, Volume 76, Issue 7, 1 July 2016, Article number 412. doi: 10.1140/epjc/s10052-016-4250-2 Citation 7 (scopus 11) Full Text View 1958 Impact Factor 4.987 17. LHCb Collaboration (A. Geraci, <u>N. Lusardi</u>), "Observation of the $\Lambda_b^0 \to \Lambda\varphi$ decay", Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, Volume 759, 10 August 2016, Pages 282-292. doi: 10.1016/j.physletb.2016.05.077 Citation 18 (scopus 18) Full Text View 56 Impact Factor 5.075 18. LHCb Collaboration (A. Geraci, <u>N. Lusardi</u>), "Search for B_c^+ decays to the $pp\pi^+$ final state", Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, Volume 759, 10 August 2016, Pages 313-321. doi: 10.1016/j.physletb.2016.05.074 Citation 11 (scopus 11) Full Text View 111 Impact Factor 5.075 19. LHCb Collaboration (A. Geraci, <u>N. Lusardi</u>), "Model-Independent Evidence for J /ψp Contributions to $\Lambda_b^0 \to j /\psi pK^-$ Decays", Physical Review Letters, Volume 117, Issue 8, 18 August 2016, Article number 082002. doi: 10.1103/PhysRevLett.117.082002 Citation 41 (scopus 83) Impact Factor 8.623 20. A. Abba, F. Bedeschi, F. Caponio, R. Cenci, M. Citterio, A. Cusimano, J. Fu, A. Geraci, M. Grizzuti, <u>N. Lusardi</u>, P. Marino, M. J. Morello, N. Neri, D. Ninci, M. Petruzzo, A. Piucci , G. Punzi, L. Ristori, F. Spinella, S. Stracka, D. Tonelli, J. Walsh, "An "artificial retina" processor for track reconstruction at the full LHC crossing rate", Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, Volume 824, 11 July 2016, Pages 260-262, ISSN 0168-9002. doi: //doi.org/10.1016/j.nima.2015.10.048. Citation 2 Full Text View 1 Impact Factor 1.520 21. A. Abba, F. Bedeschi, F. Caponio, R. Cenci, M. Citterio, S. Coelli, J. Fu, A. Geraci, M. Grizzuti, <u>N. Lusardi</u>, P. Marino, M. Monti, M. J. Morello, N. Neri, D. Ninci, M. Petruzzo, A. Piucci , G. Punzi, L. Ristori, F. Spinella, S. Stracka, D. Tonelli, J. Walsh, "Real time tracking with silicon telescope prototype using the "artificial retina" algorithm", Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, Volume 824, 11 July 2016, Pages 343-345, ISSN 0168-9002. doi: https://doi.org/10.1016/j.nima.2015.11.064. Citation 0 Full Text View 2 Impact Factor 1.520
2015 (4)	22. LHCb Collaboration (A. Geraci, <u>N. Lusardi</u>), "Angular analysis and differential branching fraction of the decay $B_s^0 \to$ ⊏ ₂н └ ⁺└ ⁺", JHEP - Journal of High Energy Physics, Volume 2015, Number 9, Pages 179, 25 September 2015, ISSN 1029-8479. doi: 10.1007/JHEP09(2015)179. Citation 180, (124 scopus) Full Text View 640 Impact Factor 4.153

	23. LHCb Collaboration (A. Geraci, <u>N. Lusardi</u>), "Measurement of the branching fraction ratio B($B_c^+ \to$ ... S ... / B($B_c^0 \to$ J/ ...)", Phys. Rev. D., Volume 92, Issue 7, Pages 07200-10, October 2015. doi: 10.1103/PhysRevD.92.072007. Citation 7, (10 scopus) Impact Factor 4.844 24. LHCb Collaboration (A. Geraci, <u>N. Lusardi</u>), "Measurement of the Ratio of Branching Fractions B($B^0 \to D^{*+}$ ... B ($B^0 \to D^{*+}$ ...)", Phys. Rev. Lett., Volume 115, Issue 11, Pages 111803-10, September 2015. doi: 10.1103/PhysRevLett.115.111803. Citation 197, (423 scopus) Impact Factor 8.150 25. LHCb Collaboration (A. Geraci, <u>N. Lusardi</u>), "Observation of J/ψp Resonances Consistent with Pentaquark States in ... $_b^0 \to$ J ... pK Decays", Phys. Rev. Lett., Volume 115, Issue 7, Pages 072001-15, August 2015. doi: 10.1103/PhysRevLett.115.072001. Citation 366, (511 scopus) Impact Factor 8.150

PROCEEDINGS OF INTERNATIONAL REFEREED **CONFERENCES (38)**	
2019 (7)	26. N. Corna, <u>N. Lusardi</u>, F. Garzetti, M. Gustin, A.Geraci, "Multi-channel High-resolution Pulse-Width Modulation IP-Core implementation for FPGA and SoC devices", 2019 IEEE Nuclear Science Symposium, October 26 - November 2, 2019, Manchester, UK. 27. <u>N. Lusardi</u>, F. Garzetti, N. Corna, A. Reale, A. Geraci, E. Dobovicnik, G. Cautero, C. Dri, R. Sergo, L. Stebel, "Advanced System in FPGA for 3D (X, Y, t) Imaging with Cross Delay-Lines", 2019 IEEE Nuclear Science Symposium, October 26 - November 2, 2019, Manchester, UK. 28. F. Garzetti, S. Salgaro, E. Venialgo, <u>N. Lusardi</u>, N. Corna, A. Geraci, E. Charbon, "Plug-and-Play TOF-PET Module Readout Based on TDC-on-FPGA and Gigabit Optical Fiber Network", 2019 IEEE Nuclear Science Symposium, October 26 - November 2, 2019, Manchester, UK. 29. N. Corna, F. Garzetti, <u>N. Lusardi</u>, A. Geraci, "Complete System-on-Chip Linux-based Platform for Measurement and Generation of Time Domain Signals", 2019 IEEE Nuclear Science Symposium, October 26 - November 2, 2019, Manchester, UK. 30. F. Garzetti, <u>N. Lusardi</u>, N. Corna, A. Geraci, "Synchronization in Networks of Time to Digital Converters based on Field Programmable Gate Arrays", 2019 IEEE Nuclear Science Symposium, October 26 - November 2, 2019, Manchester, UK. 31. <u>N. Lusardi</u>, F. Garzetti, N. Corna, R. De Marco, A. Geraci, "Very High Performance 24 Channels Time to Digital Converter in Xilinx 20 nm Kintex UltraScale FPGA", 2019 IEEE Nuclear Science Symposium, October 26 - November 2, 2019, Manchester, UK. 32. S. Salgaro, N. Corna, F. Garzetti, <u>N. Lusardi</u>, A. Geraci, "Time-Mode analysis of Crosstalk interference in a FPGA-based TDC implementation", 2019 IEEE Nuclear Science Symposium, October 26 - November 2, 2019, Manchester, UK.
2018 (7)	33. N. Corna, F. Garzetti, <u>N. Lusardi</u> and A. Geraci, "System-on-Chip Linux-based Platform for High-Performance Time-to-Digital Conversion," 2018 IEEE Nuclear Science Symposium and Medical Imaging Conference Proceedings (NSS/MIC), Sydney, Australia, 2018, pp. 1-4. doi: 10.1109/NSSMIC.2018.8824415 Citation 0 (scopus 0) Full Text View 9

	34. <u>N. Lusardi</u>, F. Garzetti, L. Gatti and A. Geraci, "Hardware Description Language Phase-Locked Loop (HDL-PLL) Open Architecture for FPGAs," 2018 IEEE Nuclear Science Symposium and Medical Imaging Conference Proceedings (NSS/MIC), Sydney, Australia, 2018, pp. 1-3. doi: 10.1109/NSSMIC.2018.8824537 Citation 0 (scopus 0) Full Text View 41 35. <u>N. Lusardi</u>, F. Garzetti, R. D. Marco and A. Geraci, "Implementation Issues of a High-Performance Multi-Channel Time-to-Digital Converter in Xilinx 20-nm UltraScale FPGAs," 2018 IEEE Nuclear Science Symposium and Medical Imaging Conference Proceedings (NSS/MIC), Sydney, Australia, 2018, pp. 1-4. doi: 10.1109/NSSMIC.2018.8824659 Citation 0 (scopus 0) Full Text View 22 36. F. Villa, E. Conca, V. Sesta, <u>N. Lusardi</u>, F. Garzetti, A. Geraci, F. Zappa, "SPADs and TDCs for photon-counting, timing and gated-imaging at 30 ps resolution and 60% efficiency," 2018 IEEE Nuclear Science Symposium and Medical Imaging Conference Proceedings (NSS/MIC), Sydney, Australia, 2018, pp. 1-5. doi: 10.1109/NSSMIC.2018.8824272 Citation 0 (scopus 0) Full Text View 84 37. F. Garzetti, <u>N. Lusardi</u>, L. D. Lalla, M. Gustin and A. Geraci, "High-resolution pulse generator based on a fully programmable Digital-to-Time Converter (DTC) IP-Core," 2018 IEEE Nuclear Science Symposium and Medical Imaging Conference Proceedings (NSS/MIC), Sydney, Australia, 2018, pp. 1-4. doi: 10.1109/NSSMIC.2018.8824747 Citation 0 (scopus 0) Full Text View 20 38. F. Garzetti, <u>N. Lusardi</u>, A. Geraci, E. Dobovicnik, G. Cautero, C. Dri, R. Sergio, L. Stebel, "Fully FPGA-based and all-reconfigurable TDC for 3D (X, Y, t) Cross Delay-Line detectors," 2018 IEEE Nuclear Science Symposium and Medical Imaging Conference Proceedings (NSS/MIC), Sydney, Australia, 2018, pp. 1-3. doi: 10.1109/NSSMIC.2018.8824302 Citation 0 (scopus 0) Full Text View 22 39. F. Garzetti, <u>N. Lusardi</u> and A. Geraci, "All-Digital Fully-Configurable Instrument for Multi-Channel Time Measurements at High Performance," 2018 IEEE Nuclear Science Symposium and Medical Imaging Conference Proceedings (NSS/MIC), Sydney, Australia, 2018, pp. 1-5. doi: 10.1109/NSSMIC.2018.8824387 Citation 0 (scopus 0) Full Text View 23
2017 (4)	40. <u>N. Lusardi</u>, F. Garzetti, A. Geraci, G. Cautero, C. Dri, P. Pittana, R. Sergio, L. Stebel, "Development of fully FPGA-based 3D (X, Y, t) detection systems using multi-channel Tapped-Delay-Line Time-to-Digital Converter with Cross Delay-Line detectors," 2017 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC), Atlanta, GA, 2017, pp. 1-4. doi: 10.1109/NSSMIC.2017.8532862 Citation 2 (scopus 0) Full Text View 64 41. <u>N. Lusardi</u>, F. Garzetti, M. A. Cibin, R. Sury and A. Geraci, "Hardware and Software Co-Design of a System-On-Chip for Real-Time Bidirectional Transfer and Processing of Data from a Time-to-Digital Converter," 2017 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC), Atlanta, GA, 2017, pp. 1-6. doi: 10.1109/NSSMIC.2017.8533048 Citation 2 (scopus 1) Full Text View 32

42. <u>N. Lusardi</u>, F. Garzetti and A. Geraci, "Fully Programmable System for Multi-Channel Experiments Targeting to Time Measurement at High Performance," 2017 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC), Atlanta, GA, 2017, pp. 1-5.
doi: 10.1109/NSSMIC.2017.8532902
Citation 4 (scopus 1)
Full Text View 37

43. <u>N. Lusardi</u>, F. Garzetti, A. Geraci, J. Marjanović and M. Gustin, "Multi-Channel Time-to-Digital Converter for MTCA.4 Standard in FPGA," 2017 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC), Atlanta, GA, 2017, pp. 1-4.
doi: 10.1109/NSSMIC.2017.8533131
Citation 0 (scopus 1)
Full Text View 34

2016 (7)

44. <u>N. Lusardi</u>, A. Geraci, R. B. M. Gourgues, J. W. N. Los and G. Bulgarini, "Array of superconducting nanowire single photon detectors resolving the number of photons in a weak optical pulse," 2016 IEEE Nuclear Science Symposium, Medical Imaging Conference and Room-Temperature Semiconductor Detector Workshop (NSS/MIC/RTSD), Strasbourg, 2016, pp. 1-4.
doi: 10.1109/NSSMIC.2016.8069732
Citation 2 (scopus 1)
Full Text View 92

45. <u>N. Lusardi</u>, F. Garzetti, G. Bulgarini, R. B. M. Gourgues, J. W. N. Los and A. Geraci, "Single photon counting through multi-channel TDC in programmable logic," 2016 IEEE Nuclear Science Symposium, Medical Imaging Conference and Room-Temperature Semiconductor Detector Workshop (NSS/MIC/RTSD), Strasbourg, 2016, pp. 1-4.
doi: 10.1109/NSSMIC.2016.8069673
Citation 3 (scopus 4)
Full Text View 165

46. <u>N. Lusardi</u>, M. Luciani and A. Geraci, "Single-chain 4-channels high-resolution multi-hit TDC in FPGA," 2016 IEEE Nuclear Science Symposium, Medical Imaging Conference and Room-Temperature Semiconductor Detector Workshop (NSS/MIC/RTSD), Strasbourg, 2016, pp. 1-4.
doi: 10.1109/NSSMIC.2016.8069682
Citation 1 (scopus 1)
Full Text View 163

47. E. Venialgo, <u>N. Lusardi</u>, A. Geraci, Kevin O'Neill, Salvatore Gnecchi, Carl Jackson, Stefan B. Brunner, Dennis R. Schaart, E. Charbon, "An order-statistics-inspired, fully-digital readout approach for analog SiPM arrays," 2016 IEEE Nuclear Science Symposium, Medical Imaging Conference and Room-Temperature Semiconductor Detector Workshop (NSS/MIC/RTSD), Strasbourg, 2016, pp. 1-5.
doi: 10.1109/NSSMIC.2016.8069881
Citation 4 (scopus 1)
Full Text View 215

48. <u>N. Lusardi</u>, A. Geraci, J. Marjanovič and M. Gustin, "High-resolution TDL-TDC system for MTCA.4 standard," 2016 IEEE Nuclear Science Symposium, Medical Imaging Conference and Room-Temperature Semiconductor Detector Workshop (NSS/MIC/RTSD), Strasbourg, 2016, pp. 1-4.
doi: 10.1109/NSSMIC.2016.8069672
Citation 2 (scopus 2)
Full Text View 136

49. <u>N. Lusardi</u>, A. Palmucci and A. Geraci, "Fully-migratable TDC architecture for FPGA devices," 2016 IEEE Nuclear Science Symposium, Medical Imaging Conference and Room-Temperature Semiconductor Detector Workshop (NSS/MIC/RTSD), Strasbourg, 2016, pp. 1-3.
doi: 10.1109/NSSMIC.2016.8069666
Citation 2 (scopus 2)
Full Text View 120

2015 (4)	
	50. N. Neri, A. Abba, F. Caponio, M. Citterio, S. Coelli, J. Fu, A. Geraci, M. Grizzuti, <u>N. Lusardi</u>, M. Monti, M. Petruzzo, "First results of a detector embedded real-time tracking system with artificial retina," 2015 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC), San Diego, CA, 2015, pp. 1-4. doi: 10.1109/NSSMIC.2015.7581772 Citation 1 (scopus 1) Full Text View 114 51. <u>N. Lusardi</u> and A. Geraci, "8-Channels high-resolution TDC in FPGA," 2015 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC), San Diego, CA, 2015, pp. 1-2. doi: 10.1109/NSSMIC.2015.7581245 Citation 4 (scopus 7) Full Text View 420 52. <u>N. Lusardi</u> and A. Geraci, "Comparison of interpolation techniques for TDCs implementation in FPGA," 2015 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC), San Diego, CA, 2015, pp. 1-2. doi: 10.1109/NSSMIC.2015.7581986 Citation 9 (scopus 7) Full Text View 171 53. N. Neri , A. Abba, F. Bedeschi, F. Caponio, R. Cenci, M. Citterio, S. Coelli, J. Fu, A. Geraci, M. Grizzuti, <u>N. Lusardi</u>, P. Marino, M. Monti, M. J. Morello, D. Ninci, M. Petruzzo, A. Piucci, G. Punzi, L. Ristori, F. Spinella, S. Stracka, D. Tonelli, J. Walsh, "First results of the silicon telescope using an 'artificial retina' for fast track finding," 2015 4th International Conference on Advancements in Nuclear Instrumentation Measurement Methods and their Applications (ANIMMA), Lisbon, 2015, pp. 1-4. doi: 10.1109/ANIMMA.2015.7465644 Citation 0 (scopus 7) Full Text View 45 Impact Factor 0.36
2014 (7)	
	54. F. Caponio, A. Abba, M. Ran, <u>N. Lusardi</u>, A. Geraci and G. Ripamonti, "Resolution improvements on the novel VCO based time measurements technique," 2014 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC), Seattle, WA, 2014, pp. 1-4. doi: 10.1109/NSSMIC.2014.7431133 Citation 0 (scopus 0) Full Text View 38 55. F. Caponio, A. Abba, <u>N. Lusardi</u>, A. Cusimano and A. Geraci, "A ultra-compact and portable Digital Pulse Processor for Gamma and X-ray spectroscopy," 2014 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC), Seattle, WA, 2014, pp. 1-4. doi: 10.1109/NSSMIC.2014.7431150 Citation 0 (scopus 0) Full Text View 38 56. F. Caponio, A. Abba<u>, N. Lusardi</u> and A. Geraci, "Fully programmable emulator of fast events from setups for radiation detection," 2014 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC), Seattle, WA, 2014, pp. 1-4. doi: 10.1109/NSSMIC.2014.7431134 Citation 0 (scopus 0) Full Text View 18 57. A. Abba, F. Caponio, A. Geraci, <u>N. Lusardi</u> and N. Neri, "Electronic readout system for retina-based cosmic-ray telescope," 2014 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC), Seattle, WA, 2014, pp. 1-4. doi: 10.1109/NSSMIC.2014.7431135 Citation 1 (scopus 0)

	Full Text View 22
	58. <u>N. Lusardi</u>, A. Abba, F. Caponio and A. Geraci, "Quantization noise in non-homogeneous calibration table of a TCD implemented in FPGA," 2014 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC), Seattle, WA, 2014, pp. 1-5. doi: 10.1109/NSSMIC.2014.7431149 Citation 2 (scopus 2) Full Text View 34
	59. F. Caponio, A. Abba, <u>N. Lusardi</u> and A. Geraci, "A digital system for artificial generation of images from radiation detectors," 2014 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC), Seattle, WA, 2014, pp. 1-5. doi: 10.1109/NSSMIC.2014.7431136 Citation 0 (scopus 0) Full Text View 29
	60. F. Caponio, A. Abba, <u>N. Lusardi</u>, A. Geraci and N. Neri, "The readout architecture for the retina-based Cosmic Ray Telescope," 2014 19th IEEE-NPSS Real Time Conference, Nara, 2014, pp. 1-4. doi: 10.1109/RTC.2014.7097516 Citation 1 (scopus 2) Full Text View 26
2013 (3)	61. F. Caponio, A. Abba, <u>N. Lusardi </u>and A. Geraci, "A high-precision Wave Union TDC implementation in FPGA," 2013 IEEE Nuclear Science Symposium and Medical Imaging Conference (2013 NSS/MIC), Seoul, 2013, pp. 1-4. doi: 10.1109/NSSMIC.2013.6829749 Citation 0 (scopus 1) Full Text View 210
	62. A. Abba, F. Caponio, A. Cusimano, <u>N. Lusardi</u>, A. Geraci and C. Tintori, "Digitally controlled generation of time correlated pulses," 2013 IEEE Nuclear Science Symposium and Medical Imaging Conference (2013 NSS/MIC), Seoul, 2013, pp. 1-4. doi: 10.1109/NSSMIC.2013.6829725 Citation 0 (scopus 1) Full Text View 35
	63. A. Abba, F. Caponio, A. Cusimano, <u>N. Lusardi</u> and A. Geraci, "Multichannel digital pulse processor for bi-dimensional detector arrays," 2013 IEEE Nuclear Science Symposium and Medical Imaging Conference (2013 NSS/MIC), Seoul, 2013, pp. 1-4. doi: 10.1109/NSSMIC.2013.6829726 Citation 0 Full Text View 33

SUBMITTED AND ACCEPTED MANUSCRIPTS (10)	
2020 (10)	64. F. Garzetti, <u>N. Lusardi</u>, N. Corna, S. Salgaro, N. Busola, A. Geraci, G. Brajnik, S. Carrato, G. Cautero, M. Cautero, R. Sergo, L. Stebel, "Fully FPGA-based 3D (X,Y,t) imaging system with Cross Delay-Lines detectors and Eight-Channels High-Performance Time-to-Digital Converter", 2020 IEEE Nuclear Science Symposium, October 31 - November 7, 2020, Boston, USA.
	65. <u>N. Lusardi</u>, F. Garzetti, N. Corna, S. Salgaro, N. Bachetti, A. Geraci, "Plug-and-Play Tunable and High-Performance Time-to-Digital Converter as IP-Core for Xilinx FPGAs", 2020 IEEE Nuclear Science Symposium, October 31 - November 7, 2020, Boston, USA.
	66. N. Corna, E. Ronconi, F. Garzetti, <u>N. Lusardi</u>, L. Tavazzani, A. Geraci, "High-Performance Physical-Independent Address-Based Communication Interface for FPGA in Custom Scientific Equipment", 2020 IEEE Nuclear Science Symposium, October 31 - November 7, 2020, Boston, USA.

	67. F. Garzetti, <u>N. Lusardi</u>, N. Corna, S. Salagaro, G. Meanti, A. Geraci, "Synchronization Algorithm in Time-to-Digital Converters Networks", 2020 IEEE Nuclear Science Symposium, October 31 - November 7, 2020, Boston, USA.
	68. F. Garzetti, <u>N. Lusardi</u>, N. Corna, S. Salagaro, G. Locri, A. Geraci, "Ultra-Compact and User-Customizable Instrument for Time Measurements at High-Performance", 2020 IEEE Nuclear Science Symposium, October 31 - November 7, 2020, Boston, USA.
	69. E. Ronconi, N. Corna, S. Salgaro, F. Garzetti, <u>N. Lusardi</u>, L. Bucci, A. Geraci, "SoC-based Architecture for General Purpose Real-Time Histogram Computation", 2020 IEEE Nuclear Science Symposium, October 31 - November 7, 2020, Boston, USA.
	70. N. Corna, <u>N. Lusardi,</u> F. Garzetti, S. Salgaro, K. Quinones, A. Geraci, "Programmable Delay-Line with High-Resolution Time Steps Implemented in a Digital-to-Time Converter IP-Core for FPGAs and SoCs", 2020 IEEE Nuclear Science Symposium, October 31 - November 7, 2020, Boston, USA.
	71. <u>N. Lusardi</u>, S. Salgaro, F. Garzetti, N. Corna, G. Ticozzi, A. Geraci, "FPGA-based Multi-Phase Shift-Clock Fast-Counter Time-to-Digital Converter for Extremely-Large Number of Channels", 2020 IEEE Nuclear Science Symposium, October 31 - November 7, 2020, Boston, USA.
	72. <u>N. Lusardi</u>, F. Garzetti, S. Salgaro, N. Corna, A. Costa, A. Geraci, "Fully-Configurable FPGA-Based Instrument for Multi-Channel and Multi-Histogram Time Measurements at High-Performance", 2020 IEEE Nuclear Science Symposium, October 31 - November 7, 2020, Boston, USA.
	73. S. Salgaro, F. Garzetti, <u>N. Lusardi</u>, N. Corna, A. Geraci, E. Charbon, "Plug-and-Play High-Speed Communication Protocol for Readout-Systems Network Based on FPGA and Gigabit Optical Fiber Network", 2020 IEEE Nuclear Science Symposium, October 31 - November 7, 2020, Boston, USA.

TECHNICAL REPORTS (2)	
2015 (2)	
	74. LHCb Collaborators, (A. Geraci, <u>N. Lusardi</u>), "Studies of the resonance structure in $D^0 \rightarrow K_s^0 K^{\pm} {}^{\square} {}^{\pm}$", Technical Report CERN-PH-EP-20XX-YYY LHCb-PAPER-2015-026, May 18, 2015
	75. LHCb Collaborators, (A. Geraci, <u>N. Lusardi</u>), "Behaviour tagging using charm decays at the LHCb experiment", CERN-PH-EP-20XX-YYY LHCb-PAPER-2015-027, July 15, 2015.

NOT IN PROCEEDINGS BUT PRESENTED IN INTERNATIONAL REFEREED CONFERENCES (3)	
2017 (2)	
	76. <u>N. Lusardi</u>, G. Bulgarini, F. Garzetti, A. Geraci, "FPGA-based Photon Counting and Timing from an Array of Superconducting Nanowire Single Photon Detector" Proc. of the 2017 Nuclear Science Symposium, 21-28 October, 2017, Atlanta, USA.
	77. E. Venialgo, <u>N. Lusardi</u>, F. Garzetti, A. Geraci, E. Charbon, "A Network-Enable PET Detector Module Based on TDCs on FPGA" Proc. of the 2017 Nuclear Science Symposium, 21-28 October, 2017, Atlanta, USA.
2015 (1)	
	78. Abba, F. Bedeschi, F. Caponio, R. Cenci, M. Citterio, S. Coelli, J. Fu, A. Geraci, M. Grizzuti, <u>N. Lusardi</u>, P. Marino, M. Monti, M. J. Morello, N. Neri, D. Ninci, M. Petruzzo, A. Piucci, G. Punzi, L. -Ristori, F. Spinella, S. Stracka, D. Tonelli, J. Walsh, "Real time tracking with a silicon telescope prototype using the "artificial retina" algorithm", Proc. of 13th Pisa Meeting on Advanced Detectors, La Biodola (Italy), May 24-30, 2015.

All attended CONFERENCES	INTERNATIONAL CONFERENCES (11)
2020 (1)	1. **IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS-MIC)**, October 31 – November 7, **2020**, Boston, Massachusetts (USA). – _10 presentations._
2019 (1)	2. **IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS-MIC)**, October 26 – November 2, **2019**, Manchester, United Kingdom (UK). – _7 presentations._
2018 (1)	3. **IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS-MIC)**, November 10 – November 17, **2018**, Sydney, Commonwealth of Australia (AUS). – _7 presentations._
2017 (1)	4. **IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS-MIC)**, October 21 – October 28, **2017**, Atlanta, Georgia (USA). – _6 presentation._
2016 (1)	5. **IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS-MIC)**, October 29 – November 6, **2016**, Strasbourg, France. – _6 presentations._
2015 (1)	6. **IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS-MIC)**, October 31 – November 7, **2015**, San Diego (CA), USA. _– 3 presentations_
2014 (1)	7. **IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS-MIC)**, November 8-15, **2014**, Seattle (WA), USA. – _6 presentations._

Reviewer	INTERNATIONAL JOURNALs (6)
From 2020	AIP Review of Scientific Instruments (RSI), _1 revision_. Microelectronic Journal (MEJ), _4 revision._
From 2019	IEEE Transaction on Biomedical Circuits and Systems (TBioCAS), _3 revisions._
From 2019	IEEE Access, _1 revision_.
From 2018	Aerospace & Electronics Systems Magazine (AESYS), _1 revision_.
From 2017	Journal of Circuits, Systems, and Computers (JCSC), _10 revisions_.

Reviewer	INTERNATIONAL CONFERENCEs
27 – 29 May 2019	EBCCSP Nordic-Mediterranean Workshop on Time-to-Digital Converters and Applications NoMe–TDC 2019, _2 revisions_.

Work experience, stages, collaborations and teaching

Date (from January 2021 – to now)	
Name and address of firm/university	XFEL GmbH, Holzkoppel 4, 22869 Schenefeld, Germany
Type of business or sector	Digital Electronics
Type of employment	Researcher
Main activities and responsibilities	Digital designer and consulting.

Date (from June 2020 – to now)	
Name and address of firm/university	Politecnico di Milano Building 24; via Camillo Golgi 40, 20133 Milano
Type of business or sector	Digital Electronics
Type of employment	Junior Researcher (RTDa)
Main activities and responsibilities	Junior Researcher and Professor of "Fundamentals of Electronics"

Date (from April 2019 – to now)	
Name and address of firm/university	TEDIEL S.r.l.–Start-Up innovativa, C.F./P.IVA 10787620961; via Alberico Albricci 8, 2012 Milano
Type of business or sector	Digital Electronics Design and consulting, Spin-Off of Politecnico di Milano
Type of employment	Co-Founder,
Main activities and responsibilities	Design and Commercialization of innovative solutions based on Digital Electronics

Date (from April 2019 – June 2020)	
Name and address of firm/university	Politecnico di Milano Building 24; via Camillo Golgi 40, 20133 Milano
Type of business or sector	Digital Electronics
Type of employment	Postdoctoral Researcher (Postdoc)
Main activities and responsibilities	Design, realization and characterization of a Local Area Network (LAN) for real-time streaming video targeting to Unmanned Railway Vehicle (URV) for Rete Ferroviaria Italiana (RFI); via Curzio Malaparte 8, 50145 Osmannoro Firenze.
References	Prof. Angelo Geraci

Date (from February 2019 – to now)	
Name and address of firm/university	Politecnico di Milano Building 24; via Camillo Golgi 40, 20133 Milano
Type of business or sector	Digital Electronics
Type of employment	Assistant professor (Language Italian)
Main activities and responsibilities	Assistant professor of the course "Digital Electronics System Design", prof. Angelo Geraci 26 hours: A.A. 2018/19. The activity consists in teaching design techniques and laboratory activities based on FPGA
Reference	Prof. Angelo Geraci

Date (from September 2018 – to January 2019)	
Name and address of firm/university	Politecnico di Milano Building 24; via Camillo Golgi 40, 20133 Milano
Type of business or sector	Electronics
Type of employment	Assistant professor (Language Italian)
Main activities and responsibilities	Tutor on Electronic (prof. Marco Sampietro) targeting for the master degree course of "Analog Circuit Design", prof. Andrea Leonardo Lacaita (20 hours. A.A. 2018/19).
References	Prof. Andrea Leonardo Lacaita, prof. Marco Sampietro

Date (from September 2018 – to December 2018)	
Name and address of firm/university	Politecnico di Milano Building 24; via Camillo Golgi 40, 20133 Milano
Type of business or sector	Electronics
Type of employment	Assistant professor (Language Italian)
Main activities and responsibilities	Assistant professor of the bachelor degree course of "Fundamentals of Electronics", prof. Andrea Giovanni Bonfanti (40 hours. A.A. 2018/19).
References	Prof. Andrea Giovanni Bonfanti

Date (from March 2018 – to March 2019)	
Name and address of firm/university	Politecnico di Milano Building 24; via Camillo Golgi 40, 20133 Milano
Type of business or sector	Digital Electronics
Type of employment	Postdoctoral Researcher (Postdoc)
Main activities and responsibilities	Design, simulation and characterization of innovative architectures for implementing multi-channel high resolution Time-to-Digital converters (TDCs) in Field Programmable Gate Array (FPGA) and System-of-Chip (SoC) devices of manufacturers Altera and Xilinx. The activity was completed with transfer of proposed architectures to specific custom applications. Design of all-programmable hardware/firmware/software bundle for timing measure.
References	Prof.ssa Federica Alberta Villa

Date (from March 2018 – to June 2018)	
Name and address of firm/university	Politecnico di Milano Building 24; via Camillo Golgi 40, 20133 Milano
Type of business or sector	Electronics
Type of employment	Assistant professor (Language English and Italian)
Main activities and responsibilities	Tutor of the bachelor degree course of "Fundamentals of Electronics", prof. Andrea Castoldi (12 hours. A.A. 2017/18).
References	Prof. Andrea Castoldi

Date (from May 2017 - to now)	
Name and address of firm/university	Politecnico di Milano Building 24; via Camillo Golgi 40, 20133 Milano
Type of business or sector	Microcontrollers
Type of employment	Assistant professor (Language English and Italian)
Main activities and responsibilities	Assistant professor of the master and bachelor degree course of "Microcontrollers", prof. Franco Zappa (162 hours. A.A. 2016/17, A.A. 2017/18, and A.A.2018/19). The activity consists programming of PIC series 18 microcontrollers in C language.
References	Prof. Franco Zappa

Date (from April 2017 – to July 2018)	
Name and address of firm/university	École Polytechnique Fédérale de Lausanne, EPFL SB IPHYS GR-GA PH A2 407 (Bâtiment PH) Station 3 CH-1015 Lausanne Switzerland
Type of business or sector	Nanophotonic and quantum-optics research
Type of employment	Electronic engineer
Main activities and responsibilities	Design of a four channels, high resolution, and Time Tagging Time-to-Digital converter (TDC) with Real-Time photons correlator in Field Programmable Gate Array (FPGA) Xilinx Artix7 for Single Photon Avalanche Diode (SPAD) detectors.
Reference	Dr. Christophe Galland

Date (from October 2016 – to now)	
Name and address of firm/university	Elettra Synchrotron of Trieste, SS14, Km 163.5, 34149 Basovizza (TS)
Type of business or sector	Multidisciplinary research
Type of employment	Electronic engineer
Main activities and responsibilities	Design of four channels, multi-hit, high rate and high resolution Time-to-Digital converter (TDC) in Field Programmable Gate Array (FPGA) Xilinx Artix7 for Cross Delay Line (CDL) detectors.
Reference	Prof. Giuseppe Cautero

Date (from 2016 – to now)	
Name and address of firm/university	Fac. EEMCS (building 36), Mekelweg 4, 2628 CD Delft, TU Delft University of Technology
Type of business or sector	Department of Microelectronic, Circuit and System
Type of employment	Electronic engineer
Main activities and responsibilities	Design of multi-channels (up to seventeen) and high resolution Time-to-Digital converter (TDC) in Field Programmable Gate Array (FPGA) with the front-end and the read-out software addressed to SiPMs detectors for PET.
Reference	Prof. Edoardo Charbon

Date (from March 2016 – to June 2017)	
Name and address of firm/university	Politecnico di Milano Building 22; via Camillo Golgi 42, 20133 Milano
Type of business or sector	Radio-Frequency Electronics
Type of employment	Assistant professor (Language English)
Main activities and responsibilities	Assistant professor of the master degree course "Radio-Frequency Circuits Design", prof. Salvatore Levantino (56 hours. A.A. 2015/16, A.A. 2016/17). The activity consists in the numerical analysis of RF Low Noise Amplifier, oscillators, Phase Look Lockers and CAD simulations.
Reference	Prof. Salvatore Levantino

Date (from October 2015 – to December 2017)	
Name and address of firm/university	Politecnico di Milano Building 24; via Camillo Golgi 40, 20133 Milano
Type of business or sector	Digital Electronics
Type of employment	Assistant professor (Language Italian)
Main activities and responsibilities	Assistant professor of the course "Digital Electronics Design", prof. Angelo Geraci 120 hours: A.A. 2015/16, A.A 2016/17, and A.A. 2017/18). The activity consists in teaching design techniques of: mixed analog-digital systems, digital signals analysis and digital filtering methods.
Reference	Prof. Angelo Geraci

Date (from October 2015 – to now)	
Name and address of firm/university	CAEN ELS s.r.l., SS14, Km 163.5, Building Q1, 34149 Basovizza (TS)
Type of business or sector	Electronics Design
Type of employment	Electronic engineer
Main activities and responsibilities	Design of sixteen channels high performance (resolution, precision, full-scale-range and measure rate) Time-to-Digital converter (TDC) in Field Programmable Gate Array (FPGA) Xilinx Virtex5.
Reference	Ing. Mitja Gustin

Date (from July 2015 – to May 2019)	
Name and address of firm/university	Single Quantum B.V., Lorentzweg 1, 2628 CJ Delft.
Type of business or sector	Physics and research
Type of employment	Electronic engineer
Main activities and responsibilities	Design of: read-out software, hardware PCB and firmware for a sixteen channels and high resolution Time-to-Digital converter (TDC) in System-of-Chip (SoC) Zynq addressed to Single Nanowire Single Photon Detector (SNSPD).
Reference	Dr. Gabriele Bulgarini

Date (from June 2015 – to now)	
Name and address of firm/university	CAEN S.p.a., via della Vetraia, 11, 55049 Viareggio (LU)
Type of business or sector	Electronics Design
Type of employment	Electronic engineer
Main activities and responsibilities	Design of multi-channels and high resolution Time-to-Digital converter (TDC) in Field Programmable Gate Array (FPGA) Altera Cyclone I.
Reference	Dr. Carlo Tintori, Dr. Jacopo Givoletti

Date (from October 2014 – to now)	
Name and address of firm/university	INFN, via Giovanni Celoria, 16, 20133 Milano (MI)
Type of business or sector	Research
Type of employment	Electronic engineer
Main activities and responsibilities	Design digital electronic circuits in FPGA for data processing and circuits for them read out.

Date (from October 2014 – to July 2015)	
Name and address of firm/university	CERN, Meyrin, Swiss, Genevre
Type of business or sector	Research, LHCb experiment
Type of employment	Electronic engineer
Main activities and responsibilities	Design digital electronic circuits in FPGA for data processing and circuits for them read out process from the beam.
Reference	Dr. Nicola Neri

Date (from August 2013 – to August 2017)	
Name and address of firm/university	All Cobo a.s.d. in Piscina Comunale di Calendasco (PC)
Type of business or sector	Sport
Type of employment	Lifeguard and swimming instructor
Main activities and responsibilities	Assistance, control room, swimming lessons.
Reference	Giancarlo Boselli

Date (from June 2008 – to September 2012)	
Name and address of firm/university	Acquelaria s.r.l. in Piscina comunale di Gragnano Trebbiense (PC)
Type of business or sector	Sport
Type of employment	Lifeguard and swimming instructor
Main activities and responsibilities	Assistance, control room, swimming lessons.
Reference	Luciana Maserati (+39 335 5421596)

Date (from June 2008 – to July 2008)	
Name and address of firm/university	SELTA S.p.a, Roveleto di Cadeo, via Emilia 231, 29010 Cadeo PC (PC)
Type of business or sector	Electronics and Telecommunications
Type of employment	Laboratory Technician
Main activities and responsibilities	Training stage
Reference	Prof. Patrizia Ballerini (+39 392 7882683)

Personal skills and competences

Mother tongue	Italian

Other language(s)

English	
reading	Very Good
writing	Good
speaking	Good

French	
reading	Elementary
writing	Elementary
speaking	Elementary

Social skills and competences	Thanks to the experience in research and teaching activity I improved both my communication skills and work competence. During all my activity, I have always organized my work with minimal supervision and directed the work of a small research team motivating others to produce a high standard of work with cooperative attitude. In particular, I have been co-advisor of several thesis for the M.Sc. graduation in Electrical Engineering. Through the seasonal employment as qualified lifeguard and swimming instructor, I have gained many years of experience in interacting positively and constructively with people of very different age and character. Thanks to the activity as a musician I have had the opportunity to play with bands very different from each other in terms of persons and styles of music. This gave me the opportunity to know and relate with people of ability, character, and very different social backgrounds. No less important has been the development of the ability to interact with the audience that is very diverse depending on the circumstances.

Organisational skills and competences	Since the subject of my activity, i.e. design of innovative digital solution for timing of signals at very high resolution, has become the mainstream activity of the group, my responsibility has grown up a lot in managing both human resources and research strategies. I have always organized my work with minimal supervision and directed the work of other researchers motivating them to produce high standard of work with cooperative attitude. In particular, I am constantly co-advisor of several thesis for the M.Sc. graduation in Electrical Engineering The seasonal employment and the experiences of group work at school/university taught me to work in a team with the role of leader and participant. The hobby of music led me to found a band of five elements, of which I take care of a large part of the economic and artistic organization.

I authorize the use of personal data contained in my resume on the basis art. 13 of Legislative Decree no.196/2003.

(Autorizzo il trattamento dei dati personali contenuti nel mio curriculum vitae in base art. 13 del D. Lgs. 196/2003)

Technical skills and competences	• Design, realization and analysis of analog and digital electronic systems.
	• Full mastery of the techniques and of the instrumentation of the electronic laboratory.
	• Professional knowledge of description of electronic circuits through VHDL and Verilog language (ISE, Vivado, QuartusII) and debugging.
	• Professional knowledge of programming languages Assembler, C, C++.
	• High level knowledge of tools C++ Builder and LabView.
	• Professional knowledge of the environments MatLab and Simulink.
	• High level knowledge of PSpice for simulation and virtual emulation.
	• Basic level knowledge of Cadence Virtuoso for simulation and virtual emulation.
	• Professional knowledge of the tools for circuit CAD Altium.
	• Basic level knowledge of tools for circuit CAD OrCad.
	• Professional knowledge of the platform Microsoft Office and of the operating system Windows.
	• Basic level knowledge of the operating system Linux.

Artistic skills and competences	Maestro di Clarinetto. Component of the orchestra "Corpo Bandistico Giovanni Vittadini" of Livraga (LO). Former Component of the orchestra "a fiati" of the Conservatorio "G.Nicolini", of the orchestra of Agazzano "Luigi Cremona" and "Corpo Bandistico Carlo Vignola" of Agazzano (PC).

Other skills and competences	Patent of lifeguard and swim instructor from 2008. From 2004 to 2007 he participated in various activities of installation and servicing of audio and video systems, industrial and domestic.

Additional information	The Diploma of Clarinet and the skill in playing saxophone that I have learned as a self-taught, gave me the chance to become Maestro of Music as staff member of the Music School of the "Corpo Bandistico di Agazzano" (PC). My knowledge in music allow me to be a co-founder and member of a wind quintet called "Sax Symbols" since 2012.

Milano, 28 Dicembre 2020