

# Stefano Carrazza

## Curriculum Vitae

Dipartimento di Fisica UNIMI  
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### Research Interests

Machine learning and AI techniques for physics and sciences.  
Parton distribution functions (PDFs) determination and correlated technologies.  
Monte Carlo event generators, simulation/computational tools for physics.  
Quantum computing and quantum information.

### Education

- 2011 → 2014 **PhD in Theoretical Physics**, *Università degli Studi di Milano*, Milan, Italy.  
Parton distribution functions with QED corrections.
- 2009 → 2011 **Master Degree in Physics**, *École Normale Supérieure*, Lyon, France.  
Particle physics and quantum field theory.
- 2006 → 2009 **Bachelor Degree in Physics**, *École Normale Supérieure*, Lyon, France.  
Physics and matter sciences.

### Teaching

- Since 2021 **Tecniche di calcolo e sistemi operativi, 2 hours**, *Università degli Studi di Milano*.
- Since 2020 **Trattamento delle immagini per medicina nucleare, 8 hours**, *UNIMI*.
- Since 2018 **Informatica per fisici, 60 hours**, *Università degli Studi di Milano*.
- Since 2019 **Introduction to machine learning, 15 hours**, *Università degli Studi di Milano*.
- Since 2019 **Introduction to AI for Medical Physics, 2 hours**, *Università degli Studi di Milano*.
- November 2017 **Abilitazione scientifica nazionale per la II fascia, settore concorsuale 02/A2**.  
art. 16, comma 1, Legge 240/10
- 2012 – 2014 **Quantum Mechanics I-II**, *Università degli Studi di Milano*.  
Teaching assistant for the course.
- September 2013 **Mathematics for Biological Sciences**, *Università degli Studi di Milano*.  
40 hours of lectures for the 1th year undergraduate students.

### Professional Experience

- since January 2020 **Scientific collaboration at the QRC**.
- since October 2018 **Researcher**, *Università degli Studi di Milano*, Milan.
- since October 2018 **N3PDF R&D coordinator**.
- since June 2017 **NNPDF R&D coordinator**.
- Oct. '15 – Sep. '18 **CERN fellow**, *CERN*, Geneva.
- Nov. '14 – Sep. '15 **Milan university fellow on a European Investment Bank EIBURS grant**, Milano.
- Visiting Scientist**
- Oct. – Dec. 2014 **Visiting PhD student on the aMC@NLO ERC grant.**, *CERN*, Geneva.
- Internships in Research**
- April – August 2011 **Internship and master thesis in Experimental Particle Physics**, *CERN*, Geneva.

- Thesis title Strange particle production in heavy-ion collisions with the ALICE experiment at CERN LHC.  
 Advisors Dr. Cvetan Chechkov and Dr. Peter Hristov
- May – August 2010 **Internship in Particle Physics and Computing**, CERN, Geneva.
- Thesis title Study of particle identification and jet reconstruction performance of the ALICE detector at LHC.  
 Advisor Dr. Matevz Tadel
- June – July 2009 **Internship and bachelor thesis in Cavity QED**, LKB, *École Normale Supérieure*, Paris.
- Thesis title Non-local fields.  
 Advisors Prof. Serge Haroche (Nobel Prize in Physics 2012) and Prof. Jean-Michel Raimond
- June – July 2008 **Internship in Nonlinear Optics**, LASIM, Lyon.
- Thesis title Frequency doubling and Hyper Rayleigh scattering.  
 Advisor Prof. Pierre-François Brevet

## Participation in Conferences and Workshops

- May 2020 **LHCP2020**, Paris.
- July 2019 **BOOST19**, Boston.
- July 2019 **QCD@LHC19**, Buffalo.
- June 2019 **PHOTON19**, Frascati.
- March 2019 **ACAT19**, Saas-Fee.
- February 2019 **FPGA for HEP**, Zurich.
- November 2018 **PDF4LHC**, CERN.
- November 2018 **Quantum computing in HEP**, CERN.
- September 2018 **NNPDF and N3PDF warnup meeting**, Gargnano.
- September 2018 **23rd ETSF workshop on electronic excitations**, Milan.
- June 2018 **Tsinghua Workshop on Machine Learning in Geometry and Physics**, Sanya.
- March 2018 **PDF4LHC**, CERN.
- September 2017 **PDF4LHC**, CERN.
- August 2017 **ACAT17**, Seattle.
- June 2017 **LH 2017**, Les Houches.
- January 2017 **Cracow Epiphany Conference**, Cracow.
- June 2016 **ICML**, New York.
- May 2016 **PP @ LHC 2016**, Pisa.
- April 2016 **PDF4LHC**, CERN.
- March 2016 **Recontres de Moriond**, La Thuile.
- January 2016 **CMS Workshop**, CERN.
- October 2015 **PDF4LHC**, CERN.
- October 2015 **FCC-hh 100 TeV Workshop**, CERN.
- September 2015 **QCD@LHC**, London.
- April 2015 **PDF4LHC**, CERN.
- February 2015 **Parton Distributions for the LHC**, Benasque.
- January 2015 **PDF4LHC**, CERN.
- November 2014 **PDF4LHC**, CERN.
- June 2014 **XXII Milan European Economy Workshop, EIBURS workshop**, Milan.
- May 2014 **PDF4LHC**, CERN.
- February 2014 **Les Rencontres de Physique de la Vallée d'Aoste**, La Thuile.
- December 2013 **PDF4LHC**, CERN.

- April 2013 **DIS2013**, Marseille.
- April 2013 **EW/PDF4LHC meeting**, CERN.
- March 2013 **Rencontres de Moriond**, La Thuile.
- September 2012 **EW/PDF4LHC meeting**, Durham.
- May 2012 **EW/PDF4LHC meeting**, CERN.
- June 2011 **Quark Matter Annecy 2011**, Annecy.
- August 2006 **London International Youth Science Forum**, London.

## Talks

- September 2020 **QC-CERN**, *Introduction to Quantum Machine Learning*, CERN.
- October 2020 **QC-CERN**, *Introduction to Qibo*, CERN.
- September 2020 **CQT**, *Quantum simulation with hardware acceleration*, Singapore.
- September 2020 **IML**, *Accelerating MC simulation across platforms*, CERN.
- May 2020 **LHCP2020**, *Parton densities with deep learning models*, Paris.
- May 2020 **CSIL**, *The role of big data in the era of COVID-19*, Milan.
- July 2019 **BOOST19**, *Jet grooming with reinforcement learning*, Boston.
- July 2019 **QCD@LHC19**, *Jet grooming with reinforcement learning*, Buffalo.
- 3 June 2019 **PHOTON19**, *PDFs and EW corrections*, Frascati.
- 3 April 2019 **IFT ICTP SAIFR**, *Machine learning applied to theoretical high-energy physics*, Sao Paulo.
- 12 March 2019 **ACAT19**, *Riemann-Theta Boltzmann Machine*, Saas-Fee.
- 18 September 2018 **NNPDF/N3PDF warnup meeting**, *Machine Learning Notes*, Gargnano.
- 10 September 2018 **23rd ETSF workshop on electronic excitations**, *Machine Learning Overview*, Milan.
- 14 June 2018 **Tsinghua Workshop on ML**, *Riemann-Theta Boltzmann Machine*, Sanya.
- 14 June 2018 **Tsinghua Workshop on ML**, *ML and PDFs*, Sanya.
- 28 March 2018 **PDF4LHC**, *NNPDF3.1luxQED*, CERN.
- 21 August 2017 **ACAT17**, *NNPDF3.1*, Seattle.
- 21 August 2017 **ACAT17**, *ML in HEP-TH*, Seattle.
- 9 January 2017 **Cracow Epiphany Conference**, *Towards NNPDF3.1*, Cracow.
- 18 May 2016 **PP @ LHC 2016**, *Parton Distribution Functions*, Pisa.
- 24 March 2016 **Rencontres de Moriond**, *PDF tools for LHC Run II*, La Thuile.
- 28 January 2016 **CMS Workshop**, *Threshold resummation at highest energies*, CERN.
- 9 October 2015 **FC-hh 100 TeV**, *Large  $x$  PDFs at 100 TeV*, CERN.
- 1 September 2015 **QCD@LHC**, *On the impact of lepton PDFs*, London.
- 13 April 2015 **PDF4LHC**, *An unbiased Hessian representation of MC PDFs*, CERN.
- 20 February 2015 **Parton Distributions for the LHC**, *CMC-PDFs*, Benasque.
- 3 November 2014 **PDF4LHC**, *Compression of Monte Carlo PDF replicas*, CERN.
- 24 June 2014 **TASI 2014**, *Neural Network PDFs*, Boulder.
- 24 February 2014 **La Thuile 2014**, *PDFs with QED corrections*, La Thuile.
- 13 December 2013 **EW/PDF4LHC**, *APFEL package and interface*, CERN.
- 19 November 2013 **HERAFitter User's meeting**, *APFEL updates and new features*.
- 24 April 2013 **DIS2013**, *Electroweak corrections to parton distributions*, Marseille.
- 17 April 2013 **EW/PDF4LHC**, *NNPDF updates and EW corrections*, CERN.
- 13 March 2013 **Rencontres de Moriond**, *Electroweak corrections to parton distributions*, La Thuile.
- 31 August 2012 **International School Cargese 2012**, *Parton distributions with LHC data*, Cargese.

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## Teaching in PhD schools

- June 2020 **MCnet Machine Learning School**, Lund.
- September 2019 **TAE 2019**, Benasque.
- July 2019 **ML lectures UNIMI**, Milan.
- September 2018 **TAE 2018**, Benasque.

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## Organization of conferences

- December 2020 **LHCP2021 convenor for Tools section**, Paris.
- September 2020 **AML2021 organizer AI and Physics**, EPFL.
- January 2020 **AML2020 organizer AI and Physics**, EPFL.
- July 2019 **QCD@LHC19 convenor PDFs/alphas**, University of Buffalo.
- March – April 2018 **IFAE XVII convenor**, University of Milan-Bicocca.

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## Participation in Summer Schools

- June 2014 **TASI 2014**, Boulder.
- October 2013 **School of Analytic Computing in Theoretical HEP**, Atrani.
- August 2013 **2013 CERN-Fermilab HCP Summer School**, CERN.
- August 2012 **International School Cargese 2012**, Cargese.
- January 2012 **LHCPhenonet Winter School**, Ascona.

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## Research outcome

Citation summary: **h-index 28**, *INSPIRE*, 10217 citations from 69 citeable papers, on January 3, 2021.  
**h-index 28**, **i10-index 43**, *Google Scholar*, 17143 citations, on January 3, 2021.

### Articles

- [1] A. Pérez-Salinas, J. Cruz-Martinez, A. A. Alhajri, S. Carrazza, Determining the proton content with a quantum computer (11 2020). [arXiv:2011.13934](https://arxiv.org/abs/2011.13934).
- [2] M. Lazzarin, S. Alioli, S. Carrazza, MCNNTUNES: tuning Shower Monte Carlo generators with machine learning (10 2020). [arXiv:2010.02213](https://arxiv.org/abs/2010.02213).
- [3] S. Carrazza, J. M. Cruz-Martinez, M. Rossi, PDFFlow: parton distribution functions on GPU (9 2020). [arXiv:2009.06635](https://arxiv.org/abs/2009.06635).
- [4] S. Efthymiou, S. Ramos-Calderer, C. Bravo-Prieto, A. Pérez-Salinas, D. García-Martín, A. Garcia-Saez, J. I. Latorre, S. Carrazza, Qibo: a framework for quantum simulation with hardware acceleration (2020). [arXiv:2009.01845](https://arxiv.org/abs/2009.01845).
- [5] S. Carrazza, E. Nocera, C. Schwan, M. Zaro, PineAPPL: combining EW and QCD corrections for fast evaluation of LHC processes, *JHEP* 12 (2020) 108. [arXiv:2008.12789](https://arxiv.org/abs/2008.12789), doi: 10.1007/JHEP12(2020)108.
- [6] S. Forte, S. Carrazza, Parton distribution functions (8 2020). [arXiv:2008.12305](https://arxiv.org/abs/2008.12305).
- [7] D. García-Martín, E. Ribas, S. Carrazza, J. Latorre, G. Sierra, The prime state and its quantum relatives, *Quantum* 4 (2020) 371. doi:10.22331/q-2020-12-11-371. URL <http://dx.doi.org/10.22331/q-2020-12-11-371>
- [8] S. Carrazza, J. M. Cruz-Martinez, VegasFlow: accelerating Monte Carlo simulation across multiple hardware platforms, *Computer Physics Communications* 254 (2020) 107376. [arXiv:2002.12921](https://arxiv.org/abs/2002.12921), doi:<https://doi.org/10.1016/j.cpc.2020.107376>.

- [9] S. Carrazza, F. A. Dreyer, Lund jet images from generative and cycle-consistent adversarial networks, *Eur. Phys. J. C* 79 (11) (2019) 979. [arXiv:1909.01359](#), [doi:10.1140/epjc/s10052-019-7501-1](#).
- [10] S. Carrazza, J. Cruz-Martinez, Towards a new generation of parton densities with deep learning models, *Eur. Phys. J. C* 79 (8) (2019) 676. [arXiv:1907.05075](#), [doi:10.1140/epjc/s10052-019-7197-2](#).
- [11] R. Abdul Khalek, et al., Parton Distributions with Theory Uncertainties: General Formalism and First Phenomenological Studies, *Eur. Phys. J. C* 79 (11) (2019) 931. [arXiv:1906.10698](#), [doi:10.1140/epjc/s10052-019-7401-4](#).
- [12] S. Carrazza, C. Degrande, S. Iranipour, J. Rojo, M. Ubiali, Can New Physics hide inside the proton?, *Phys. Rev. Lett.* 123 (13) (2019) 132001. [arXiv:1905.05215](#), [doi:10.1103/PhysRevLett.123.132001](#).
- [13] R. Abdul Khalek, et al., A first determination of parton distributions with theoretical uncertainties, *Eur. Phys. J. C* (2019) 79:838. [arXiv:1905.04311](#), [doi:10.1140/epjc/s10052-019-7364-5](#).
- [14] S. Carrazza, F. A. Dreyer, Jet grooming through reinforcement learning, *Phys. Rev. D* 100 (1) (2019) 014014. [arXiv:1903.09644](#), [doi:10.1103/PhysRevD.100.014014](#).
- [15] S. Carrazza, D. Krefl, Sampling the riemann-theta boltzmann machine, *Computer Physics Communications* 256 (2020) 107464.
- [16] S. Carrazza, R. Frederix, K. Hamilton, G. Zanderighi, MINLO t-channel single-top plus jet, *JHEP* 09 (2018) 108. [arXiv:1805.09855](#), [doi:10.1007/JHEP09\(2018\)108](#).
- [17] R. D. Ball, S. Carrazza, L. Del Debbio, S. Forte, Z. Kassabov, J. Rojo, E. Slade, M. Ubiali, Precision determination of the strong coupling constant within a global PDF analysis, *Eur. Phys. J. C* 78 (5) (2018) 408. [arXiv:1802.03398](#), [doi:10.1140/epjc/s10052-018-5897-7](#).
- [18] D. Krefl, S. Carrazza, B. Haghighat, J. Kahlen, Riemann-Theta Boltzmann Machine, [arXiv:1712.07581](#), [doi:10.1016/j.neucom.2020.01.011](#).
- [19] V. Bertone, S. Carrazza, N. P. Hartland, J. Rojo, Illuminating the photon content of the proton within a global PDF analysis, *SciPost Phys.* 5 (2018) 008. [arXiv:1712.07053](#), [doi:10.21468/SciPostPhys.5.1.008](#).
- [20] V. Bertone, S. Carrazza, N. P. Hartland, E. R. Nocera, J. Rojo, A determination of the fragmentation functions of pions, kaons, and protons with faithful uncertainties, *Eur. Phys. J. C* 77 (8) (2017) 516. [arXiv:1706.07049](#), [doi:10.1140/epjc/s10052-017-5088-y](#).
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- [23] R. D. Ball, V. Bertone, M. Bonvini, S. Carrazza, S. Forte, A. Guffanti, N. P. Hartland, J. Rojo, L. Rottoli, A Determination of the Charm Content of the Proton, *Eur. Phys. J. C* 76 (11) (2016) 647. [arXiv:1605.06515](#), [doi:10.1140/epjc/s10052-016-4469-y](#).
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URL <http://inspirehep.net/record/1391315/files/arXiv:1509.00209.pdf>
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- [31] M. Bonvini, S. Marzani, J. Rojo, L. Rottoli, M. Ubiali, R. D. Ball, V. Bertone, S. Carrazza, N. P. Hartland, Parton distributions with threshold resummation, *JHEP* 09 (2015) 191. arXiv:1507.01006, doi:10.1007/JHEP09(2015)191.
- [32] S. Carrazza, S. Forte, Z. Kassabov, J. I. Latorre, J. Rojo, An Unbiased Hessian Representation for Monte Carlo PDFs, *Eur. Phys. J. C* 75 (8) (2015) 369. arXiv:1505.06736, doi:10.1140/epjc/s10052-015-3590-7.
- [33] S. Carrazza, J. I. Latorre, J. Rojo, G. Watt, A compression algorithm for the combination of PDF sets, *Eur. Phys. J. C* 75 (2015) 474. arXiv:1504.06469, doi:10.1140/epjc/s10052-015-3703-3.
- [34] V. Bertone, S. Carrazza, E. R. Nocera, Reference results for time-like evolution up to  $\mathcal{O}(\alpha_s^3)$ , *JHEP* 1503 (2015) 046. arXiv:1501.00494, doi:10.1007/JHEP03(2015)046.
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- [39] V. Bertone, S. Carrazza, J. Rojo, APFEL: A PDF Evolution Library with QED corrections, *Comput.Phys.Commun.* 185 (2014) 1647–1668. arXiv:1310.1394, doi:10.1016/j.cpc.2014.03.007.
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URL <http://lss.fnal.gov/archive/2016/conf/fermilab-conf-16-175-ppd-t.pdf>
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- [51] J. M. Cruz-Martinez, S. Carrazza, R. Stegeman, Studying the parton content of the proton with deep learning models, in: Artificial Intelligence for Science, Industry and Society (AISIS2019) Mexico City, Mexico, October 21-25, 2019, 2020. [arXiv:2002.06587](#).
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- [53] S. Carrazza, F. A. Dreyer, libGroomRL: Reinforcement Learning for Jets, 2019. [arXiv:1910.00410](#).
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- [55] S. Carrazza, Machine learning challenges in theoretical HEP, in: 18th International Workshop on Advanced Computing and Analysis Techniques in Physics Research (ACAT 2017) Seattle, WA, USA, August 21-25, 2017, 2017. [arXiv:1711.10840](#).  
URL <http://inspirehep.net/record/1639467/files/arXiv:1711.10840.pdf>
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URL [http://inspirehep.net/record/1512989/files/1512294\\_19-25.pdf](http://inspirehep.net/record/1512989/files/1512294_19-25.pdf)
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URL <http://inspirehep.net/record/1473186/files/arXiv:1606.09248.pdf>
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URL <http://inspirehep.net/record/1459049/files/arXiv:1605.04345.pdf>
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- [67] S. Carrazza, Towards an unbiased determination of parton distributions with QED corrections, 2013. arXiv:1305.4179.
- Softwares**
- [68] S. Carrazza, M. Lazzarin, N3pdf/mcnntunes: mcnntunes 0.1.0 (Oct. 2020). doi:10.5281/zenodo.4071125.  
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URL <http://libhfill.hepforge.org>
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## Participation in funded grants

- 2019 – 2020 **PI**, *New hardware for HEP*, Linea 2A, University of Milan.
- Since 2017 **Scientific Advisory Board**, *NNPDF ERC Advanced grant N.740006*, Stefano Forte, University of Milan.
- Since 2015 **Postdoc**, *HICCUP ERC Consolidator grant N.614577*, Giulia Zanderighi, CERN.
- 2013 – 2016 **Postdoc**, *European Investment Bank EIBURS grant*, Cost/Benefit Analysis in the Research, Development and Innovation Sector, University of Milan.
- 2010 – 2011 **PhD student**, *PRIN 2010-2011*.  
University of Milan

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## Supervision of PhD students

- 2019 **Marco Rossi**, *Investigating Anomaly Effects in HEP with GANs*, Milan.

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## Supervision of Master Students

- 2021 **Andrea Pasquale**, *Monte Carlo integration techniques*, Master thesis, Milan.
- 2021 **Sara Gelmini**, *A framework for COVID-19 patients analysis with radiomics and AI tools*, Master thesis, Milan.
- 2020 **Nicola Lambri**, *Optimization of PDF uncertainties*, Master thesis, Milan.
- 2020 **Luca Colombo Gomez**, *Deep learning for pediatric predictions*, Master thesis, Milan.
- 2020 **Raffaella Cabini**, *DL approach to MR Fingerprinting*, Master thesis co-supervisor, Milan.
- 2019 **Emilio Villa**, *Investigating GPU hardware for fast PDF convolutions*, Master thesis, Milan.
- 2019 **Marco Rossi**, *Investigating Anomaly Effects in HEP with GANs*, Master thesis, Milan.
- 2019 **Andrea Papaluca**, *Infinite state machine*, Master thesis, Milan.
- 2019 **Luca Talon**, Master thesis co-supervisor, Milan.

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## Supervision of Bachelor Students

- 2019 **Marco Zanchi**, *Machine learning for sports*, Bachelor thesis, Milan.
- 2019 **Marco Lazzarin**, *Monte Carlo tune using ML*, Bachelor thesis, Milan.
- 2019 **Elisa Radaelli**, *Charm determination using NNPDF*, Bachelor thesis co-supervisor, Milan.
- 2018 **Alexa Martin**, *NNPDF*, MIT visiting student, Milan.
- 2017 **Omar Pastafiglia**, *Web application for Feynman diagrams*, Bachelor thesis in CS, Milan.
- 2016 **Francesco d'Ambrosio**, *PDF fits with inconsistent data*, Bachelor thesis in physics, Milan.
- 2014 **Fabrizio Cimaglia**, *PDF reweighting*, Bachelor thesis in physics, Milan.
- 2014 **Daniele Palazzo**, *APFEL Web interface to PDFs*, Bachelor thesis in CS, Milan.

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## Interdisciplinary Activities

- 2013 – 2016 **Cost/Benefit Analysis in the Research, Development and Innovation Sector**, Milan.  
The research project “Cost/Benefit Analysis in the Research, Development and Innovation Sector” aims at developing and testing a model for evaluating Big Science. The developed model will enable funding agencies to assess the potential future net social benefits generated by a research infrastructure and the uncertainty and risks associated to it.
- 2013 **Startup & Business Planning**, *SDA Bocconi School of Management*, Milan.  
Lectures held by Prof. Cinzia Parolini organized by Start Cup Milano Lombardia 2013 for the finalists of the competition.
- 2009 **Business management: Evolution and Dynamics**, *École Normale Supérieure Lettres et Sciences Humaines*, Lyon.  
Special lectures focused in econo-physics techniques to describe and predict the evolution and dynamics of business models, identifying the quality and measuring the efficiency of new business proposals and strategies.

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## Patents

- 2009 **SHAPE project**, *Participation in WO/2009/125148 for HRS Computing*, Lyon.  
HRS Computing is a scientific software that simulates the "Hyper Rayleigh Scattering" (HRS), which is a nonlinear optics phenomenon. It allows the visualization of simulated polar graphics generated by HRS, giving different theoretical coefficients that can be useful to determine the microscopic structure of composites, molecules.

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## Prices and Awards

- 2017 **Premio Sergio Fubini 2016**, Catania.  
INFN CSN4 national price for the best PhD thesis in theoretical particle physics of 2015-2016.
- 2006 **European Union Contest for Young Scientists, Italian section**, Milan.  
Participation with the project “Standing Waves” in which an innovative experimental setup was proposed in order to observe and study the propagation of standing waves in the air.

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## Media and Press

- 2015 **Aragon TV**, *Link to the video (minute 25)*.  
Interview during the PDF for LHC workshop in Benasque.
- 2006 **Corriere della Sera**, *Article in an Italian newspaper*.  
Interview during the final selection of the competition “I Giovani e le Scienze”.

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## Computer skills

- GitHub: <https://github.com/scarrazza>
- Operating Systems: Linux, Windows, MacOS.
- Languages: C/C++, Fortran, Java, Python, PHP/HTML, BASH, L<sup>A</sup>T<sub>E</sub>X.
- Libraries: ROOT, Qt, OpenGL, OpenMP, VTK, GTK+, .Net Framework.
- Hardware: OpenCL, CUDA, Xilinx FPGA.
- Software: Mathematica, Matlab, Labview, Scilab, Maxima, Sage, Blender.

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## Entrepreneurship Activities

- Development of a toolbox for sensitivity and risk analysis in technological and scientific investment projects (CSIL).
- Development of Android and Web Applications for the scientific community: Sensorial analysis app for the “Salone Internazionale del Gusto Torino”, October 23-27th 2014
- Development of Android applications for general public: statistical calculators and others.

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## Languages

- Fluent in English, Italian, French, Spanish and Portuguese.

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## General information

- *Last update: January 3, 2021*
- *Author: Stefano Carrazza*