

SIMONE ROSSI TISBENI

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EDUCATION

PhD student in Data Science and Computation

Nov 2021 - ongoing

University of Bologna, Italy

RELEVANT COURSEWORK

- Data Mining
- Web Semantic
- Statistics
- Deep Learning
- Applied Machine Learning

Master's Degree in Physics

Sep. 2017 - Jul 2019

University of Bologna, Italy

110 with honours

RELEVANT COURSEWORK

- Complex Systems
- Data Analysis
- Pattern Recognition
- Image Analysis
- Complex Networks
- Numerical Models

Bachelor's Degree in Physics

Sep. 2011 - Jul 2017

University of Bologna, Italy

ADDITIONAL TRAINING

Fundamentals of accelerated computing with Cuda C++

10 Sep 2022

Nvidia Deep Learning Institute

Krakov, PL

Lectures on fundamental tools and techniques for running GPU-accelerated C++ applications using CUDA GPUs and the NVCC compiler.

CERN School of Computing

5 - 17 Sep 2022

CERN - AGH - IFJ PAN

Krakov, PL

50 hours of lectures and hands-on exercises, covering three main themes: physics computing, software engineering, and data technologies.

INFN School of Statistics

15 - 20 May 2022

INFN

Paestum, SA

Lectures and hands-on on probability theory, statistical methods, multivariate techniques and software tools used for statistical evaluations in particle, astro-particle and nuclear physics.

Bertinoro International Spring School 2022

7 - 11 Mar 2022

Italian Computer Science PhD granting institutions

Online

Lectures on three topics: Towards developmental machine learning; Opinions and conflict in social networks: models, computational problems, and algorithms; From cloud to serverless through microelements.

Fundamentals of accelerated computing with Cuda Python

16 Nov 2021

Nvidia Deep Learning Institute

Online

Lectures on fundamental tools and techniques for running GPU-accelerated Python applications using CUDA GPUs and the Numba compiler.

Efficient Scientific Computing

4 - 9 Oct 2021

INFN

Ce.U.B. Bertinoro, Italy

Hands-on and lectures on trends in hardware architectures and parallel programming, with more in-depth lessons on modern C++, effective memory usage, floating-point computation and programming in a heterogeneous world combining multi-threading, GPUs and clusters.

Inverted CERN School of Computing

28 Sep 2020 - 2 Oct 2020

CERN

Online

Lectures, exercises and demonstrations on programming paradigms and design patterns, reconstruction and imaging, modern C++ features and Big Data processing with SQL.

Second Summer School on Physical Sensing and Processing 20 - 24 Jul 2020
University of Bologna *Online*

Seminars and workshops on data acquisition and processing, the extraction of scientific results and their publication.

Training on Ansible/Foreman/Puppet 10 - 13 Feb 2020
INFN-CNAF *Bologna, Italy*

Introduction to the most common tools for provisioning and automatic configuration of operating systems and IT services with hands-on demonstrations and exercises.

Big Data Management infrastructures and Analytics 9 - 12 Dec 2019
INFN-CNAF *Bologna, Italy*

Seminars and demonstration on tools for infrastructures management for big data analysis (cloud, container and their orchestration), data management technologies (HDFS, Spark, Kafka), and application of Machine Learning techniques to big data.

Third international School on Open Science Cloud 16 - 21 Sep 2019
INFN-CNAF - University of Bologna - University of Perugia *Bologna, Italy*

Introduction to Statistical Learning, Intelligence Systems and Infrastructure for Data Science, with hands-on experiences on Machine Learning (Tensorflow, Pytorch), use of Containers (Docker) and orchestration of Cloud systems.

Summer School on Physical Sensing and Processing 3 - 10 Jul 2019
University of Bologna *Bologna, Italy*

Seminars and workshops on introduction to big data acquisition and processing of physical sensors data, with hands-on experience on machine learning techniques.

Summer School on Introduction to Complex Systems 27 - 31 Aug 2018
USS - Utrecht University *Utrecht, NL*

Recognise complex systems in environmental, engineering, scientific and social problems, with hands-on experiences from theory of dynamical systems and networks.

Training on work safety and health. 27 - 31 Aug 2018
Risk sector: Physical-astronomic *Online*

TEACHING ACTIVITIES

Tutoring for the course unit "Applied Machine Learning - Basics" Jan 2022 - ongoing
University of Bologna *Bologna, Italy*

Teaching assistance and evaluation of final projects and reports.

Tutoring for the course unit "Computer Programming in Physics" Feb 2020 - ongoing
University of Bologna *Bologna, Italy*

Training and teaching assistance for hands-on exercises in C++ programming. Frontal lectures on tools, such as Git. Evaluation of the final coding projects and reports.

Tutoring and Learning support Dec 2019 - Feb 2020
Oper CBI - Digital Transformation *Bologna, Italy*

Learning support in digital transformation themes and assistance to students in applying machine learning and data analysis techniques to challenges proposed by various companies (CAMST Group, YOOX Net-a-porter Group). 16 hours of frontal and remote lessons.

WORKING EXPERIENCE

Technological research fellowship Dec 2019 - Oct 2021
INFN-CNAF *Bologna, Italy*

Development of advanced systems for data collection and analysis using Big Data Analytics and Artificial Intelligence techniques for Predictive Maintenance of large datacenters.

Tutoring for the Internship Office of the School of Science*University of Bologna***Dec 2017 - Aug 2018***Bologna, Italy*

400 hours of tutoring at the Internship Office as secretary assistant at help desk position.

RESEARCH AND TECHNOLOGICAL ACTIVITIES

IoTwinns technological research**Sep 2019 - Oct 2021***Horizon 2020 - Distributed Digital Twins for industrial SME*

- Management of cloud resources and vms on dedicated tenants for partner's testbed and use cases.
- Integration of a monitoring infrastructure, developed for HPC environments, on orchestrated cloud resources.

Big Data Platform for Analytics at CNAF**Sep 2019 - Jun 2021***INFN-CNAF**Bologna, Italy*

- Managed the development of a layered architecture for data collection and analysis for log files and monitoring metrics of a large scale datacentre.
- Integration of an orchestrated containerised platform for Big Data Analytics of batch data.

Big Data Analytics towards predictive maintenance at INFN-CNAF computing center.**Jul 2019***Supervisor: D. Bonacorsi, Co-Supervisor: B. Martelli**Master Thesis*

Development of an unsupervised clusterization model based on measures of text distance for unstructured log files from the storage system of the data centre.

INFN-CNAF Summer School**Sep 2018 - Nov 2018***INF-CNAF**Bologna, Italy*

- Design and development of a log parsing algorithm to extract information from unstructured log files.
- The code has been collected in a Git repository, complete with unit testing and rich documentation.

Computed tomography of an Egyptian sarcophagus**Oct 2017***Museo Civico Archeologico di Bologna**Bologna, Italy*

Collaboration with the X-ray Imaging research group of the Department of Physics and Astronomy (DIFA) for Tomographic image acquisition of the Unmontu sarcophagus operated as part of the *Restituzioni* project.

Development and optimization of the Control software for a mobile Computed Tomography system for Cultural heritage**Sep 2017***Supervisor: M. P. Morigi, Co-Supervisor: M. Bettuzzi**Bachelor Thesis*

- Development of a control software for a semi-automatic system for the acquisition of tomographic and radiographic images.
- Tomography and radiography of wooden panels at the Palazzo Vecchio museum in Florence.

Curricular internship - X-ray Imaging research group**Nov 2015 - Mar 2016***DIFA, University of Bologna**Bologna, Italy*

- Study of thomographic and radiographic imaging techniques.
- Study of High definition image analysis techniques.

CONFERENCES

29th conference of the FRUCT association**May 2021***Program committee member**FRUCT 29***International Symposium on Grids & Clouds 2021****23 Mar 2021***Presenter: A Big Data Platform for heterogeneous data collection and analysis in large-scale data centers**ISGC2021***27th conference of the FRUCT association****Sep 2020***Technical committee member of the International Workshop on Predictive Maintenance (IWPM)**FRUCT 27*

ACKNOWLEDGEMENTS AND AWARDS

Passing diploma for the SOSC 2019 exam

SOSC 2019 - School on Open Science Cloud

Highest score in the final written test of the International School on Open Science Cloud.

21 Sep 2019

Bologna, Italy

Shortlisted for the Vulcanus in Japan 2019 programme

Internship for UE/COSME students in STEM industries in Japan

Selected in the shortlist of a hundred candidates out of a rose of thousands of european students.

Mar 2019

Finalist at the Alma Contest 2017

University of Bologna

Development of *AlmaOriente*, an Android application for the orientation of incoming university students.

The project has been selected as a finalist in the competition.

Feb 2017 - May 2017

Bologna, Italy

SKILLS

LANGUAGES

English

Listening: 8,5 (C2) Reading: 7,5 (C1) Writing: 6,5 (B2) Speaking: 7,5 (C1)

International English Language Testing System (IELTS)

20 Jul 2017

Overall: C1

TECHNICAL SKILLS

Languages: Python, C++, Cuda, Matlab, HTML/CSS/JS

Developer Tools: VS Code, Jupyter, Matlab, Android Studio

Operating Systems: Windows, Linux (Ubuntu, Ubuntu server, CentOS)

Technologies/Frameworks: Git, Puppet, Docker, Openstack

- Excellent competence in Machine Learning, developed during the university studies and deepened independently and in post-graduate courses
- Good competence in the manipulation of Big Data, developed thanks to the thesis activity and the research grant at the INFN-CNAF computing centre
- Experience in the use of distributed systems and Cloud, acquired thanks to the research grant at the INFN-CNAF computing centre and post-graduate study

SOFT SKILLS

UniBO Open Knowledge Digital Learning

Online Soft skills certification

- Managing changes
- Working in multidisciplinary teams
- Managing conflicts

Jul 2017

Online

PUBLICATIONS

- [1] S. Gasperini, S. Rossi Tisbeni, D. Bonacorsi, and D. Lange. “Exploiting Big Data solutions for CMS computing operations analytics”. In: *Proceedings of International Symposium on Grids & Clouds 2022 — PoS(ISGC2022)*. Vol. 415. 2022, p. 006. DOI: 10.22323/1.415.0006.
- [2] A. Borghesi, G. Di Modica, P. Bellavista, V. Gowtham, A. Willner, D. Nehls, F. Kintzler, S. Cejka, S. Rossi Tisbeni, A. Costantini, M. Galletti, M. Antonacci, and J. C. Ahouangonou. “IoTwin: Design and Implementation of a Platform for the Management of Digital Twins in Industrial Scenarios”. In: *Cloud2Things(2021)*. 2021. DOI: 10.1109/CCGrid51090.2021.00075. URL: <https://doi.org/10.1109/CCGrid51090.2021.00075>.
- [3] S. Rossi Tisbeni, D. Cesini, B. Martelli, A. Carbone, C. Cavallaro, D. C. Duma, A. Falabella, M. Galletti, J. Gasparetto, E. Furlan, D. Michelotto, F. Minarini, L. Morganti, E. Ronchieri, and G. Sergi. “A Big Data Platform for heterogeneous data collection and analysis in large-scale data centres”. In: *Proceedings of International Symposium on Grids & Clouds 2021 — PoS(ISGC2021)*. Vol. 378. 2021, p. 008. DOI: 10.22323/1.378.0008.

- [4] A. Di Girolamo, F. Legger, P. Paparrigopoulos, A. Klimentov, J. Schovancová, V. Kuznetsov, M. Lassnig, L. Clissa, L. Rinaldi, M. Sharma, H. Bakhshiansohi, M. Zvada, D. Bonacorsi, S. Rossi Tisbeni, L. Giommi, L. D. de Sousa, T. Diotalevi, M. Grigorieva, and S. Padolski. “Operational Intelligence for Distributed Computing Systems for Exascale Science”. In: *EPJ Web of Conferences* 245 (2020). Ed. by C. Doglioni, D. Kim, G. Stewart, L. Silvestris, P. Jackson, and W. Kamleh, p. 03017. DOI: 10.1051/epjconf/202024503017. URL: <https://doi.org/10.1051/epjconf/202024503017>.
- [5] A. Maffia, S. Rossi Tisbeni, F. Ferretti, and A. Lemmo. “A Clustering Method for Multiple-Answer Questions on Pre-service Primary Teachers’ Views of Mathematics”. In: *Theorizing and Measuring Affect in Mathematics Teaching and Learning*. Springer International Publishing, 2020, pp. 129–138. DOI: 10.1007/978-3-030-50526-4_13. URL: https://doi.org/10.1007/978-3-030-50526-4_13.
- [6] F. Viola, B. Martelli, D. Michelotto, E. Fattibene, A. Falabella, S. D. Pra, L. Morganti, L. dell’Agnello, D. Bonacorsi, and S. Rossi Tisbeni. “CNAF Big Data Platform”. In: *CNAF Annual Report 2019*. INFN CNAF, May 2020. URL: <http://www.cnaf.infn.it/annual-report>.
- [7] L. Decker de Sousa, L. Giommi, S. Rossi Tisbeni, F. Viola, B. Martelli, and D. Bonacorsi. “Big Data Analysis for Predictive Maintenance at the INFN-CNAF Data Center using Machine Learning Approaches”. In: *Proceedings of the 25th Conference of Open Innovations Association FRUCT*. 2019, pp. 448–451.
- [8] T. Diotalevi, D. Bonacorsi, A. Falabella, L. Giommi, B. Martelli, D. Michelotto, L. Morganti, and S. Rossi Tisbeni. “Collection and harmonization of system logs and prototypal Analytics services with the Elastic (ELK) suite at the INFN-CNAF computing centre”. In: *Proceedings of International Symposium on Grids & Clouds 2019 — PoS(ISGC2019)*. Sissa Medialab, Nov. 2019. DOI: 10.22323/1.351.0027. URL: <https://doi.org/10.22323/1.351.0027>.
- [9] L. Giommi, D. Bonacorsi, T. Diotalevi, L. Rinaldi, L. Morganti, A. Falabella, E. Ronchieri, A. Ceccanti, B. Martelli, and S. Rossi Tisbeni. “Towards Predictive Maintenance with Machine Learning at the INFN-CNAF computing centre”. In: *Proceedings of International Symposium on Grids & Clouds 2019 — PoS(ISGC2019)*. Sissa Medialab, Nov. 2019. DOI: 10.22323/1.351.0003. URL: <https://doi.org/10.22323/1.351.0003>.