Alessandro Cossard's CV

Current Position

Alessandro Cossard (AC) is a Ph.D. student at the Chemistry Department of Turin, in the Theoretical Chemistry group, as a software developer for the CRYSTAL code (http://www.crystal.unito.it/index.php, https://en.wikipedia.org/wiki/Crystal_(software)). His project is about implementing some new tools into CRYSTAL in order to study in deep some branches of quantum chemistry. In particular, he is implementing code for extending the Bader analysis to f and g-orbitals.

Work Experiences

Research

- **Applied Research Lagrange Scholarship**. AC worked one year at ISI Foundation in Turin (https://www.isi.it/en/home) on a project under the name "Data for Social Good. In particular, AC analyzed big data from Social Network in order to follow the development of the anti-vaccination movement in Italy. The tutors of this work were Yelena Mejova, Gianmarco De Francisci Morales, Daniela Paolotti, Michele Starnini, and Kyriaki Kalimeri.
- **Scholarship** at the Chemistry Department at the University of Turin in the Theoretical Chemistry group. AC developed some computational models for periodic systems into the CRYSTAL code in the framework of the Density Functional Theory. The tutor of this project was Prof. Civalleri Bartolomeo.

Teaching

- **Full teacher** at the Campus MFS (http://www.campusmfs.it/):
  - At the sessions of December 2018 and January 2019, AC taught the basis of Network Theory and how to use the Gephi software to build and visualize complex networks (show certificate, show certificate)
  - At the session of July 2019, AC taught both the previous course about network and a course named Python for Data Science in which he taught the basics of Machine Learning and how to build a simple AI in Python (show certificate)
- **Full Teacher** and department coordinator of the Integrate Science Subject (Physics) at the Scholastic Institution of Technical Education Innocenzo Manzetti in the city of Aosta (show certificate)

International Peer-Reviewed Publications

- M. DeStefanis, C. Ravoux, A. Cossard, A. Erba, **Thermo-Elasticity of Materials from Quasi-Harmonic Calculations**, Minerals, 9, 16 (2019). The article also appeared as the cover of the number. https://doi.org/10.3390/min9010016

- A. Cossard, g. De Francisci Morales, Kyriaki Kalimeri, Yelena Mejova, Daniela Paolotti, Michele Starnini, **Falling into the echo-chamber: the Italian Vaccination Debate on Twitter**, 14th International Conference on Web and Social Media (2020).
https://arxiv.org/abs/2003.11906

Schools and Conferences Participations

- **Presentation** at the Lagrange Scholarship Day. AC presented his work titled "Characterizing the debate around vaccination on Twitter in Italy" to ISI researcher leaders and a delegation of CRT foundation (21 Febbraio 2019).
- **Poster Presentation** at the Italian Archeoastronomy Society conference, National Institute of Astrophysics, Genova. AC presented hia apps Archeoastronomy (https://play.google.com/store/apps/details?id=com.coss.archeo&gl=IT). The app is available for Android smartphones and it presents the most famous archaeoastronomical sites in the world. 22-24 October 2018
- **Tutor** at the **Ab Initio Modeling of Solid State Chemistry** School, organized by the University of Turin. AC tutored the theoretical lessons, helping the international participants to use the CRYSTAL software (http://www.crystal.unito.it/index.php).
2-7 September 2018
http://www.crystal.unito.it/mssc2018/

Accepted works, not presented by him

- **Poster Presentation** accepted at the fifth **International Conference on Computational Social Science** (IC2S2), University of Amsterdam.
17-20 Luglio 2019.
https://2019.ic2s2.org/

Scientific Dissemination

- Alessandro Cossard, **Big Data and Fake News**, Semi di Scienza. The article explains what Big Data and Fake News are.
http://www.semidiscienza.it/2019/10/01/big-data-e-fake-news/
- Alessandro Cossard, **La prima app di Archoastronomia**, ArcheoMedia. The article explains he Archeoastronomy app features.
https://www.archeomedia.net/francesca-bianchi-a-cossard-archeoastronomy-la-prima-app-di-archeoastronomia/
- Alessandro Cossard, Guido Cossard, **Anche l'Archeoastronomia ha la sua app**, Le Stelle 182, September 2018. The article describes the Archeoastronomy app features.
- Alessandro Cossard, Francesco Dellagiacoma, **Come viaggiamo nello spazio?,** 24 Maggio 2017**.** The article appeared in the framework of "Physics and Videogames" in Tom's hardware websites and explains how to move into the space using the gravity assist.
https://www.tomshw.it/fisica-videogiochi-come-viaggiamo-nello-spazio-85856

- Alessandro Cossard, Gianmario Marelli, Francesco Dellagiacoma, **Più veloci della luce: conviene davvero?,** 16 Maggio 2017**.** The article appeared in the framework of "Physics and Videogames" in Tom's hardware websites and explains the consequence of the superluminal movements into the "Injustice 2" videogame.
  tomshw.it/fisica-videogiochi-scienza-d-injustice-2-85633-p2

Education

Master in **Physics of Complex Systems** (23/10/2017) at the University of Turin with graduation 105/110. Thesis: Scaling law in Biology. Supervisor: Prof. Mario Ferraro.

Bachelor in **Physics** (14/10/2015) at the University of Turin with graduation 90/110. Thesis: The Periodic Table and the Pauli Principle. Supervisor: Prof. Anselmino Mauro.

Computer Science Skills

Programming Languages:

- C++ : basics
- Java: basics
- Python: advanced
- Fortran: basics
- Basic 4 Android: basics
- Unity: basics
- Construct 3: basics

Software:

- Wolfram Mathematica: advanced
- CRYSTAL: advanced
- Gephi: advanced
- Word, Excel e Power Point: advanced
- Audacity: basics

Language Skills

- **Inglese**: IELTS exam with grade 6 (21/07/2018) (show certificate)
- **Francese**: certification of full knowledge of the French language released from Aosta's Valley offices (show certificate)

Workshops, Symposia and Academic courses

- Introduction to Parallel Programming with MPI (March 2020)

- NIS Colloquium on Theoretical and experimental approaches to thermoelectrics for waste heat harvesting, 09/01/2020
- Tutorial on Topological Data Analysis, Giovanni Petri, Leader Researcher ISI Foundation, 19/03/2019
- Women in Data Science Conference, OGR, Turin, 05/03/2019
- Complements of Computational Material Science, 04/03/2018-07/06/2018

Online Courses

- *software*
  Basic 4 Android - Udemy ([show certificate](#))
  Unity - Udemy ([show certificate](#))
  Audacity - Udemy ([show certificate](#))
  Basic Data Programing and Visualisation – Coursera

- *Social Sciences*
  Stanford's Nutrition and Health - Coursera ([show certificate](#))
  How to defend against fake news - Udemy ([show certificate](#))
  Instagram marketing - Udemy ([show certificate](#))
  Power and Responsibility: Doing Philosophy with Superheroes – EdX

- *Science*
  Global Warming I: the science and modelling of Climate Change – Coursera

- *Research Webinars*
  How to be a statistical detective - how to spot errors on health-related papers – Stanford online university

- *Other Skills*
  Chess Course on Material Strategy - Udemy ([show certificate](#))

Major Research Seminars

- Understanding the link between social contact patterns and influenza transmission, Jackie Kleynhans, National Institute for Communicable Diseases, Johannesburg, 22/03/2019
- Computational Social Science in Russia, Daniel Alexandrov, National Research University - Higher School of Economics in St.Petersburg, 18/03/2019
- Building a Personal Roadmap to One Health: research, study and expectation, Costanza Manes, One Health Center of Excellence, University of Florida, Gainesville, 15/03/2019
- Tracking political evolution in Twitter during a presidential campaign, Mariano Beirò, Buenos Aires University & CONICET, 15/01/2019
- Art History as a Systematic Science, Maximilian Schich, Ludwig-Maximilians University, 11/12/2018
- One Health and You, Ilaria Capua, Gainesville, Florida University, 29/11/2018
- Energy-consistent relativistic ab initio pseudopotential, adjustment, calibration and application, Michael Dolg, Cologne University, 24/01/2018

- Unusual electronics structure of some cerium compounds and ambiguous cerium oxidation state assignment, Michael Dolg, Cologne University, 23/01/2018
- Vibrational calculational beyond the harmonic approximation: from molecules to periodic systems, Philippe Carbonnière, University of Pau and the Adour Region, 18/01/2018

Supplementary Information

- AC runs a Podcast for scientific dissemination which has listeners all over the world. The podcast name is Scienza Contro Tutti (meaning, Science Versus All) and can be found on Spotify, Anchor, and many other platforms
  ANCHOR: https://anchor.fm/alessandro-cossard
  SPOTIFY: https://open.spotify.com/show/6ZwwGJhB4FC4rkH6rkDJiQ
  For other platforms: https://www.alessandrocossard.com/scienza-contro-tutti/

- AC has a Basic Calistenichs coaching certification and followed a workshop to teach handstand and planche. (show certificate, show certificate)

- AC has a Google Developer account
  https://play.google.com/store/apps/developer?id=Alessandro+Cossard&hl=en.
  His apps have a great number of downloads and they are installed on smartphones all over the world.

- AC has an itch account into which he uploads videogames made by him (https://coss-ale.itch.io/)