

Ana TRISOVIC

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RESEARCH INTERESTS

My primary research interests are computational reproducibility, data provenance, research data preservation and reuse. I am enthusiastic about data science, distributed data processing and open science.

EDUCATION

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| 2014 - 2018 | University of Cambridge, Newnham College, United Kingdom
PhD in COMPUTER SCIENCE,
<i>Thesis title: Data preservation and reproducibility at the LHCb experiment at CERN</i> The CERN experiments collect vast amounts of data from particle collisions, inducing a large number of publications. To facilitate reproducible research, advance open data efforts and assist in transparently running scientific software in the future, the thesis presents solutions with the use of novel technologies like <i>Neo4j</i> graph database, <i>Docker</i> , <i>OpenStack</i> and <i>DevOps</i> tools.
Supervisors: Chris Jones and Ben Couturier |
| 2010 - 2014 | Union University, Faculty of Computing, Belgrade, Serbia
BSc in COMPUTER SCIENCE |
| 2010 - 2013 | University of Belgrade, Faculty of Mechanical Engineering, Serbia
BSc in MECHANICAL ENGINEERING |

WORK EXPERIENCE

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| SEPT 2019
- PRESENT | Sloan postdoctoral fellow at IQSS, HARVARD UNIVERSITY
Improving computational reproducibility with Harvard's data repository Dataverse · the research goals include assessing the quality and reproducibility of the replication packages (data & code) deposited on Dataverse and facilitating integration with reproducibility platforms like Code Ocean and Whole Tale.
Supervisor: Mercè Crosas |
| SEPT 2018
- SEPT 2019 | CLIR Postdoctoral fellow at THE UNIVERSITY OF CHICAGO
In collaboration with the Energy Policy Institute at the University of Chicago (EPIC), the research goals were to facilitate the reproducibility, reusability and openness of energy, environmental and climate research through software development, training and promotion of best practices.
Partially funded by the Alfred P. Sloan Foundation |
| SEPT 2017
- SEPT 2018 | Project Associate at CERN
CERN Analysis Preservation and CERN Open Data · conducting research and back-end web development for the preservation and open data services for the LHC collaborations.
Supervisor: Sünje Dallmeier-Tiessen |

JULY 2013 - JULY 2014	Technical Student at CERN The LHCb Event Display - a stand-alone application that displays proton-proton collisions (events) recorded by the LHCb detector. It was made for educational purposes for the organization International Masterclasses , and since then it was used by hundreds of high school students. Supervisor: Vladimir Gligorov
MARCH 2013 - JULY 2013	Data Science Associate at MICROSOFT Development Center Serbia Blacklister Efficiency - Evaluation of the existing blacklister using the available data and creating a proposal for improvements. Supervisor: Vladimir Ivanovic

PUBLICATIONS

- [1] Anna Elizabeth Woodard, Ana Trisovic, Zhuozhao Li, Yadu Babuji, Ryan Chard, Tyler Skluzacek, Ben Blaiszik, Daniel S. Katz, Ian Foster, and Kyle Chard. "Real-time HEP analysis with funcX, a high-performance platform for function as a service". In: *24th International Conference on Computing in High Energy & Nuclear Physics (CHEP)* (2020).
- [2] Ana Trisovic, Chris R Jones, Ben Couturier, and Marco Clemencic. "Provenance tracking in the LHCb software". In: *Computing in Science & Engineering (CISE)* (2020).
- [3] Xiaoli Chen, Sünje Dallmeier-Tiessen, Robin Dasler, Sebastian Feger, Pamfilos Fokianos, Jose Benito Gonzalez, Harri Hirvonsalo, Dinos Kousidis, Artemis Lavasa, Salvatore Mele, Ana Trisovic, et al. "Open is not enough". In: *Nature Physics* (2019).
- [4] Thomas Pasquier, Matthew K Lau, Ana Trisovic, Emery R Boose, Ben Couturier, Mercè Crosas, Aaron M Ellison, Valerie Gibson, Chris R Jones, and Margo Seltzer. "If these data could talk". In: *Nature Scientific Data* (2017).
- [5] Ana Trisovic, Ben Couturier, Val Gibson, and Chris Jones. "Recording the LHCb data and software dependencies". In: *22th International Conference on Computing in High Energy and Nuclear Physics (CHEP)* (2017).
- [6] Ana Trisovic. "Measuring the D^0 lifetime at the LHCb Masterclass". In: *37th International Conference on High Energy Physics (ICHEP)* (2016).

I am a coauthor of over 200 publications as a member of the LHCb collaboration at CERN.

NOTABLE CONFERENCES & WORKSHOPS

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| 2020 | Women in Data Science (WiDS), Cambridge
poster presentation on "Reproducibility in Data Science" |
| 2019 | 14th Research Data Alliance (RDA) Plenary in Helsinki, Finland
poster presentation, awarded the RDA/US early-career fellowship to attend the plenary |
| 2019 | Workshop: "Building reproducible workflows for earth sciences" at the European Centre for Medium-Range Weather Forecasts (ECMWF)
invited talk (keynote) on "Responding to reproducibility challenges from physics to social sciences" |
| 2019 | Open Source Software Health Index workshop
invited attendee for an expert panel of the workshop |
| 2019 | Talk at the University of Texas at Austin
on the topic "Responding to reproducibility challenges" |

- 2019 | **CNI Spring 2019 Membership Meeting**
invited attendee
- 2019 | **Workshop on Education and Training for Reproducible Research with Whole Tale at the University of Illinois at Urbana-Champaign**
invited attendee
- 2017 | **10th LHCb computing workshop in Frascati, Italy**
Oral presentation on the development of the CERN Analysis Preservation (CAP) web portal.
- 2016 | **22nd International conference on computing in high energy and nuclear physics (CHEP) in San Francisco, USA**
Oral presentation on how the LHCb graph database and Docker containers aid in scientific preservation and reproducible research at LHCb. I received the CHEP 2016 Student Scholarships to attend the conference.
- 2016 | **7th LHCb Computing Workshop at CERN, Switzerland**
Two talks on developments around capturing and serving LHCb data provenance with the graph database *Neoj*
- 2016 | **Our Digital Future - Multidisciplinary Perspectives on Long Term Data Preservation and Access by Cambridge Big Data**
Talk on the development of the provenance database for scientific preservation at LHCb
- 2016 | **3rd Annual Oxbridge Women in CS Conference** in Cambridge, UK
A lightning talk on the LHCb provenance database
- 2016 | **6th LHCb Computing Workshop at Paris, France**
Talk on data preservation and provenance capture efforts.
- 2015 | **2nd Annual Oxbridge Women in CS Conference** in Oxford, UK
Poster presentation and a lightning talk on reproducibility at LHCb
- 2015 | **Newnham Graduate Conference** in Cambridge, UK
Poster presentation on the LHCb event display. Received an award for the best poster.
- 2014 | **37th International Conference on HEP (ICHEP)** in Valencia, Spain
Talk on Measuring the D^0 lifetime at the LHCb Masterclass
- 2011 | **10th Annual Petnica Students' Science Conference** in Valjevo, Serbia
Talk on Design and optimization of rectangular optical waveguide

NOTABLE SCHOLARSHIPS AND AWARDS

- 2019 - 2020 | **CLIR micro-grant for research**
on the topic "Improving computational reproducibility with gamification"
- 2019 - 2020 | **Amazon AWS Cloud Credits for Research**
for Evaluation of reproducibility in data repository Dataverse
- 2015 - 2017 | **Muir Wood Studentship**
for Mathematics, Engineering and Science awarded by Newnham College to study at the University of Cambridge in the United Kingdom
- 2014 - 2017 | **CERN Doctoral Studentship**
to work with the LHCb computing group at CERN and undertake the PhD research

- 2015 | **Scholarship to attend the Summer School on Machine Learning**
in High Energy Physics in Saint-Petersburg, Russia awarded by Yandex
- 2014 | **Google Anita Borg Memorial Scholarship EMEA**
for having demonstrated outstanding academic achievement, leadership and community involvement (now renamed to Google's Women Techmakers)
- 2013 | **Dositeja Award**
for the best students in senior year of study in Serbia, given by the Ministry of Education, Republic of Serbia
- 2012 | **Scholarship by the German Academic Exchange Service DAAD**
for attending international summer school of German in Munich, Germany
- 2011 - 2012 | **Praise for outstanding achievements**
in the first and the second year of undergraduate studies given by Faculty of Mechanical Engineering, University of Belgrade, Serbia
- 2011 | **First Step to Nobel prize**
Honorable Mention at the International Competition in Research Projects in Physics for the work on optical waveguide design
- 2006 - 2010 | 2 awards at the Regional Competition in Physics,
Honorable Mention in the State Competition in Physics,
organized by the Ministry of Education, Serbia
- 2006 | **The student of the generation award**
in secondary school Despot S. Lazarevic, Zvezdara, Belgrade

COMPUTER SKILLS

PROGRAMMING LANGUAGES: Python, C++, C#
 CLOUD & DISTRIBUTED TECHNOLOGIES: Docker, OpenStack, AWS
 DATABASES & QUERY LANGUAGES: Neo4j graph database, CYPHER, SQL
 WEB DEVELOPMENT & DESIGN: Flask, HTML/CSS, Adobe Photoshop
 ONLINE TRAINING: R (coursera.org)
 OTHER: Vim, Git, \LaTeX

TEACHING EXPERIENCE

- 2019 | **WORKSHOP ON VERSION CONTROL WITH GIT**
a workshop for students and staff at UChicago
Event organiser and instructor
- 2017 | **LHCb STARTERKIT**
a five-day training course for PhD students at LHCb, CERN, Switzerland.
Instructor on bash and git version control software
- 2017 | **DJANGO GIRLS GENEVA**
a workshop on programming for high school students.
Coach on the basics of python, django and SQL
- 2015 | **NEWNHAM COLLEGE, UNIVERSITY OF CAMBRIDGE**
Teaching assistant (supervisor) in Algorithms
- 2015 | **CAVENDISH LABORATORY, UNIVERSITY OF CAMBRIDGE**
Demonstrator in Computational Physics (final year of undergraduate studies) and Physics Practical (first year)

SELECTED PROFESSIONAL AND OUTREACH ACTIVITIES

- 2020 | **SciPy 2020**
Program Committee member of SciPy 2020 Talks and Posters.
- 2020 | **The Theory and Practice of Provenance (TaPP) workshop**
Program Committee member.
- 2017 | **Researchers' Night at CERN, Switzerland**
Participated in a video to introduce the event.
- 2017 | **Received training for the official CERN guide**
- 2015 | **Volunteer at TEDxCERN conference**
- 2013 | **LHCb masterclass moderator**
- 2016 | Chaired video conferences with high school students and answered their questions on computing and high-energy physics.

LANGUAGES

ENGLISH: Fluent
SERBIAN: Mother tongue
SPANISH: Basic Knowledge