Carlos Utrilla Guerrero

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https://carlosug.github.io/

Education

Universidad Politécnica de Madrid (UPM), ES *Since Oct 2023*
PhD candidate in Artificial Intelligence at Ontology Engineering Group OEG

University of Manchester, UK *2014*
M.Sc. in Social Research Methods and Statistics (CMIST), Dissertation: LINK – Assignments: LINK

University of Zaragoza, ES *2011*
BA in Business and Administration, Erasmus exchange program in Odense, DK (6 Months, 2012)

Research Interests

Open-source research software, reproducible research, language models, and semantic web

Career Profile

Research software engineer, researcher and lecturer

Computer skills

Languages: Python, R, TypeScript (React, ExpressJS, NextJS), LaTeX, SQL
Web: SPARQL, RDF, ontologies (OWL, SKOS, SIO), OpenAPI, JSON, XML, HTML&CSS, Material UI, D3.js
Tools: Bash, Git, Jupyter, Rstudio, Linux, Neo4J, Protégé, Docker

Languages

Spanish (Mother tongue), English (Fluent), French (Intermediate), Dutch (Basic)

Work Experience

Research Data & Software Services, TU Delft University, Delft, NL *Since Nov 2022*
Teacher & Lesson developer
Participate in TU Delft Digital Competence Center (DCC), Library and 4TU educational & research activities

Institute of Data Science, Maastricht University, Maastricht, NL *2020 – 2022*
Researcher data scientist
Provided a diverse support in teaching and research obligations

Kleos Space S.A, Luxembourg, LU *2018 – 2019*
Data scientist
Provided support in data management and statistical analysis on the European Space Agency projects

Kneip Communications, Luxembourg, LU *2015 – 2018*
Data manager
Participated in data governance for the Financial knowledge base

European Investment Bank (EIB), Luxembourg, LU *2014*
Graduate research assistant (6 months)
International scholarship in the IT department focused in data modeling, definition and implementation

Imagniarium Group S.A, Instanbul, TR *2013*
Trainee data analyst (8 months)
International scholarship in a retail company to develop and implement the Forecasting Model

Association of Young Entrepreneurs of Zaragoza, Zaragoza, ES *2010*
Bachelor trainee marketing (8 months)
Scholarship in a Spanish public administration to monitor the operational cash-flow and write the annual budgeting

Ibercaja saving Bank, Zaragoza, ES *2010*
Bachelor trainee finance (6 months)
Scholarships in a Spanish bank to study the probability of default using logistic regression

Volunteer Experience

Turkiye I.S.I. Tme Engelliler Spor Federasyonu, Ankara, TR   *2010*
European Volunteer Service (*7 months*)
Collaborated in logistic and administrative activities

Relevant research projects contribution

Scientific software Knowledge graph (**SOFTKG**): A project initiated recently in TU Delft Library to explore how semantic web technologies enhance the interoperability of 4TUResearchRepository and wide range of applications and user experience. <u>GOAL:</u> Understand how to describe software dependencies and its relationship using SW (*e.g. LinkML schemas – using author schemas in YAML that describe the structure of your data and validating data in a variety of formats -JSON, RDF, TSV-*) to computationally reproduce software environment of objects deposited in 4TUResearchData repository

Distributed Knowledge Graphs for food (**KGFOOD**): The project started in *Aug 2022*, and aims at building a knowledge graphs on Food Composition Open Datasets and food price sources for identifying sustainable food choices using Knowledge Graphs Embeddings (KGE) as part of EU COST Action on Distributed Knowledge Graphs. <u>ROLE:</u> Daily coordinator of the project, leading data conversion to RDF, generation of standard APIs to query the converted datasets and usecase analysis (e.g. link prediction, completing KG with embedding techniques or network analysis) in *'Food and Health Domain'*. It is expected to submit a conference paper at SWAT4HCLS -Semantic Web and FAIR data in agriculture, food and nutrition domain. `https: // github. com/ MaastrichtU-IDS/ kg-food`

- Semantic web: RDF, SPARQL, Ontologies, RDFLib, Protege
- Languages: Python and Bash
- Research line: Ontology engineering, Knowledge publication and Knowledge graph completion

FAIR Data for traditional games (**PLAYFAIR**): Since *July 2021*, I collaborated with the Digital Ludeme Project (DLP) team through a joint research initiative called the PLAYFAIR project. This project focused on implementing semantic web in digital humanities, had a *budget of 15,000 euros*, and ended in *March 2022*. <u>ROLE:</u> I took full initiative of the project, from its original formulation, development of the proposal and its execution. Presented as demo at the Conference Annual DARIAH 2022: Storytelling. `https: // github. com/ MaastrichtU-IDS/ play-fair`

- Semantic web: RDF, SPARQL, Ontologies, RDFLib
- Languages: Python and Bash
- Tools: TriplyDB based on CLARIAH infrastructure
- Research line: Semantic interoperability, Knowledge publication and Network science

LD Wizard for Humanities and Social sciences (**LDWizard**): This small contribution built upon the *PLAYFAIR* project (above) to technically evaluate CLARIAH tools. As a result, we proposed an alternative and built an easy-to-use software to convert tabular data into Linked Data. <u>ROLE:</u> I co-developed the tool and inserted OWL ontologies that are relevant to digital humanities domain. `https: // humanities. wizard. semanticscience. org/`

- Semantic web: RDF, SPARQL, Ontologies, RDFLib
- Languages: Python, TypeScript and Bash
- Web dev: HTML/CSS and React
- Research line: Knowledge capture, mappings and metadata editor tools
- Research line: Cross-domain interoperability, NLP and data sharing infrastructure

Teaching Experience

2023: Graduate school: Research data and software management - https://tu-delft-library.github.io/rdm101-book/

2020; 2021; 2022: Master course: Applied Research II - https://maastrichtu-ids.github.io/AppliedRR/

2020; 2021, 2022: Bachelor course: Quantitative Research Methods - https://maastrichtu-ids.github.io/global-studies/

Workshops:

- 2023: Software carpentries workshop as an *Official Instructor* https://carlosug.github.io/carpentries-instructor.pdf
- 2023: Code refinery workshop https://coderefinery.github.io/2023-09-19-workshop/
- 2021: Workshop on FAIR Essentials. https://github.com/MaastrichtU-IDS/fair-workshop
- 2021: Workshop on semantic web - DOAP https://github.com/MaastrichtU-IDS/doap-workshop
- 2021: Coding for researchers in Python https://github.com/MaastrichtU-IDS/coding4all
- 2020: R Carpentry Workshop https://esciencecenter-digital-skills.github.io/2020-10-19-Data-Carpentry-with-R/

Supervision

2022: Co-supervision of one master student in estimating Time-Varying Models in High-Dimensional EMA Data

List of Abstract Publications

●**C. Utrilla Guerrero**, *Maria Vivas Romero, Mark Dolman and Michel Dumontier* (2022). *"FAIR begins at home: Implementing FAIR via the Community Data Driven Insights". First International Conference on FAIR Digital Objects 2022. Leiden, NL.* https://arxiv.org/abs/2303.07429

●**C. Utrilla Guerrero** *and V. Emonet* (2022). *"PLAYFAIR Project: Challenges and solutions towards building and visualising FAIR data for traditional games". Storytelling - DARIAH Annual Event. Athens, GR.* https://doi.org/10.5281/zenodo.6588450

Presentations and Conferences

Invited talks and conferences:

○ 2023: Teaching Reproducible Research and Open Science, Sheffield University (UK) - https://zenodo.org/records/8158825
○ 2022: Storytelling - DARIAH Annual Event 2022, Athens, (GR) – https://github.com/MaastrichtU-IDS/coding4all
○ 2022: Metadata 4 DKE 2022, Lyon, (FR) – https://cost-dkg.github.io/metadata4dkg2022/
○ 2022: FAIR Coffee Lectures, Maastricht, (NL) – https://www.openscience-maastricht.nl/events/fair-coffee-lecture-25-may-2022/
○ 2020: Online M-BIC Open Science Symposium, Maastricht, (NL) – https://www.maastrichtuniversity.nl/events/online-m-bic-open-science-symposium

Selected Awards and Scholarships

2021: Research Fellowship grant in the national infrastructure CLARIAH Research Fellows 2021. *Budget 15K euros*

2013: Leonardo Da Vinci Global Scholarship from Spain's Ministry of Education

Events (co)Organized

2020 – 2022: Co-founder of FAIR Coffee Lectures with Open Science Community Maastricht

2022: In-person Data Science Research Infrastructure (DSRI) Community Event

Interests

Sports: Tennis, Padel, Swimming

Others: Open source enthusiast, Traveling, History and Cooking