RACHELE MIGNONE

Ph.D. Candidate in Law, Science, and Technology

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EDUCATION

Ph.D. Candidate @ Law, Science and Technology Joint Doctorate Programme
📅 11/2024— ongoing   📍 CIRSFID, UniBo, Bologna, Italy

Master's degree in Artificial Intelligence and Information Systems (LM-18)
with final grade 110/110 magna cum laude
📅 11/2021 - 10/2024   📍 UniTO, Torino, Italy

Bachelor's degree in Computer Science
with final grade 106/110
📅 09/2018 — 11/2021   📍 UniTO, Torino, Italy

Language High School Diploma
with final grade 90/100
📅 07/2018   📍 I.I.S. Piero Martinetti, Caluso (TO), Italy

Exchange Year Abroad
📅 08/2016 — 06/2017   📍 Western Sierra Collegiate Academy, Rocklin, CA, USA

LANGUAGE SKILLS

Italian
Native speaker

English
Cambridge-certified C2

French
Alliance-Francaise-certified B2

Spanish
B1

PUBLICATIONS

Standardization and harmonization of law through automated process analysis and similarity techniques
Audrito, D.,Di Caro ,L.,Genga, L., Mignone, R., Nai ,R. , Spada, I., Sulis, E., Trifiletti, V. M. S (2024, September)

📍 workshop: 1st International Workshop on Processes, Laws and Compliance (PLC) @ International Conference on Process Mining (ICPM), Lyngby, Denmark.

https://ceur-ws.org/Vol-3850/paper4.pdf

Adopting Video-Recordings to Extract Embedded Domain Knowledge and Automate Legal Case Reading
Spada, I., Mignone, R., Molinari,M., Audrito, D., Quaranta, M., Amantea, I. A., Di Caro, L. (2023, September)

📍 workshop: Workshop on Annotation of Legal Data @ JURIX 2023, Maastricht, Netherlands.

[status: accepted]

A practical application of Artificial Intelligence techniques for legal context analysis
Amantea, I. A., Boella, G., Bonfanti, C., Colombino, M., Di Caro, L., Iacobellis, G., Marta, S., Mignone, R., Molinari, M., Spada, I., Sulis, E., Zaharia, L. J. M. (2023, September)

📍 workshop: ML, Law and Society (track KDPM4LAW) @ ECML PKDD 2023, Turin, Italy.

[status: accepted]

Semantic Doppelgängers: How LLMs Replicate Lexical Knowledge
Di Caro, L., Ventrice, L., Locci, S., Mignone, R.(2023, September)

📍 workshop: General 2023 @ CHItaly, Turin, Italy.

https://ceur-ws.org/Vol-3571/short2.pdf

Augmented reading and Similar Case Matching: from legal domain experts' modus operandi to a computational pipeline
Mignone, R., Spada, I., Bonfanti, C., Colombino, M., Iacobellis, G., Zaharia, L. J. M, Molinari, M., Marta, S., Amantea, I. A., Sulis, E., Di Caro, L., Boella, G. (2023, July)

📍 workshop: KM4LAW 2023 @ FOIS, Sherbrooke, Canada.

http://km4law.di.unito.it/wp-content/uploads/2023/07/FOIS_2023_paper_4674_Mignone.pdf

Organizing the Unorganized: A Novel Approach for Transferring a Taxonomy of Labels into Flat-Labeled Document Collections.
Colombino, M., Zaharia, L. J. M, Iacobellis, G., Mignone, R., Spada, I., Bonfanti, C., Sulis, E., Di Caro, L., Boella, G. (2023, June).

📍 workshop: ASAIL 2023 @ ICAIL, Braga, Portugal.

https://ceur-ws.org/Vol-3441/paper9.pdf

A pipeline for data management, knowledge extraction and semantic analysis of unstructured legal judgments.
Bonfanti, C., Colombino, M., Iacobellis, G., Mignone, R., Spada, I., Zaharia, L. J. M, Quaranta, M., Molinari, M., Marta, S., Amantea, I. A., Audrito, A., Sulis, E., Di Caro, L., Boella, G. (2023, May).

📍 workshop: Ital-IA 2023, Pisa, Italy

https://ceur-ws.org/Vol-3486/41.pdf

PROJECTS

POLINE

https://site.unibo.it/poline/en

POLINE is a project using AI to analyze and visualize Value Added Tax (VAT) case-law from the EU Court of Justice and supreme courts of Italy, Sweden, and Bulgaria. It extracts legal principles using NLP and machine learning, making them accessible through a searchable database and network visualizations. POLINE aims to help judges, legal professionals, and taxpayers better understand and apply VAT law. The techniques developed for POLINE will be open-access and have the potential to be adapted for other areas of law.

My main contributions to the project, at the current date, include the following:
• Creation of an ontology of VAT concepts and Principles of Law

FACILEX

https://site.unibo.it/facilex/en

The FACILEX project aims to improve EU judicial cooperation in criminal matters by addressing inconsistencies between legal systems. It will achieve this through an online platform providing free access to EU and national legislation and case law, as well as tailored legal advice for practitioners. By leveraging digital tools and a multidisciplinary approach, FACILEX will streamline judicial cooperation, foster knowledge sharing, and strengthen the application of EU law in this complex field.

My main contributions to the project, at the current date, include the following:
• Support for legal experts in annotating legal concepts
• Collaboration in defining an asymmetric similarity metric for calculating harmonization between legal texts

NGUPP

https://www.nextgenerationupp.unito.it/

Next Generation UPP, a project by the University of Turin and eleven partner universities, aims to reduce court backlogs and procedural times in Northwest Italy. Funded by the Ministry of Justice and aligned with national recovery plans, the project focuses on strengthening court process offices (UPPs), fostering collaboration between universities and courts, and implementing technological innovations. By identifying best practices and piloting new models for case management, Next Generation UPP seeks to improve the efficiency and effectiveness of the justice system.

My main contributions to the project include the following:
• Automatic classification of legal judgments using NLP techniques
• Implementation of a Similar Case Matching pipeline for the retrieval of similar legal judgments
• Automation of domain experts' processes with video annotation

Publications:
• A pipeline for data management, knowledge extraction and semantic analysis of unstructured legal judgments.
  (Bonfanti, C., Colombino, M., Iacobellis, G., Mignone, R., Spada, I., Zaharia, L. J. M, Quaranta, M., Molinari, M., Marta, S., Amantea, I. A., Audrito, A., Sulis, E., Di Caro, L., Boella, G.)
• Organizing the Unorganized: A Novel Approach for Transferring a Taxonomy of Labels into Flat-Labeled Document Collections.
  (Colombino, M., Zaharia, L. J. M, Iacobellis, G., Mignone, R., Spada, I., Bonfanti, C., Sulis, E., Di Caro, L., Boella, G.)
• Augmented reading and Similar Case Matching: from legal domain experts' modus operandi to a computational pipeline
  (Mignone, R., Spada, I., Bonfanti, C., Colombino, M., Iacobellis, G., Zaharia, L. J. M, Molinari, M., Marta, S., Amantea, I. A., Sulis, E., Di Caro, L., Boella, G.)
• A practical application of Artificial Intelligence techniques for legal context analysis
  (Amantea, I. A., Boella, G., Bonfanti, C., Colombino, M., Di Caro, L., Iacobellis, G., Marta, S., Mignone, R., Molinari, M., Spada, I., Sulis, E., Zaharia, L. J. M.)
• Adopting Video-Recordings to Extract Embedded Domain Knowledge and Automate Legal Case Reading
  (Spada,I., Mignone, R., Molinari,M., Audrito,D., Quaranta, M., Amantea, I. A., Di Caro, L.)

CONFERENCES AND WORKSHOPS

JURIX 2024 - 37th International Conference on Legal Knowledge and Information Systems
doctoral consortium presentation

📅 December 2024

https://jurix2024.law.muni.cz/

NLDB 2024 - The 29th International Conference on Natural Language and Information Systems Linguistics, Language Resources and Evaluation
volunteer

📅 June 2024

https://nldb2024.di.unito.it/

LREC-COLING 2024 - The 2024 Joint International Conference on Computational Linguistics, Language Resources and Evaluation
volunteer

📅 May 2024

https://lrec-coling-2024.org/

Workshop on Annotation of Legal Data @ JURIX
accepted contribution

📅 December 2023

https://cris.maastrichtuniversity.nl/en/activities/workshop-on-annotation-of-legal-data-hosted-by-jurix-2023

GENERAL @ CHITALY
accepted contribution

📅 September 2023

https://www.evilscript.eu/general/

ML, Law and Society (track KDPM4LAW) @ ECML PKDD
accepted contribution

📅 September 2023

https://sites.google.com/view/ws-ethics-ecml23/

KM4LAW @ FOIS
accepted contribution

📅 July 2023

https://km4law.di.unito.it/program-km4law-2023/

ASAIL @ ICAIL
accepted contribution

📅 July 2023

https://icail2023.di.uminho.pt/

AIxPA @ Ital-IA
accepted contribution

📅 May 2023

https://www.ital-ia2023.it/

ACADEMIC WORK

Ph.D. Candidate
Università degli Studi di Bologna

📅 11/2024— ongoing   📍 Bologna, Italy

Project summary: use of AI-driven approaches for multilingual legal document processing within the EU, focussing on developing a multilingual knowledge graph and adapting Large Language Models to improve the analysis and comparison of legal texts across different EU languages, reducing reliance on traditional translation.

NLP Research Fellow
Università degli Studi di Torino

📅 11/2022— 10/2024   📍 Torino, Italy

Research scholarships granted:
- **June 2024 - October 2024:** call 31/2024 "Study and development of advanced document database management techniques and semantic access using ontologies, natural language technologies, and machine learning"
- **January 2024- May 2024:** call 55/2023 "Study and development of advanced document database management techniques and semantic access using ontologies, natural language technologies, and machine learning"
- **July 2023 - December 2023:** call 26/2023 "Study and development of advanced document database management techniques and semantic access using ontologies, natural language technologies, and machine learning"
- **November 2022 - June 2023:** call 42/2022 "Use of ontologies and Natural Language Processing techniques for extracting, understanding and semantic access to text-type data."

I hereby declare that all the above information is correct and accurate.
Rachele Mignone