

PERSONAL INFORMATION

Francesco Periti



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Gender Male | Date of birth 17 November 1996 | Nationality Italian

Profile

With a Master's Degree in Computer Science and an ongoing PhD at the University of Milan, Francesco is a dedicated researcher passionate about Natural Language Processing and Computational Linguistics. His expertise in these fields focuses on modeling language change using advanced computational models. Francesco possesses solid proficiency in programming languages, particularly Python, which he effectively utilizes in his research pursuits. Francesco's work experience spans prestigious institutions such as the University of Gothenburg, Queen Mary University of London, and KU Leuven, where he participated in the international "Change is Key!" program. He has also contributed to EU-funded projects like TACITROOTS and VAST. In addition to his research, Francesco is actively involved in teaching, co-supervising theses, and reviewing articles for prestigious journals and conferences.

WORK EXPERIENCE

Currently participating in internships funded by the Change is Key! program, aiming to develop computational tools to analyse language, society, and cultural change.

August 2023 – July 2024 **Internship - Change is Key!**

KU Leuven Faculty of Arts. Quantitative Lexicology and Variational Linguistics research group

October 2023 – November 2023 **Internship - Change is Key!**

University of Gothenburg Department of Philosophy, Linguistics and Theory of Science

February 2023 – July 2023 **Internship - Change is Key!**

University of Gothenburg (In person) Department of Philosophy, Linguistics and Theory of Science
Queen Mary University London (Online) School of Electronic Engineering and Computer Science

EDUCATION AND TRAINING

October 2021 – October 2024 **PhD Student in Computer Science**

University of Milan Department of Computer Science
Via Celoria, 18 - 20133 Milano, Italy

A third-year PhD student at the Department of Computer Science, conducting research within the ChangelsKey program. The focus is on Natural Language Processing and Computational Linguistics. The primary research interests involve utilizing neural language models and word embedding techniques to trace evolutionary patterns over time.

October 2020 – October 2021

University of Milan

Research fellow

Department of Computer Science
Via Celoria, 18 - 20133 Milano, Italy

Research conducted has found application in two ongoing EU-funded projects: TACITROOTS and VAST. The work involved the design and implementation of targeted databases and ontologies, leveraging the CIDOC Conceptual Reference Model as a basis. Additionally, exploration was carried out on the capabilities and limitations of word embedding techniques to model the semantic knowledge extracted from textual documents, such as historical manuscripts.

October 2018 – July 2020

University of Milan

Master's Degree in Computer Science (L-18)

110/110 **cum laude**

Department of Computer Science
Via Celoria, 18 - 20133 Milano, Italy

The Master's Degree Thesis Project focused on the lexical analysis and automatic detection of references and citations in Vatican publications from Leo XIII to Francis.

October 2015 – July 2018

University of Parma

Bachelor's Degree in Computer Science (L-31)

105/110

Department of Math, Physics, and Computer Science
Parco Area delle Scienze 53/a (Campus) - 43124 Parma, Italy

The Bachelor's Degree Thesis Project focused on the integration of a filter for removing the shape of a robot in a 3D reconstruction system.

PERSONAL SKILLS

Mother tongue Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	B2	B2	B2	B2
Language proficiency - UNIMI SLAM certification					

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
[Common European Framework of Reference for Languages](#)

IT competences

Programming languages

- Advanced: Python
- Proficient: C++, Java
- Intermediate: C, C#, Prolog, php, JavaScript

Python libraries used regularly

beautifulsoup4, gensim, matplotlib, nltk, numpy, pandas, pscycopg2, pymongo, scikit-learn, scipy, seaborn, sentence_transformers, spacy, torch, transformers

Markup languages

- Intermediate: HTML, CSS, XML

Driving licence B

PROJECTS

February 2023 - July 2023

Change is Key!

The Change is Key! program is funded by the Riksbank anniversary fund under reference number M21-0021

October 2020 – October 2021 **TACITROOTS**
The Accademia del Cimento in Florence: tracing the roots of the European scientific enterprise
EU ERC H2020 project N. 818098

October 2020 – October 2021 **VAST**
VAST: Values Across Space & Time
EU H2020 project N. 101004949

TEACHING ACTIVITY

Conference tutorials

March 2024 **Teacher** – Computational Modeling of Semantic Change
EACL *The 18th Conference of the European Chapter of the Association for Computational Linguistics*
St. Julians, Malta

Graduate Schools

January 2024 **Teacher** – Computational Modeling of Semantic Change
Netherlands Graduate School of Linguistics *Tilburg University*
LOT Winter School 2024
Tilburg, Netherlands

Master's Degree courses

January 2022 – September 2022 **Teaching Assistant** – Text Mining and Sentiment Analysis
University of Milan *Department of Economics, Management and Quantitative Methods*
Master's Degree in Data Science and Economics (LM-91)
Via Conservatorio, 7 - 20122 Milano, Italy

January 2022 – September 2022 **Teaching Assistant** – Coding for Data Science and Data Management
University of Milan *Department of Economics, Management and Quantitative Methods*
Master's Degree in Data Science and Economics (LM-91)
Via Conservatorio, 7 - 20122 Milano, Italy

June 2021 – September 2021 **Teaching Assistant** – Information Management
University of Milan *Department of Computer Science*
Master's Degree in Computer Science (L-18)
Via Celoria, 18 - 20133 Milano, Italy

March 2021 – June 2021 **Teacher** – Introduction to Python Programming
Catholic University of the Sacred Heart *Faculty of Economics and Law*
Master's Degree in Banking and Consulting (LM-77)
Via Emilia Parmense, 84 - 29122 Piacenza, Italy

Bachelor's Degree courses

June 2021 – September 2021 **Teaching Assistant – Algorithms and Data Structures**
University of Milan *Department of Computer Science*
Bachelor's Degree in Computer Science (L-31)
Via Celoria, 18 - 20133 Milano, Italy

January 2021 – September 2021 **Teaching Assistant – Statistics**
University of Milan *Faculty of Political, Economic and Social Sciences*
Master's Degree in Data Science and Economics (LM-91)
Via Conservatorio, 7 - 20122 Milano, Italy

Co-supervision of Master's Theses

- University of Milan** Co-supervision of the following Master student theses:
- BERT's Attention in Dialogues: an Analysis Across Different Classification Tasks
Department of Economics, Management and Quantitative Methods
Master's Degree in Data Science and Economics (LM-91)
Via Conservatorio, 7 - 20122 Milano, Italy
 - Lexicon and Topic Analysis Across Different Editions of the "Jane Eyre" Novel
Department of Economics, Management and Quantitative Methods
Master's Degree in Data Science and Economics (LM-91)
Via Conservatorio, 7 - 20122 Milano, Italy
 - Automatic Construction of a Network of Historical Events and Characters from Textual Sources
Department of Computer Science
Master's Degree in Computer Science (L-18)
Via Celori1, 18 - 20133 Milano, Italy
 - Use of a BERT Model for the Correction of Errors Generated by the OCR Process on Textual Data
Department of Computer Science
Master's Degree in Computer Science (L-18)
Via Celoria, 18 - 20133 Milano, Italy

Co-supervision of Bachelor's Theses

- University of Milan** Co-supervision of the following Bachelor student theses:
- Project and development of a web app for exploring a corpus of documents using Elastic-search
Department of Computer Science
Bachelor's Degree in Computer Science (L-31)
Via Celoria, 18 - 20133 Milano, Italy
 - Design and Development of a Web Application for the Analysis and Storage of Text Documents
Department of Computer Science
Bachelor's Degree in Computer Science (L-31)
Via Celoria, 18 - 20133 Milano, Italy

INVITED TALKS

October 2023 **Studying Word Meaning Evolution – Incremental Semantic Shift Detection**
University of Gothenburg CLASP seminar
<https://gu-clasp.github.io/events/seminars/2023-11-01/>

August 2023 **Text Reuse Analysis**
IMS Stuttgart (online) IMS Stuttgart workshop: recent advances in ChangelsKey!
<https://www.changeiskey.org/event/2023-ims-stuttgart/>

December 2022 **Computational Humanities and Linguistics – Semantic Shift Detection**
University of Göttingen Department of Linguistics
<https://www.uni-goettingen.de/en/general+linguistics+colloquium+%28wise+2022/2023%29/667965.html>

November 2022 **Semantic Shift Detection**
University of Milan Talk at MUSEMI (https://musemi.di.unimi.it/past_talks.html)
University of Milan, Department of Computer Science

June 2021 **Computational Humanities and History**
University of Milan Department of Historical Studies (online)

OTHER PROFESSIONAL EXPERIENCE

Paper Review for conferences and journals

December 2023 **Program committee member**
CHR Conference on Computational Humanities Research 2023

October 2020 - Ongoing **Reviewer**
Active involvement in the review process of conferences and journals

Workshop Organization

August 2024 **LChange24**
ACL The 62nd Annual Meeting of the Association for Computational Linguistics
The 5th International Workshop on Computational Approaches to Historical Language Change (LChange24).

December 2023 **LChange23**
EMNLP The 2023 Conference on Empirical Methods in Natural Language Processing
The 4th International Workshop on Computational Approaches to Historical Language Change (LChange23).

PUBLICATIONS

- [1] **Francesco Periti** and Nina Tahmasebi. *A Systematic Comparison of Contextualized Word Embeddings for Lexical Semantic Change*. Mar. 2024. arXiv. Accepted at NAACL2024. 2402.12011 (cs.CL). URL: <https://arxiv.org/abs/2402.12011>.
- [2] **Francesco Periti**, Haim Dubossarsky, and Nina Tahmasebi. “(Chat)GPT v BERT: Dawn of Justice for Semantic Change Detection”. In: *Findings of the Association for Computational Linguistics: EACL 2024*. St. Julians, Malta: Association for Computational Linguistics, Mar. 2024. URL: <https://arxiv.org/abs/2401.14040>.
- [3] Silvana Castano, Alfio Ferrara, Stefano Montanelli, and **Francesco Periti**. *Incremental Affinity Propagation based on Cluster Consolidation and Stratification*. Jan. 2024. arXiv: 2401.14439 [cs.LG]. URL: <https://arxiv.org/abs/2401.14439>.

- [4] **Francesco Periti**, Sergio Picascia, Stefano Montanelli, Alfio Ferrara, and Nina Tahmasebi. *Studying Word Meaning Evolution through Incremental Semantic Shift Detection: A Case Study of Italian Parliamentary Speeches*. Oct. 2023. URL: <https://www.techrxiv.org/doi/full/10.36227/techrxiv.24210915.v1>.
- [5] Luigi Curini, Silvia Decadri, Alfio Ferrara, Stefano Montanelli, Fedra Negri, and **Francesco Periti**. "The Gender Gap in Issue Attention and Language Use within a Legislative Setting: An Application to the Italian Parliament (1948–2020)". In: *Politics & Gender* 20.1 (Oct. 2023), pp. 182–211. URL: <https://doi.org/10.1017/S1743923X2300051X>.
- [6] **Francesco Periti** and Haim Dubossarsky. "The Time-Embedding Travelers@WiC-ITA". In: *Proceedings of the Eighth Evaluation Campaign of Natural Language Processing and Speech Tools for Italian. Final Workshop (EVALITA 2023)*. Parma, Italy: CEUR.org, Sept. 2023. URL: <https://ceur-ws.org/Vol-3473/paper47.pdf>.
- [7] **Francesco Periti**. "Contextualised Semantic Shift Detection". In: *Proceedings of the 31st Symposium of Advanced Database Systems (SEBD)*. Galzingano Terme, Italy: CEUR.org, July 2023, pp. 735–741. URL: <https://ceur-ws.org/Vol-3478/paper81.pdf>.
- [8] Stefano Montanelli and **Francesco Periti**. *A Survey on Contextualised Semantic Shift Detection*. Apr. 2023. arXiv: 2304.01666 [cs.CL]. URL: <https://arxiv.org/pdf/2304.01666.pdf>.
- [9] Silvana Castano, Alfio Ferrara, Stefano Montanelli, and **Francesco Periti**. "Semantic Shift Detection in Vatican Publications: a Case Study from Leo XIII to Francis". In: *Proceedings of the 30th Italian Symposium on Advanced Database Systems (SEBD)*. Vol. 3194. Tirrenia (PI), Italy: CEUR-WS, June 2022, pp. 231–243. URL: <https://ceur-ws.org/Vol-3194/paper29.pdf>.
- [10] **Francesco Periti**, Alfio Ferrara, Stefano Montanelli, and Martin Ruskov. "What is Done is Done: an Incremental Approach to Semantic Shift Detection". In: *Proceedings of the 3rd Workshop on Computational Approaches to Historical Language Change*. Ed. by Nina Tahmasebi, Syrielle Montariol, Andrey Kutuzov, Simon Hengchen, Haim Dubossarsky, and Lars Borin. Dublin, Ireland: Association for Computational Linguistics, May 2022, pp. 33–43. URL: <https://aclanthology.org/2022.lchange-1.4>.
- [11] Silvana Castano, Alfio Ferrara, Stefano Montanelli, and **Francesco Periti**. "From Digital to Computational Humanities: The VAST Project Vision". In: *Proc. of the 29th Italian Symposium on Advanced Database Systems (SEBD)*. Vol. 2994. Pizzo Calabro (VV), Italy: CEUR-WS, Sept. 2021, pp. 24–35. URL: <https://ceur-ws.org/Vol-2994/paper3.pdf>.
- [12] Silvana Castano, Alfio Ferrara, Giulia Giannini, Stefano Montanelli, and **Francesco Periti**. "A Computational History Approach to Interpretation and Analysis of Moral European Values: the VAST Research Project". In: *International Workshop on Computational History, HistInformatics*. Vol. 2981. CEUR-WS, Sept. 2021, pp. 1–9. URL: <https://ceur-ws.org/Vol-2981/paper7.pdf>.

OTHER PUBLICATIONS

- [1] **Francesco Periti**. "Stereotypes in the Italian Parliament". In: *ISLab blog*. 2023. URL: <http://tales.islab.di.unimi.it/2023/02/06/stereotypes-in-the-italian-parliament/>.
- [2] Luigi Curini and **Francesco Periti**. "Gli Stereotipi di Genere nel Parlamento Italiano, da De Gasperi ai Giorni Nostri". In: *InfoData, Sole 24 ore*. 2021. URL: www.infodata.ilsole24ore.com/2021/08/30/gli-stereotipi-genere-nel-parlamento-italiano-de-gasperi-ai-giorni-nostri-dataanalysis.