Gabriele Sarti

PHD STUDENT IN EXPLAINABLE AI AND NATURAL LANGUAGE PROCESSING

✉ gabriele.sarti996@gmail.com | ⌂ gsarti.com | 🐙 gsarti | 🔗 gabrielesarti | 🐦 @gsarti_ | 🎓 Gabriele Sarti

Education

University of Groningen, Center for Language and Cognition *Groningen, Netherlands*
Doctorate (PhD) in Natural Language Processing *September 2021 - Present*

- Development and application of interpretability approaches to neural language models for machine translation, supervised by Arianna Bisazza, Malvina Nissim and Grzegorz Chrupala.
- Co-instructor of the Master course in Natural Language Processing and co-supervisor of several BSc and MSc thesis projects.
- Part of the 🔗 InDeep consortium funded by the Dutch Research Council (NWO).

University of Trieste, International School for Advanced Studies (SISSA) *Trieste, Italy*
Master of Science (MSc) in Data Science and Scientific Computing *October 2018 - December 2020*

- Data Science for Social Sciences track, all courses taught and assessed in English. Graduation score: 110 Cum Laude.
- Thesis: "Interpreting Neural Language Models for Linguistic Complexity Assessment". Supervisors: Felice Dell'Orletta, Davide Crepaldi.

Cégep of Saint-Hyacinthe *Saint-Hyacinthe, Canada*
Collegial Studies Degree (DEC) in Management Informatics *August 2015 - June 2018*

- Graduated with work-study mention with final internship at Skytech Communications under the supervision of Prof. Hugo St-Louis.
- All courses taught and assessed in French. Final R Score: 34.13.

Work Experience

Amazon Web Services *New York, United States*
Applied Scientist Intern, AWS AI Labs *June 2022 - September 2022*

- Research project with Amazon Translate on prompting large multilingual language models for attribute-controlled machine translation.
- Manager: Georgiana Dinu. Collaborators: Xing Niu, Benjamin Hsu, Maria Nadejde, Phu Mon Htut.

Aindo *Trieste, Italy*
Research Scientist *November 2020 - August 2021*

- Sequence-to-sequence question answering applied to structured predictions for the clinical domain.
- Experimental work in cross-lingual transfer to Italian for generative language models pre-trained in English.
- Temporally-aware multi-interaction neural recommender systems for online clothes resellers.
- Controllable sketch-to-image synthesis for the fashion industry with StyleGANs and CLIP.

Institute of Computational Linguistics "Antonio Zampolli" (ILC-CNR) *Pisa, Italy*
Research Assistant in Natural Language Processing *October 2019 - December 2019*

- Developed a multitask training pipeline for reading times predictions using neural language models. Models were evaluated on linguistic complexity assessment and analyzed using probing and representational similarity methods. Host: Felice Dell'Orletta

Skytech Communications Inc. *Montréal, Canada*
Machine Learning Engineer Intern *February 2018 - June 2018*

- Augmented a convolutional neural networks system for automatic record keeping with handwritten characters recognition capabilities.
- Development of a sentiment analysis platform for highlighting inappropriate student comments in professors' evaluation forms.

Talks and Publications

SELECTED PUBLICATIONS

🔗 **Inseq: An Interpretability Toolkit for Sequence Generation Models**
Gabriele Sarti, Nils Feldhus, Ludwig Sickert, Oskar van der Wal, Malvina Nissim, Arianna Bisazza
Annual Meeting of the Association for Computational Linguistics: System Demonstrations (ACL Demo 2023)

🔗 **RAMP: Retrieval and Attribute-Marking Enhanced Prompting for Attribute-Controlled Translation**

Gabriele Sarti, Phu Mon Htut, Xing Niu, Benjamin Hsu, Anna Currey, Georgiana Dinu, Maria Nadejde

Annual Meeting of the Association for Computational Linguistics (ACL 2023)

🔗 **DivEMT: Neural Machine Translation Post-Editing Effort Across Typologically Diverse Languages**

Gabriele Sarti, Arianna Bisazza, Ana Guerberof-Arenas, Antonio Toral

Conference on Empirical Methods for Natural Language Processing (EMNLP 2022)

🔗 **That Looks Hard: Characterizing Linguistic Complexity in Humans and Language Models**

Gabriele Sarti, Dominique Brunato, Felice Dell'Orletta

Hon. mention, Best student paper, *Workshop on Cognitive Modeling and Computational Linguistics (CMCL 2021)*

🔗 **ETC-NLG: End-to-end Topic-Conditioned Natural Language Generation**

Ginevra Carbone, **Gabriele Sarti**

Italian Journal of Computational Linguistics (IJCoL), Issue 6-2, 2020

→ *Full list of publications available* 🔗 <u>here</u>

Selected Talks

Empowering Human Translators with Interpretable Interactive Neural Machine Translation
Gabriele Sarti — Oral presentation, A glimpse of the future track, XAI4Debugging Workshop at NeurIPS 2021

Characterizing Linguistic Complexity in Humans and Language Models
Gabriele Sarti — Invited talk at the MilaNLP group at Bocconi University, IT

Neural Language Models: The New Frontier of Natural Language Understanding
Gabriele Sarti — Young Chapter of Italian Statistical Society (ySIS), StaTalk 2019

The Educational Impact of Artificial Intelligence
Gabriele Sarti, Alexandre Brunet — 38th Symposium of Québec Association for Collegial Pedagogy (AQPC), 2018

→ *Full list of talks available* 🔗 <u>here</u>

Extracurricular Activity

Research Projects

March 2020	🔗 <u>COVID-19 Semantic Browser</u>, in collaboration with Area Science Park and AILC
2019	System Demonstration Organizer, 🔗 <u>Trieste Next Science Festival, AI-talo Svevo</u>

Social Engagements

2020	Research and Upskilling Coordinator, 🔗 <u>AI Safety Initiative Groningen (AISIG)</u>
2020	President and Founder, 🔗 <u>Artificial Intelligence Student Society (AI2S)</u>
2020-2021	Communication Team Member, 🔗 <u>Italian Association for Computational Linguistics (AILC)</u>
2015-2020	Volounteer, AFS Italy and AFS Canada

Honors & Awards

2023	20K€ Grant for Human-AI Interaction Project, Imminent Research Center	*Rome (IT)*
2023	2K€ eScience Center Fellowship, eScience Center	*Amsterdam (NL)*
2018	Excellence Scholarship for Data Science Students, SISSA	*Trieste (IT)*
2018	Valedictorian of the Management Informatics Class of 2018, Cégep of Saint-Hyacinthe	*Canada*
2016	Perseverance Scolarship for Informatics Students, Hydro-Québec	*Canada*
2013	Full merit scolarship towards an AFS exchange year in Canada, Telecom Italia Mobile	*Rome (IT)*