

Barbara Gendron

3rd-year PhD Student in Knowledge-Enhanced Natural Language Processing

175 hours of teaching over 3 years, practical sessions and lectures, L3-M1 levels, Mines Nancy and IUT Charlemagne

Estimated PhD defense date: December 2026

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Education

PhD in Computer Science

2023 – Present

LORIA, Université de Lorraine – Nancy, France

- Thesis: *Knowledge-enhanced conversational models and ontology-driven control of LLMs*
- Supervisors: Mathieu d'Aquin, Gaël Guibon
- Feb. - May 2026: research visit at the Institute for Data, Process and Knowledge Management, WU Vienna University of Economics, under the supervision of Marta Sabou (funded by DrEAM grant)

Master of Data Science

2022 – 2023

Université du Luxembourg – Esch-sur-Alzette, Luxembourg

- Double degree with École des Mines de Nancy
- Major in Machine and Deep Learning, Computer Vision and applications to Medical Imaging, Natural Language Processing, Network analysis

Diplôme d'Ingénieur (MSc Engineering)

2020 – 2023

École Nationale Supérieure des Mines de Nancy – Nancy, France

- Major in Data Analysis, Machine/Deep Learning, Probabilities, Partial Differential Equations, Numerical Analysis and Stochastic Methods
- Research project in Natural Language Processing: Unsupervised Multilingual Alignment on Bio-Medical Data

Teaching & Supervision

Teaching Activities

2023 – Present

Practical sessions (TD) and lectures (CM) at École des Mines de Nancy and IUT Charlemagne

Course Name	Teaching	Institution	Level	Year(s)	Hours
Data Analysis with R	TD	Mines Nancy	M1	2023/2024, 2024/2025	36
Introduction to Machine Learning	TD	Mines Nancy	M1	2023/2024, 2024/2025, 2025/2026	81
Introduction to Deep Learning	TD	Mines Nancy	M1	2023/2024	14
Programming and Data Structures	TD	Mines Nancy	L3	2024/2025	20
Development of Web Interfaces	CM & TD	IUT Charlemagne	L1	2025/2026	24

M2 Intern Supervisor, LORIA

March 2026 – Present

Ontology-Driven Control of Conversational LLMs for AI Problem Formulation

Supervision of an M2 intern from the NLP Master, IDMC, Université de Lorraine, Nancy, France. Funded by INSIGHT Interdisciplinary Project.

Publications

Conference Papers

- Gendron, B., Guibon, G., D'Aquin, M. (2025). *Towards Ontology-Based Descriptions of Conversations with Qualitatively-Defined Concepts*. In Proceedings of TOTH 2025 – Terminology & Ontology: Theories and Applications, Chambéry, France. [link]

- Gendron, B., Guibon, G. (2024). *SEC: Context-Aware Metric Learning for Efficient Emotion Recognition in Conversation*. In Proceedings of WASSA at ACL 2024, Bangkok, Thailand, pp. 11–22. [link]
- Gendron, B., Guibon, G. (2024). *SEC : contexte émotionnel phrastique intégré pour la reconnaissance émotionnelle efficiente dans la conversation*. In Actes de JEP-TALN 2024, Toulouse, France, pp. 219–233. [link]

Workshop Papers

- Gaschi, F., El-Baamrani, I., Gendron, B., Rastin, P., Toussaint, Y. (2023). *Code-Switching as a Cross-Lingual Training Signal: an Example with Unsupervised Bilingual Embedding*. In Proceedings of MRL at EMNLP 2023, Singapore, pp. 208–217. [link]
- Blivet et al. (2023). *Participation de l'équipe TTGV à DEFT 2023 : Réponse automatique à des QCM issus d'examens en pharmacie*. Atelier DEFT 2023. [link]

Talks & Presentations

Seminar Talks

- *Bridging Symbolic Knowledge and Neural Text Generation: Ontology-Driven Conversational Control of LLMs*. Institute for Data, Process and Knowledge Management, WU University of Economics and Business, Vienna, Austria. February 2026.
- *Conversational Control of LLMs Driven by Ontological Definitions*. MosAlk PhD Day, LORIA, Nancy, France. December 2025. Also presented at the LIPN Seminar, Université Sorbonne Paris-Nord, Villetaneuse, France. February 2026.
- *Mastering Large Language Models: Efficient Techniques for Fine-Tuning*. Tutorial for DeepLorLA Network with both theory and practical sessions, LORIA, Nancy, France. January 2025. [link]
- *Towards Hybrid Conversational AI: How to Combine Deep Learning and Symbolic Approaches?* Cognition et Langage Seminar, IDMC, Nancy, France.

Conference Talks

- *Towards Ontology-Based Descriptions of Conversations with Qualitatively-Defined Concepts*. Oral presentation, TOTh 2025, Chambéry, France. June 2025.
- *SEC : contexte émotionnel phrastique intégré pour la reconnaissance émotionnelle efficiente dans la conversation*. Oral presentation, JEP-TALN 2024, Toulouse, France. July 2024.

Poster Presentations

- *SentEmoContext: Context-Aware Metric Learning for Efficient Emotion Recognition in Conversation*. Virtual poster presentation, WASSA at ACL 2024, Bangkok, Thailand. August 2024.
- *Controlled Conversational Models through Conversation-Dedicated Ontology*. Poster presentation, ISWS 2024 – International Semantic Web Research Summer School, Bertinoro, Italy. June 2024.

Outreach Talks

- CHICHE “1 scientifique, 1 classe” for *Sciences Numérique et Technologie* (2nde). Lycée Jean-Victor Poncelet, Saint-Avold, France. April 3rd, 2025.
- CHICHE “1 scientifique, 1 classe” for *Sciences Numérique et Technologie* (2nde). Lycée Jean Lurçat, Bruyères, France. April 11th, 2024.
- *ChatGPT : du fonctionnement aux usages*. Panel discussion, Faculté de Droit, Sciences Économiques et Gestion, Nancy. September 2023.

Projects

Transparent Music Generation

June 2024

ISWS 2024 Research Project – International Semantic Web Research Summer School, Bertinoro, Italy

Supervision: Valentina Presutti

- Meta-Learning for Emotion Detection in Conversational Context** March – August 2023
Master Thesis – University of Luxembourg & LORIA, Nancy
 Supervision: Gaël Guibon. Metric-learning approaches for Emotion Recognition in Conversation; led to the SEC publications.
- Single-cell RNA Sequencing of Neuronal Differentiation** Sept. 2022 – Jan. 2023
Master 2 Project – Network Analysis for Life Sciences, University of Luxembourg & LCSB
 Supervision: Corrado Ameli and Alexander Skupin
- Unsupervised Alignment for Bio-Medical Data** Nov. 2021 – Jul. 2022
Master 1 Research Project – École des Mines de Nancy & LORIA
 Supervision: Félix Gaschi, Parisa Rastin, and Yannick Toussaint

Software

- SentEmoContext** 2023 – present
Research software – related to PhD work
 PyTorch implementation of the metric-learning pipeline for Emotion Recognition in Conversation presented in the SEC papers. Implements Siamese Network architectures with both isolated and context-aware utterance representations on the DailyDialog dataset.
 📄 github.com/B-Gendron/sentEmoContext
- Zotero Similarity Selection (ZSS)** 2024 – present
Research support tool
 A tool for semantically filtering large Zotero libraries using Sentence-BERT embeddings and cosine similarity against a user-defined reference description. Supports both a web interface and a terminal version, and exports results in CSV or BibTeX format.
 📄 github.com/B-Gendron/zotero-similarity-selection
- NLP Conferences Gantt Chart Generator** 2023 – present
Research support tool
 A Gantt chart generator for tracking upcoming NLP conference deadlines and venues, colour-coded by CORE ranking. Data is sourced from a collaborative Google Spreadsheet.
 📄 github.com/B-Gendron/nlp-conferences

Work Experience

- NLP Research Intern, LORIA** March – August 2023
 Nancy, France
- Implementation of an end-to-end metric learning approach for emotion recognition in conversation using contextual dialogue representations
 - Writing of the Master Thesis *Meta-Learning for Emotion Detection in Conversational Context*
- Data Science Research Assistant, University of Luxembourg** November 2022 – February 2023
 Esch-sur-Alzette, Luxembourg
- Part of the Interventional Neuroscience Group, Luxembourg Centre for Systems Biomedicine (LCSB).
 - Support and documentation on data science, machine learning, and medical imaging tools (ANTs, MONAI).
- Data Scientist Intern, GRTgaz** June – August 2022
 Bois-Colombes, France
- Pre-processing of technical data from gas infrastructures and development of a regression model for predictive maintenance.
 - Use of the Dataiku DSS platform for data preparation and analysis.

Science Popularisation

Voluntary Science Communicator, Pavillon de Manse

2015 – Present

Chantilly, France

- Assist qualified science communicators in the design and delivery of educational workshops for the general public, at this heritage site dedicated to the history of French industrial science.
- Produce video editing content to support their science communication and outreach activities.

Science Mediator, La Main à la Pâte

2020 – 2021

Paul Lévy Primary School, Saint-Max, France

- Designed and led twelve afternoon workshops around the concept of motion for primary school students.
- Guided pupils through a group project culminating in the construction of a small vehicle.

Skills

Programming Languages

- Python: data analysis, deep learning (PyTorch, HuggingFace, TensorFlow, Scikit-learn, Pandas) and package development;
- R: data analysis and statistics (since 2021);
- Bash, SQL, MATLAB, Julia, Java, JavaScript: working knowledge.

Development Tools

- Git, Docker, L^AT_EX, HPC clusters (Slurm/OAR), Dataiku DSS, Jupyter Notebooks.

Languages

French (native), English (fluent, Cambridge C1), Spanish (intermediate), Japanese (beginner, JLPT N5).