

ARMAND STRICKER

PhD Student
NLP & Dialogue Systems

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homepage

SUMMARY

3rd year Ph.D. student specializing in NLP and dialogue systems, seeking industrial R&D experience. Keen interest in integrating conversational skills into task-oriented agents. 5 years of experience in Python and machine learning for NLP.

EDUCATION

- 2021 - 2024 **PhD in Computer Science** Université Paris-Saclay, France
- **Project: Zero-shot** approach for TOD grounded in a previous chitchat exchange, using **query reformulation** and **coreference resolution**, achieving **97%** of a **LoRA** fine-tuned LLM's performance. *Under Review*
 - **Project:** Novel **chitchat augmentation** for MultiWOZ using in-context learning with **Llama-2-70B**. Provides a testbed for building more **chitchat-resilient** TOD systems and enables a system to respond with chitchat and TOD all in the same turn. *Accepted at LREC-COLING 2024.*
 - **Project:** A unified approach to user **emotion detection** and TOD modeling, using a mixture of LoRA fine-tuning and **CoT** prompting on **Llama-2-7B**. Leads to improved task success rates and more empathetic responses. *Accepted at IWSDS 2024.*
 - **Project:** Comparative study based on **entropy** of recent Task-Oriented Dialogue (TOD) datasets enhanced with chitchat. *Accepted at ASRU 2023.*
 - **Oral** presentation at IWSDS 2024
 - **Poster** presentation and **video** recording at ASRU 2023.
 - **Poster** presentation at YRRSDS 2023, workshop associated with SIGDial 2023.
 - Attendance of ALPS 2023 and LxMLS 2023.
 - **Lecturer** since 2021 for 1st year Master's students in Computational Linguistics at INALCO, Paris. **52 hours** of instruction over 2 semesters, providing an accessible **introduction to NLP** in English. **Personally** crafted presentation slides and exams.
 - On track to complete my PhD by **November 2024**.
- 2018 - 2020 **Master's in Computational Linguistics** Université Paris-Cité, France
- **Relevant Coursework:** Automatic Translation, Statistical Approaches to NLP, Algorithms, ML & DL for NLP, Mathematics Review (probability, linear algebra and calculus), Object-Oriented Programming, a selection of Linguistics courses.
 - **Thesis:** Designed a **temporal QA** task, similar to the SQuAD task. **Curated a task-specific dataset** with over 6000 examples. Implemented the QA model with PyTorch, using LSTMs with attention mechanism. *Accepted at Student Research Workshop, RANLP 2021.*
- 2013 - 2018 **Bachelor's and Master's in English** ENS Paris-Saclay, France
- ENS Paris-Saclay is one of France's top *Grandes écoles* (elite, research-driven institutions in France). **Ranked 3rd** out of over 400 candidates nationwide in the entry exam for my department.
 - **Bachelor's** in Human and Social Sciences with a focus on English, covering philosophy, history, literature, and linguistics. Included preparation for a career as a university professor.
 - **Master's** focused on English applied to various fields (law, medicine, engineering, computer science). Successfully completed the first year at **New York University**, department of English, and received a **\$20,000 scholarship**.

WORK EXPERIENCE

- Jan - May 2021 **NLP Research Engineer & Project Manager** Labsense, Paris
- Kickstarted the **deep learning initiatives** of a French NLG startup. Used **French transformers** like Barthez and leveraged the OpenAI API to address tasks such as **paraphrasing** and **summarization**.
 - Built a successful internal **proof of concept** that demonstrated the effectiveness of transformers compared with a symbolic approach.
- May - July 2019 **NLP R&D Internship** Labsense, Paris
- Implemented a word-level CNN for multiclass sentence classification to categorize articles submitted to the company's website. This directly helped **secure \$10,000** in government research funds.

TECHNICAL SKILLS

- Regular job submissions with **Slurm** to an HPC cluster for LLM training and inference.
- Experience with **human evaluation** including strategic planning, statistical analysis of results and interface development.
- **ML Libraries:** PyTorch, TensorFlow, HuggingFace (transformers, peft), vLLM, langchain, sklearn, Numpy, spaCy, scipy, NLTK, Weights & Biases
- **Programming:** Python, Java, HTML, CSS
- **Other resources/frameworks:** HTML/CSS/XML, SQL, Unix/Linux, Git, Github, Streamlit

PUBLICATIONS AND UNDER REVIEW

- *A. Stricker et al.* **Task-Oriented Dialogue Grounded in Chitchat: A Zero-Shot Approach Based on Query Reformulation.** *Under Review*
- *A. Stricker et al.* **Chitchat as Interference: Adding User Backstories to Task-Oriented Dialogues** LREC-COLING 2024. Awaiting conference proceedings. ([link](#))
- *A. Stricker et al.* **A Unified Approach to Emotion Detection and Task-Oriented Dialogue Modeling.** IWSDS 2024. Awaiting conference proceedings. ([link](#))
- *A. Stricker et al.* **Enhancing Task-Oriented Dialogues With Chitchat: a Comparative Study Based on Lexical Diversity and Divergence.** ASRU 2023. ([link](#))
- *A. Stricker* **Towards More Natural Dialogues: Integrating Open-Domain Dialogue Skills into Task-Oriented Agents.** YRRSDS 2023, workshop associated with SIGDial 2023 ([link](#))
- *A. Stricker et al.* **Searching for Snippets of Open Domain Dialogue in Task-Oriented Dialogue Datasets.** Research from 2022 submitted to arxiv in 2023. ([link](#))
- *A. Stricker* **Question Answering in Natural Language: the Special Case of Temporal Expressions.** Student Research Workshop associated with RANLP 2021 ([link](#))

ADDITIONAL INFORMATION

- **Languages:** *French* (native), *English* (fluent), *German* (intermediate), *Spanish* (intermediate).
- **Extracurricular:** triathlon, guitar.