

# ARMAND STRICKER

PhD Student  
NLP & Dialogue Systems

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## SUMMARY

3<sup>rd</sup> 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:** Comparative study based on **entropy** of recent Task-Oriented Dialogue (TOD) datasets enhanced with chitchat. *Accepted at ASRU 2023.*
- **Project:** Novel **chitchat augmentation** for MultiWOZ using in-context learning with Llama-2-70B. A chatty user adds elements of backstory to their request, interfering with the smooth progression of the task. Provides a testbed for building more **chitchat-resilient** TOD systems. Baselines assessed are end-to-end and built on top of **Llama-2-7B**, fine-tuned with **LoRA**. *Submission under review.*
- **Project:** A unified approach to user **emotion detection** (ED) and TOD modeling. Tasks are learned with a single language modeling objective and lead to improved task success rates as well as more empathetic responses. Experiments are conducted using end-to-end TOD systems featuring GPT-2 and Llama-2 backbones, implemented with **Pytorch** and **Huggingface**. *Submission under review.*
- **Poster** presentation and **video** recording at ASRU 2023 (December 17th).
- **Poster** presentation at YRRSDS 2023, workshop associated with SIGDial 2023.
- Attendance of ALPS 2023 and LxMLS 2023.
- **Lecturer** since 2021 for first-year Master's students in Computational Linguistics at INALCO, Paris. Delivering a total of **52 hours** of instruction over two semesters, I offer an accessible **introduction to NLP** in English. I am **personally** responsible for crafting all presentation slides and exams. Class projects include building a trigram language model, creating a naive Bayes spam classifier, performing sentiment analysis using logistic regression, and training word embeddings with the CBOW approach in PyTorch.
- On track to complete my PhD by November 2024.

2018 - 2020

### Master's in Computational Linguistics

Université de Paris, France

- **Relevant Coursework:** Automatic Translation, Statistical Approaches to NLP, Algorithms, Machine Learning for NLP, Deep Learning for NLP, Mathematics Review (probability, linear algebra and calculus), Object-Oriented Programming, a selection of Linguistics courses.
- **Thesis:** I designed a **temporal QA** task. The objective was to construct a QA model that could effectively extract temporal information such as specific times, dates, days, durations, and more from paragraphs, akin to the SQuAD task. I **curated a task-specific dataset** encompassing over 6000 examples, leveraging the WikiWars corpus as a foundation. I implemented the QA model with PyTorch, using LSTMs with attention. *Accepted at Student Research Workshop, RANLP 2021.*

2013 - 2018

### Bachelor's and Master's in English

ENS Paris-Saclay, France

- The ENS Paris-Saclay is one of France's top *Grandes écoles*— elite, research-driven institutions in France. I **ranked 3<sup>rd</sup>** out of over 400 candidates nationwide in the entry exam.
- The **Bachelor's** encompassed Human and Social Sciences with a specialization in English, delving into subjects such as philosophy, history, and linguistics, aimed at preparing students for a career as university professors.
- The **Master's** focused on English applied to various fields (law, medicine, engineering, computer science...). I successfully completed the first year at **New York University**, department of English, and was awarded a **\$20,000 scholarship**.

## WORK EXPERIENCE

Jan - May 2021

### NLP Research Engineer & Project Manager

Labsense, Paris

- I contributed in kickstarting the **deep learning initiatives** of a French NLG startup, initially exclusively focused on symbolic AI. I used **French transformers** like Barthez and leveraged the OpenAI API to address tasks such as **paraphrasing** and **summarization**.
- Employing Python, PyTorch, and the HuggingFace framework, I built a successful internal **proof of concept** that demonstrated the effectiveness of transformers compared with a symbolic approach. The startup now employs a hybrid AI strategy.

- May – July 2019     **NLP R&D Internship**     Labsense, Paris
- I implemented and tested a word-level CNN for multiclass sentence classification to categorize articles submitted to the company's website. This project contributed to **securing \$10,000** in research funds for the startup.
- March – June 2017     **Speech Writing Intern for the French Consul**     French Consulate General in New York
- I prepared speeches for the Consul for **15+ events**, often involving French tech entrepreneurs in NYC. The main focus was to proactively foster collaboration among French tech startups within the dynamic environment of NYC.

## TECHNICAL SKILLS

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- Regular job submissions with **Slurm** to an HPC cluster to perform training and inference for LLMs.
- Experience with **human evaluation** including strategic planning, statistical analysis of results and interface development using tools such as Streamlit.
- Strong **linguistic skills** that enable a nuanced qualitative evaluation of model outputs, contributing to a thorough understanding of system performance.
- **ML Libraries:** PyTorch, TensorFlow, HuggingFace (transformers, peft), vLLM, langchain, sklearn, spaCy, scipy, NLTK, Weights & Biases
- **Programming:** Python, Java
- **Other resources/frameworks:** XML, SQL, Linux, Git, Github, Streamlit

## PUBLICATIONS AND UNDER REVIEW

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- A. Stricker *et al.* **Enhancing Task-Oriented Dialogues With Chitchat: a Comparative Study Based on Lexical Diversity and Divergence.** ASRU 2023. Awaiting conference proceedings. (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)
- A. Stricker *et al.* **Chitchat as Interference: Adding User Backstories to Task-Oriented Dialogues.** *Under Review*
- A. Stricker *et al.* **A Unified Approach to Emotion Detection and Task-Oriented Dialogue Modeling.** *Under Review*

## ADDITIONAL INFORMATION

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- **Languages:** *French* - native, *English* - native, *German* - intermediate, *Spanish* - intermediate.
- **Extracurricular:** triathlon, guitar, singing.