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NLP & Dialogue Systems

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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

PhD in Computer Science

2021 - 2024   **Université Paris-Saclay, France**

- **Project:** Robustness evaluation of a **Few-shot Task-oriented Bot** to **inter-mode inputs**, ie. task-oriented requests that are mixed with chitchat, using **Llama3** models. Casting dialogue state tracking as a **function call generation** task stands out as more robust to inter-mode inputs compared with existing baseline prompting strategies. It also heavily improves Joint Goal Accuracy and end-to-end 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 datasets enhanced with chitchat. *Accepted at ASRU 2023.*

- **Poster** presentation and **video** at LREC-COLING 2024.

- **Oral** presentation at IWSDS 2024

- **Poster** presentation and **video** 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. **130 hours** of instruction over 5 semesters, providing an accessible **introduction to NLP** in English. **Personally** crafted presentation slides and exams.

- On track to complete my PhD by **February 2025**.

Master's in Computational Linguistics

2018 – 2020   **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.*

Bachelor's and Master's in English

2013 – 2018   **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, medecine, 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**

- Initiated **deep learning efforts** of a French NLG startup. Used **seq2seq transformer** models like T5 and BART and leveraged the OpenAI API for **paraphrasing** .
- Built a successful internal **proof of concept** that demonstrated the potential 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
- **Other resources/frameworks:** HTML/CSS/XML, SQL, Unix/Linux, Git, Github, Streamlit

PUBLICATIONS AND UNDER REVIEW

- *A. Stricker et al.* **A Few-shot Approach to Task-oriented Dialogue Enhanced with Chitchat** *Under Review*
- *A. Stricker et al.* **Chitchat as Interference: Adding User Backstories to Task-Oriented Dialogues** LREC-COLING 2024. (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.