

ONE KEY LIMITATION OF IT ALL

Program synthesis is purely SYNTACTICAL

↳ cannot solve $\begin{cases} \text{Paris} \rightarrow \text{France} \\ \text{London} \rightarrow ? \end{cases}$

On the other hand:

LLMs struggle with syntactic tasks

↳ cannot solve Wordle problems

Flash GPT combines syntax and semantics

Key idea: "if program synthesis fails,
then it must be semantics"

ISSUES:

- LLMs should not be trusted,
even more so for semantical information
- LLM queries are very expensive:
does not scale to complicated queries
nor if the program need to be applied on many rows

(FINALLY) SOME ADVERTISEMENTS

we recently released **WikiCoder**:

Replaces LLMs with knowledge graphs (Wiki Data)

BENEFITS

- + Knowledge graphs can be trusted
- + Knowledge graphs are very cheap to query
- + Knowledge graphs can be maintained (updated)
| built for specific purposes

SUMMARY

We have a set of **GENERIC** tools for performing
SYMBOLIC SEARCH on grammars
enhanced with **MACHINE LEARNING PREDICTIONS**

WHAT'S NEXT ?

- Reinforcement learning
- Reactive synthesis
- Specification mining
- Transductions
- Symbolic regression
- Your favourite **SYMBOLIC SEARCH** question

JOIN US

We have open positions in Bordeaux
PhD and postdoc
both theory and practice