

CSCI 5535: Project Proposal

Solving Algebraic Expressions using PL and NLP

Adam Weimerslage, Shafiuddin Rehan Ahmed

Natural Language Processing has introduced several types of parsers and taggers for understanding and generating language. In some views, the abstraction of programming languages can be seen as a comparable system of parsing, albeit a more structured one. There is much interesting in building systems that can learn programs from natural language (<https://arxiv.org/abs/1704.07926>). In this project, we are interested in building such an NLP system, with the goal of generating very simple, arithmetic programs to solve problems posed in English. To that end, we are interested in applying the state of the art in NLP (possibly combined with some heuristics), and the formal rigor required to generate executable abstract syntax trees, as a set of constraints for building a parser that can generate such programs from text.

(Not sure if the above is exactly the target. Thinking in terms of NLP (probabilistic?) parser → generate arithmetic expressions either according to a made up set of statics/dynamics, or an actual language (Python?) whose structure and AST we can verify.)