Logic Programming
Three open source Prolog systems (available on github)

- Bijective Goedel numberings for recursively defined data types and Prolog terms

- Efficient Prolog-based type-inference and random term generation algorithms

- Logic Programming-based agent infrastructures

- Member of Executive Committee of the Association of Logic Programming

Combinatorics of Lambda Terms
A Logic Programming Playground for Lambda Terms, Combinators, Types and Tree-based Arithmetic Computations

Natural Language Processing
TextRank algorithm for automatic summary and keyword extraction (1500+ citations)

- Logic Grammars

- Reasoning-enabled dialog systems

- Categorial Grammars and Logic Forms

Tree-based Arithmetic Computations
Compact tree-based representation of the largest known prime number (22+ million digits):