

AARON WHITE RECEIVES NSF CAREER AWARD

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Professor Aaron White

Aaron White (BA, 2009), who is currently Assistant Professor of Linguistics at the University of Rochester, just received an NSF Faculty Early Career Development (CAREER) award. This prestigious award, which is jointly supported by the Linguistics program and the Robust Intelligence program, will support his work on logical form induction:

This project develops a framework for integrating complex logical reasoning capabilities into the components of AI systems that make their ability to reason by analogy possible. To support the development of this framework, the project builds a large dataset capturing the logical relationships among sentences in three languages by using AI systems to determine which kinds of logical relationships are most useful for improving that system's own logical reasoning capabilities. Through integration with graduate and undergraduate curricula, the project serves as a vehicle to enhance programming and statistical literacy as well as data collection and data management skills through training with hands-on applications.

The framework integrates logical representations into AI systems by imposing constraints on the sorts of numeric representations that those systems use to make inferences on the basis of some natural language input. These constraints are defined in terms of a mapping from the system's numeric representations of natural language to logical representations. This mapping is learned from scratch and itself constrained (a) to correctly predict inferences that actual speakers of a language make — as captured by the large-scale datasets collected under the project — and (b) to be compositional: the meaning of some piece of language must be predictable from the meanings of its parts.