Unlocking Human Language for Computers

Chris Callison-Burch

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CURRENT RESEARCH

Advancing machine learning of natural language enables computers to understand language and the world through text, while improving their interaction with humans

Human knowledge is largely encoded in natural language. A longstanding goal of artificial intelligence has been to automate the understanding of natural language. However, creating an appropriate representation for the meaning of language is problematic. Approaches using complex semantic representations are difficult to scale because they try to cover the broad range of expressions used in actual language. Dr. Chris Callison-Burch, Aravind K Joshi term Assistant Professor in Computer and Information Science Department at the University of Pennsylvania, is interested in computer understanding of human language, specifically computational linguistics and natural language processing. His innovative work enables computers to understand language, learn about the world through text, and improve their interaction with humans. Dr. Callison-Burch's research has the potential to unlock the huge volume of human knowledge encoded in text form and make it analyzable by computers. His approach uses pairs of English phrases as the basic unit of representation, which are then automatically labeled with a small number of semantic relationships that allow a subset of automated reasoning to be applied. This design decision enables Dr. Callison-Burch to scale to open domains and implement data-driven algorithms for acquiring semantic knowledge about language. The results of his work can help researchers in multiple research fields, such as sociology, medicine, public health, and political science.

Dr. Callison-Burch and his team of computer science students closely collaborate with professors and researchers in the fields of epidemiology, political science, and linguistics, to name a few. Their current research is largely...

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AFFILIATION

Penn   University of Pennsylvania

EDUCATION

- Ph.D. in Informatics 2008,School of Informatics, University of Edinburgh, Edinburgh
- BS in Symbolic Systems 2000,Stanford University

AWARDS

- Sloan Fellow, 2014

RESEARCH AREAS

Linguistics, Technology, Computational Sciences / Mathematics

FUNDING REQUEST

Your contributions will help fund Dr. Callison-Burch's continued research in computer-aided understanding of language, which aids research in multidisciplinary fields. Costs include $70K/year for one PhD student or postdoc, $5K/year for one undergraduate research assistant, and $25k/year to support his team's large computing infrastructure that helps then design machine learning algorithms to analyze huge volumes of data. Play a role in transforming machine learning of natural language; fund Dr. Callison-Burch.