



THE UNIVERSITY OF ARIZONA
COLLEGE OF SOCIAL & BEHAVIORAL SCIENCES
School of Information

Final Ph.D. Examination

Of

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**“Neural Network Algorithms
for Ontology Based
Information Extraction”**

Major Advisor: Dr. Steven Bethard

Tuesday, December 15th, 2020

9:00am

Join at <https://arizona.zoom.us/j/7870131708>

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Abstract:

Ontology, as a formal and explicit specification of a shared conceptualization for a particular domain, is useful in information extraction. On the one hand, since information extraction is concerned with the task of retrieving information for a particular domain, formally and explicitly specifying the concepts of that domain through an ontology defines the boundary of what information needs to be extracted. On the other, an ontology, typically consisting of classes (or concepts), attributes (or properties), and relationships (or relations among class members), contains the structured information that information extraction systems aim to extracting. In this thesis, we are interested in how using an ontology can improve the information extraction process. We explore two research directions that both employ ontologies in the information extraction process, temporal normalization and biomedical concept normalization. In both research directions, we show that leveraging resources in ontologies helps to build high-performance information extraction systems, and presenting the extracted output using such ontologies makes the structured information concise and interchangeable.