

Taylor Olson

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USA

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## Education

### **Northwestern University, Evanston, IL**

PhD Computer Science, Advisor: Ken Forbus, Qualitative Reasoning Group, 2018 - Present

### **University of Northern Iowa, Cedar Falls, IA**

B.S., Computer Science, 2018

B.A., Mathematics, 2018

Minor in Philosophy

### **Kirkwood Community College, Cedar Rapids, IA**

Mechanical Engineering Transfer Program, 2014

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## Research Interests

*Investigating the use of normative theories and learning by reading for **creating artificial intelligence systems with social and moral competence***

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## Professional and Research Experience

### **PhD graduate student, Northwestern University, Qualitative Reasoning Group, Fall 2018 - Present**

- Creating formal representations and reasoning methods for social and moral norms
- Developing computational methods for learning by reading for intelligent systems. This process is three-fold:
  - Developing rules and machine learning approaches for dialogue and story understanding
  - Exploring belief functions for evidential reasoning
  - Deploying analogy for learning with structured, qualitative representations

### **Research Intern, Harvard University, Computational and Applied Mathematics team, NSF Grant, Summer 2017**

- Developed a pipeline and interface for rapid development of ensemble machine learning models including LSA, LDA, K-nearest neighbors, and Doc2Vec/Word2Vec
- Built classification models for courses based on syllabi natural language text
- Built an academic course recommendation engine

### **Research Assistant, University of Northern Iowa, Bioinformatics, 2016-2017**

- Translated compound IDs to their standard IDs for analysis
- Analyzed coverage of compound IDs and their adverse reactions, analyzing patterns to be used for prediction

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### Programming Intern, Web and Software Development, VGM Forbin, Summer 2016

- Maintained staging sites
  - Optimized python django sites and communicated with .NET and PHP teams
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### Talks and Presentations

Guest lecture, *Statistical Modeling - Introduction to Neural Networks*, Cognitive Modeling, Northwestern University, Fall 2020

Guest lecture, *Philosophy and KRR*, Knowledge Representation and Reasoning, Northwestern University, Winter 2020

*Artificial Intelligence in Curriculum Design*, National Conference for McNair Scholars and Undergraduate Research, University of Maryland, March 2018

Invited Speaker, *Artificial Intelligence and Recommender Systems*, McNair Seminar Series, University of Northern Iowa, September 2017

*Recommendation System Developer*, Joint Research Experience for Undergraduates Summer Symposium, Harvard University, August 2017

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### Honors and Awards

Cognitive Science Fellowship, Northwestern University, 2018-2019

4th Place, Midwest Instruction and Computing Symposium Programming Contest, 2017

1st Place at site, ACM Programming Contest, 2016

Ronald E. McNair Postbaccalaureate Achievement Program, 2016

Student of the Month, Kirkwood Community College, 2014

NSF Engineering Scholarship, Kirkwood Community College, 2012-2014

Engineering project featured in local newspaper, 2012

All-Region Basketball, Kirkwood Community College, 2012-2014

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### Software

#### tRECS

Python NLP package and graphical interface capable of: cleaning text data, building various statistical and vector space models, and creating recommender systems. With Janie Neal, Christiana Prater-Lee, and Eshita Nandini

#### UMLS-Similarity-Viewer

Python package for graphical user interface to UMLS-Similarity, a similarity querying package built on top of the UMLS database of medicines, chemical compounds, and adverse drug reactions