

Y U C A O

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PROFESSIONAL PROFILE

- Linguistics Ph.D. student in linguistics specialized in computational linguistics, semantics, syntax-semantics interface, and discourse analysis. Strong critical-thinking and problem-solving skills.
- Computation 10+ years of experiences in algorithms and data structure. The First Prize in National Olympiad in Informatics in Provinces 2007, China.
- NLP/NLU Research in how formal theories contribute to robust natural language processing. Coursework: [NLU and Computational Semantics](#), [Project Seminar: Linguistic Knowledge in Reusable Sentence Encoders](#) at NYU. [Graph formalisms for meaning representations](#) at NASSLLI 2018, CMU. Statistical NLP (Coursera), Machine Learning (Coursera), Introduction to Deep Learning (Coursera), Bayesian Methods for Machine Learning (Coursera).

EXPERIENCE

- **Ontology Linguist Intern** 08/2019–10/2019
Assistant Cross-Functional Group, Facebook (via PRO Unlimited)
Prototyped models that showcase *universal semantic dependency + ontology* approach to cross-domain semantic/knowledge graph parsing using PyTorch. Automated inferences in OWL 2 Web Ontology and sub-ontology extraction using Python.
- **Teaching Assistant/Course Instructor** 09/2018–08/2020
Linguistics Department, Rutgers University
Courses taught: *Introduction to Linguistic Theory*, *Invented Languages*.
- **Graduate Fellow** 09/2016–09/2018
Linguistics Department, Rutgers University
- **Research Assistant** 12/2014–07/2015
Center for Sign Linguistics and Deaf Studies, CUHK
Provided linguistic expertise and assisted in developing a Chinese grammatical knowledge assessment software for deaf/hard of hearing children.

EDUCATION

- **Ph.D. in Linguistics** 2016–present
Rutgers University–New Brunswick
- **M.A. in Chinese Linguistics and Language Acquisition** 2013–2014
The Chinese University of Hong Kong
Dean's List. Best M.A. Thesis Award
- **B.A. in Teaching Chinese as a Foreign Language** 2009–2013
Sichuan Normal University, China
Distinguished Thesis Award

PUBLICATIONS

- [Automated Fact-Value Distinction in Court Opinions](#) 2020
European Journal of Law and Economics. With Daniel Chen and Elliot Ash.
Automated classification of fact vs. value statements in written judicial decisions. Showed in application that the value segments are more informative of the ideological direction of U.S. circuit court opinions.
- [Investigating BERT's Knowledge of Language: Five Analysis Methods with NPIs](#) 2019
Proceedings of EMNLP 2019. With Alex Warstadt and 14 other authors.
Team role: constructed and conducted the main transfer learning experiments for investigating BERT's grammatical knowledge.

PROJECTS

- [Graph Representation of Meaning](#) ongoing
Designed a graph based semantic representation language that encodes plurality and quantification in natural language. Developed a CCG-based parser for semantic graphs.
- [Incremental topological sorting](#) 2017
Designed algorithms for topological sorting under uncertain precedence conditions. Experimented with dynamic updating strategies that significantly improve on static topological sorting in time complexity.

SKILLS

Machine learning modeling in NLP	Linguistic data analysis
Python, C, Matlab, PyTorch, Tensorflow, Scikit-learn	Statistics

LANGUAGES

Mandarin (native), English (fluent), Japanese (working fluency; certified JLPT Level N1), Cantonese (limited fluency), French (beginner), Hong Kong Sign Language (beginner).