# Zining Zhu

zining@cs.toronto.edu https://www.cs.toronto.edu/~zining +1(647)469-8642

## Education

**University of Toronto**, PhD student in Computer Science 2019 – PRESENT
Advisor: Frank Rudzicz
Research interests: NLP, Explainable AI, NLP+Society

**University of Toronto**, Bachelor in Engineering Science 2014-2019
Robotics Option
Sample courses: AI, Machine Learning, Operation Systems, Distributed Systems

## Publications

### Conferences, Workshops

[6] An information theoretic view on selecting linguistic probes
**Z. Zhu**, F. Rudzicz
EMNLP 2020 (Short paper; Acceptance rate 16.7%)

[5] Examining the rhetorical capacities of neural language models
**Z. Zhu**, C. Pan, M. Abdalla, F. Rudzicz
EMNLP 2020 BlackBoxNLP Workshop

[4] Detecting cognitive impairments by agreeing in interpretations of linguistic features
**Z. Zhu**, J. Novikova, F. Rudzicz
NAACL 2019 (Long paper; Acceptance rate 26.3%)

[3] Robustness against the channel effect in pathological voice detection
Y-T. Hsu, **Z. Zhu**, C-T. Wang, S-H. Fang, F. Rudzicz and Y. Tsao
NeurIPS ML4H Workshop 2018

[2] Semi-supervised classification by reaching consensus among modalities
**Z. Zhu**, J. Novikova, F. Rudzicz
NeurIPS IRASL Workshop 2018

[1] Deep neural networks for improved, impromptu trajectory tracking of quadrotors
Q. Li, J. Qian, **Z. Zhu**, X. Bao, M. K. Helwa, A. P. Schoellig
ICRA 2017

### Preprints and Others

[3] Semantic coordinates analysis reveal language changes in AI research
**Z. Zhu**, Y. Xu, F. Rudzicz. arXiv 2011.00543

[2] Natural languages understanding by a compositional alignment of word embeddings
Supervisor: F Rudzicz, EngSci undergraduate thesis

[1] Deconfounding age effects with fair representation learning when assessing dementia
**Z. Zhu**, J. Novikova, F. Rudzicz. arXiv 1807.07217

## Press Coverage

TechXplore: A new machine learning model to isolate the effects of age in predicting dementia (July 27, 2018)

## Selected Talks

- *An information theoretic view on selecting linguistic probes*, TsingHua University AI TIME, Video talk, Oct 30, 2020
- *Examining the rhetorical capacities of neural language models*, Vector Institute NLP Symposium spotlight presentation, Video talk, Sep 16, 2020.
- *Efficient pre-training methods for language modeling*, Tencent Jarvis Lab, Shenzhen, China, Aug 5, 2019
- *Automatic assessment of cognitive impairments*, UTMIST tech talk, Toronto, Canada, Nov 20, 2018
- *Probabilistic graphical models*, UTADA tech talk, Toronto, Canada, Oct 21, 2017

## Awards

- Vector Institute PhD Research Grant, Institutional, $6000. 2020
- ICRA RAS Travel Grant, Institutional, $500. 2017
- Engineering Science Research Opportunity Program (ESROP) fellowship, Departmental, $3000. 2016
- Dean's List, Institutional. 2014-2019
- UofT Entrance Scholarship, Institutional, $5000. 2014
- Chinese Physics Olympics (CPhO) Bronze medal, National. 2013

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## Work Experience

**Tencent Jarvis Lab**, Research Intern — Shenzhen, China. 2019

- Explainable language modeling and general-purpose pre-training.

**WinterLight Lab**, Research Software Engineer — Toronto, ON, Canada 2017 - 2018

- Supervised and semi-supervised assessment of cognitive impairments from multiple modalities.
- Published results at NeurIPS (IRASL workshop) and NAACL.
- Deconfounding age from linguistic features was reported by TechXplore.

**TripAdvisor**, Software Engineer Intern — Needham, MA, US. 2017

- Android application with Java API for hotel booking.

**Dynamic Systems Lab**, Research Assistant — Toronto, ON, Canada. 2016

- Deep neural networks for improved drone trajectory control.
- Supported by ESROP fellowship and Professor Angela Schoellig at University of Toronto.
- Published results at ICRA.

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## Teaching

**University of Toronto**, as teching assistant — Toronto, ON

- CSC309, 2019 Fall: Web Programming
- CSC401/2511, 2020 Winter: Natural Language Computing
- ECE324, 2019 Fall: Introduction to Machine Intelligence
- CSC180, 2016 Fall: Introduction to Computer Programming

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## Services

Reviewing for conferences and journals

- ACL (2020), EMNLP (2020), AAAI (2021)
- IEEE Journal of Biomedical and Health Informatics (2020)
- Computer Methods & Programs in Biomedicine (2018)

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