

# DAVID (RUO YU) TAO

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in taodav

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Looking to apply my knowledge of statistical models in hard problems. Currently seeking summer 2019 opportunities.

## INVITED TALKS

*Towards Solving Text-based Games by Producing Adaptive Action Spaces*

Oral Presentation, WordPlay workshop NeurIPS 2018

*Learning from Text-Based Games, Machine Intelligence Conference, MIT, 2018*

## SKILLS

### Programming Languages

Python

Java

Javascript

OCaml

C

Ruby

SQL

### Frameworks & Technology

PyTorch

Numpy

Tensorflow

OpenAI Gym

Pandas

Amazon Web Services

Google Cloud Computing

MySQL

MongoDB

Flask

Node & Express

D3.js

Git

### Speaking Languages

English (Fluent)

Chinese (Fluent)

## AWARDS MISC.

### Emily Ross Crawford

#### Scholarship, 2017

Scholarship for achieving a yearly GPA within the top 10% of students in McGill.

### Tomlinson Engagement Award for Mentoring, 2017

Undergraduate reward for mentoring Computer Science students.

### Commissioned Combat Engineer Officer, 2015

Commissioned officer in the Singapore Armed Forces.

## EDUCATION

**McGill University** – Montreal, QC - *Sep 2016 – Present*

B.Sc. Honours Computer Science. (3.95/4.0 GPA) Expected graduation - Dec 2019.

## PUBLICATIONS

### Towards Solving Text-based Games by Producing Adaptive Action Spaces

Ruo Yu Tao, Marc-Alexandre Côté, Xingdi Yuan, Layla El Asri

Published for oral presentation at the WordPlay 2018 workshop, NeurIPS 2018.

## EMPLOYMENT

**Microsoft Research** – Research Intern | Montreal, CA - *May 2018 – Present*

Supervisors: Marc-Alexandre Côté, Layla El Asri

- Applied state-of-the-art text generation techniques that leveraged a mix of attentive and hierarchical language models to produce a dynamic text-based action space for text-based reinforcement learning tasks.
- Leveraged language encodings to train an agent that is able to solve simple text-based games in the TextWorld framework using on-policy methods.
- Currently researching latent-space representations of text-grounded actions for text-based reinforcement learning tasks.

**FOR.ai** – Researcher, collaborator - *Nov 2018 – Present*

- Collaborator for the machine learning research group FOR.ai (<https://for.ai/>)
- Currently implementing baselines (DDPG, World Models) for a reinforcement learning framework.

**Breather Inc.** – Software Developer Intern | Montreal, CA - *May 2017 – Aug 2017*

- Worked in an agile environment to implement core backend and database services.
- Parsed and cleaned large sets of data within the production database.

## ACTIVITIES

**McGill Artificial Intelligence Society** – Co President, Co-founder - *Jun 2017 – Present*

- Co-founded the McGill AI Society. Lead multiple workshops, and talks on the basics of machine learning and data science.

## PROJECTS

**TextWorld (Microsoft)** – Contributor

- Contributor to Microsoft's open source library for reinforcement learning in text-based games. (<https://github.com/microsoft/textworld>)
- Created the data visualization service to help state and policy representation in reinforcement learning tasks, and helped build the predicate-based world generation engine.

**Know Your VC (acquired)** – Co-Founder, CTO

- Managed the entire team of developers in developing the Know Your VC application. Built and maintained the entire application that hosted 15,000 monthly active users. (<https://knowyourvc.com/>)
- Deployed numerous production APIs and applications, including a chrome extension that utilizes named-entity recognition to parse websites and highlight investors. (Investor Intel on Chrome web store)