




# DAVID (RUO YU) TAO

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Looking to apply my knowledge of statistical models in hard problems. Currently seeking summer 2020 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

## 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.

Supervisor: Luc P. Devroye

- Hon. B.Sc. Honours Computer Science (3.96/4.0 GPA, Completed Dec 2019).
- M.Sc. Computer Science (Expected start date Sep 2020).

## 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.

### Textworld: A learning environment for text-based games

MA Côté, A Kádár, X Yuan, B Kybartas, T Barnes, E Fine, J Moore, RY Tao, M Hausknecht, LE Asri, M Adada, W Tay, A Trischler

Presented at the Computer Games Workshop at IJCAI 2018, Stockholm.

## EMPLOYMENT

### Mila (Quebec Artificial Intelligence Institute) – Student Intern | Montreal, QC -

Jan 2019 – Present

Supervisor: Joelle Pineau

- Conducting research on model-based exploration in a Reinforcement Learning context.
- First author on an UAI 2020 conference paper submission.

### Microsoft Research – Research Intern | Montreal, QC - May 2018 – Dec 2018

Supervisor: Marc-Alexandre Côté

- 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 model-free Reinforcement Learning methods.

### Breather Inc. – Software Developer Intern | Montreal, QC - May 2017 – Aug 2017

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

## PROJECTS

### RL: Generic reinforcement learning codebase in TensorFlow - Contributor

- Implemented various Deep RL algorithms in Tensorflow (DDPG, A3C etc.) for a popular Reinforcement Learning codebase. (<https://joss.theoj.org/papers/10.21105/joss.01524>)

### TextWorld (Microsoft) – Contributor

- Contributor to Microsoft's open source library for reinforcement learning in text-based games. (<https://github.com/microsoft/textworld>)

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

- Lead a 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/>)

## ACTIVITIES

### McGill Artificial Intelligence Society – Co President, Co-founder - Jun 2017 – May 2019

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