




# DAVID (RUO YU) TAO

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Looking to apply my knowledge of statistical models in hard problems.

## 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*

B.Sc. Honours Computer Science. (3.96/4.0 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.

### **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, CA -

*Jan 2019 – Present*

Supervisor: Joelle Pineau

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

### **Microsoft Research** – Research Intern | Montreal, CA - *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, 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 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 designed for efficiency and modularity.  
(<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 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.