

# DAVID (RUO YU) TAO

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## INVITED TALKS

*Novelty Search in Representational Space for Sample Efficient Exploration*  
Oral Presentation, NeurIPS 2020

*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  
JAX  
Numpy  
Tensorflow  
OpenAI Gym  
Pandas  
Amazon Web Services  
Google Cloud Computing  
MySQL  
MongoDB  
Flask  
Node & Express  
D3.js  
Git

## AWARDS MISC.

**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

**University of Alberta – Edmonton, AB - Sep 2020 - Sept 2022 (Expected)**

Supervisors: Adam White, Marlos C. Machado  
▪ M.Sc. (Thesis) in Computer Science (4.0/4.0 GPA).

**McGill University – Montreal, QC - Sep 2016 - Dec 2019**

Supervisor: Joelle Pineau  
▪ B.Sc. Honours Computer Science (Dean's Honour List, First Class Honours, 3.96/4.0 GPA).

## CONFERENCE PUBLICATIONS

**Novelty Search in Representational Space for Sample Efficient Exploration**

Ruo Yu Tao, Vincent François-Lavet, Joelle Pineau  
Published for oral presentation at NeurIPS 2020.

## WORKSHOP 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

**National University of Singapore – Research Assistant | Singapore - May 2020 - Aug 2020**

Supervisor: Lee Wee Sun  
▪ Conducted research on neural latent mapping for Reinforcement Learning (RL) and SLAM.

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

Jan 2019 - April 2020

Supervisor: Joelle Pineau  
▪ Conducting research on model-based exploration in a Reinforcement Learning context.  
▪ First author of a NeurIPS 2020 conference paper, accepted for oral presentation.

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

Supervisor: Marc-Alexandre Côté  
▪ Research in language generation and text-based RL. First-authored a workshop paper at NeurIPS 2018 as an undergraduate. Contributed to the TextWorld (<https://aka.ms/textworld>) framework.

## 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>)

**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. Organized and lead multiple workshops, courses and talks on machine learning and data science.