

## Sunday July 7, 2019

### Tutorials

11-1pm Registration/Check-In (Leacock Building Entrance)

#### Track 1 (Leacock Hall, 232)

1-2:30pm Basic tutorial (Intro to AI/RL track)  
**Csaba Szepesvári**

#### Track 2 (Leacock Hall, 132)

1-2:30pm Basic tutorial (Intro to Psych/Neuro track)  
**Melissa Sharpe**

2:30-3pm Coffee Break

### Advanced Tutorials (Leacock, 132)

3-4:30pm Dynamic Decisions, **Coty Gonzalez**

4:30-6pm Counterfactuals and Reinforcement Learning, **Emma Brunskill**

### Opening Reception

6-8pm; Thompson House, 3650 McTavish St

## Monday July 8, 2019

### Session 1 (Leacock Building, 132)

7:00-8:30am Registration/Check in/Breakfast

8:30-9:10am **Tom Griffiths**: Rational use of cognitive resources in humans and machines

9:10-9:30am **Zeb Kurth-Nelson\***; **Matthew Botvinick**; **Will Dabney**; **Naoshige Uchida**; **Demis Hassabis**; **Clara Starkweather**; **Remi Munos**: A distributional code for value in dopamine-based reinforcement learning

9:30-9:50am **Marlos C. Machado\***; **Marc G. Bellemare**; **Michael Bowling**: Count-Based exploration with the successor representation

9:50-10:30am **Will Dabney**: Directions in distributional RL

10:30-11am Coffee Break

### Session 2 (Leacock, 132)

11-11:40am **Anna Konova**: Clinical decision neuroscience

11:40-12pm **William Fedus\***; **Carles Gelada**; **Yoshua Bengio**; **Marc Bellemare**; **Hugo Larochelle**: Hyperbolic discounting and learning over multiple horizons

12-12:40pm **Susan Murphy**: Reinforcement learning for the HeartSteps V2 mobile health trial

12:40-2:20pm Lunch – On your own

### Session 3 (Leacock, 132)

2:20-3pm **David Foster**: Hippocampal replay: What's RL got to do with it?

3-3:20pm **Liyu Xia\***; **Anne Collins**: The options framework enables flexible transfer in humans

3:20-3:40pm **Yash Chandak\***; **Georgios Theocharous**; **James**; **Scott Jordan**; **Philip Thomas**: Improving generalization over large action sets

3:40-4:20pm **Sheila McIlraith**: Reward machines: structuring reward function specifications and reducing sample complexity in reinforcement learning

### Poster Spotlights 1 (4:20-4:30pm, Leacock, 132)

- **Kearney et al.** Making meaning: Semiotics within predictive knowledge architectures (#37)
- **Holland et al.** The effect of planning shape on Dyna-style planning in high-dimensional state spaces (#151)
- **Song et al.** Not smart enough: most rats fail to learn a parsimonious task representation (#210)
- **Pärnamets et al.** Learning strategies during repeated spontaneous and instructed social avoidance learning (#236)
- **Islam et al.** Doubly robust estimators in off-policy actor-critic algorithms (#243)

### Poster Session 1 (4:30-7:30pm, Arts Building)

### Banquet

7:45-10pm; Intercontinental Hotel, 360 Saint Antoine St West

## Tuesday July 9, 2019

### Session 4 (Leacock, 132)

7:30-8:30am Breakfast

8:30-9:10am **Catherine Winstanley**: Cued to lose? Behavioural models of risky choice and its relevance to addiction

9:10-9:30am **Romy Froemer**; **Amitai Shenhav**: Overriding first impressions: evidence for a reference-dependent and attentionally-weighted multi-stage process of value-based decision-making

9:30-9:50am **Anna Harutyunyan\***; **Will Dabney**; **Diana Borsa**; **Nicolas Heess**; **Remi Munos**; **Doina Precup**: The termination critic

9:50-10:30am **Pierre-Yves Oudeyer**: Intrinsically motivated goal exploration: Automated curriculum learning for machines and humans

10:30-11am Coffee Break

### Session 5 (Leacock, 132)

11-11:40am **Ido Erev**: The description-experience gap, small samples, and the soft-max abstraction

11:40-12pm **Marcelo Mattar**; **Nathaniel Daw**: Memory mechanisms predict sampling biases in sequential decision tasks

12-12:40pm **Katja Hoffman**: Multi-task reinforcement learning and the MineRL competition

12:40-2:20pm Lunch – On your own

### Session 6 (Leacock, 132)

2:20-3pm **Luke Chang**: Anatomy of a social interaction

3-3:20pm **Abhinav Gupta\***; **Ryan Lowe**; **Jakob Foerster**; **Douwe Kiela**; **Joelle Pineau**: Learning to learn to communicate

3:20-3:40pm **Caroline J Charpentier\***; **Kiyohito Igaya**; **John O'Doherty**: Arbitration between imitation and emulation during human observational learning

3:40-4:20pm **Michael Bowling**: Can a game require theory of mind?

### Poster Spotlights 2 (4:20-4:30pm, Leacock, 132)

- **Brown et al.** Do reinforcement learning models reliably measure latent decision processes in humans? (#73)
- **Rusch et al.** Modeling models of others' mental states: characterizing Theory of Mind during cooperative interaction (#108)
- **Lerch et al.** Rate-distortion theory and computationally rational reinforcement learning (#116)
- **Shizgal et al.** Does phasic dopamine signaling play a causal role in reinforcement learning? (#159)
- **Metevie et al.** High-probability guarantees for offline contextual bandits (#282)

### Poster Session 2 (4:30-7:30pm, Arts Building)

### Dinner on your own

## Wednesday July 10, 2019

### Session 7 (Leacock, 132)

- 7:30-8:30am Breakfast
- 8:30-9:10am **Anne Collins:** The role of working memory in reinforcement learning
- 9:10-9:50am **Chelsea Finn:** Reinforcement learning for robots: Challenges and frontiers
- 9:50-10:30am **Fiery Cushman:** How we know what not to think
- 10:30-10:45 Coffee Break

### Session 8 (Leacock, 132)

- 10:45am-11:05am **Amy Zhang\*, Joelle Pineau; Laurent Itti; Zachary Lipton; Tommaso Furlanello; Kamyar Azizzadenesheli; Animashree Anandkumar:** Learning causal state representations of partially observable environments
- 11:05-11:45 **Rich Sutton:** Play
- 11:45-11:55 Closing Remarks
- 12:00-12:55pm Lunch – Boxed lunch provided
- NSF Funding Opportunities Lunch  
Kurt Thoroughman (Trottier 0100)

### Workshops (1-5pm; Trottier Building)

#### Modeling inductive biases in reinforcement learning

Organizers: Amy Zhang, Audrey Durand, Claire Vernade, Pierre-Luc Bacon, Carlos Florensa, Doina Precup, and Todd Gureckis. (Trottier 1100)

#### Structure for efficient reinforcement learning

Organizers: Nicholas T. Franklin, Eric Schulz (Trottier 2100)

#### Curiosity for decision making

Organizers: Katya Kudashkina, Cam Linke, Martha White, and Adam White (Trottier 0100)

#### Lifelong learning: A reinforcement learning approach

Organizers: Sarath Chandar, Shagun Sodhani, Khimya Khetarpal, Tom Zahavy, Daniel Mankowitz, Shie Mannor, Balaraman Ravindran, Doina Precup. (Trottier 1090)

#### 1st RLDM Workshop on moral decision making

Organizers: David Abel, Daniel Kasenberg. (Trottier 2110)

#### Variability in learning and decision-making: failure or feature?

Organizers: Rafael Polania, Valentin Wyart. (Trottier 1080)

## Conference Organizers

- Program Chairs:** Catherine Hartley, Michael Littman
- Local Chairs:** Ross Otto, Joelle Pineau, Doina Precup
- General Chair:** Satinder Singh
- Area Chairs:** George Konidaris, Ifat Levy
- Workshop Chairs:** Sam Gershman, Philip Thomas
- Social Chair:** Yael Niv
- Publicity Chair:** Blake Richards
- Spotlights and Awards Chair:** Charles Isbell
- Tutorials Chair:** Elliot Ludvig
- Fundraising Chair:** Harm van Seijen
- Executive Committee:** Emma Brunskill, Nathaniel Daw, Peter Dayan, Yael Niv, Satinder Singh, Rich Sutton

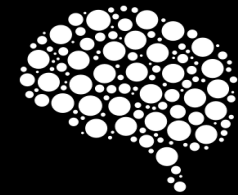
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# RLDM 2019

## July 7-10, 2019

McGill University  
Montréal, QC, Canada



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