

# Rex Chen

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## Education

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### CARNEGIE MELLON UNIVERSITY

School of Computer Science

PhD in Societal Computing (Year 4; GPA: 4.25/4.33)

**Aug 2020 – Present**

Advisors: Fei Fang,  
Norman Sadeh

### UNIVERSITY OF BRITISH COLUMBIA

Department of Computer Science

Honours BSc in Computer Science (Average: 92.9%)

**Sep 2015 – May 2020**

Advisor: Kevin Leyton-Brown

## Selected Conference Papers

\* Equal contribution

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- [1] **Rex Chen**, Kathleen M. Carley, Fei Fang, & Norman Sadeh (2023) “Purpose in the Machine: Do Traffic Simulators Produce Distributionally Equivalent Outcomes for Reinforcement Learning Applications?”. *Proceedings of the 2023 Winter Simulation Conference (WSC '23)*, pp. 1–12.
  - [2] **Rex Chen**, Fei Fang, & Norman Sadeh (2022) “[The Real Deal: A Review of Challenges and Opportunities in Moving Reinforcement Learning-Based Traffic Signal Control Systems Towards Reality](#)”. *12th International Workshop on Agents in Traffic and Transportation (ATT '22 @ IJCAI '22)*, *CEUR Workshop Proceedings* **3173**: 14–31.
  - [3] Peter Story, Daniel Smullen, **Rex Chen**, Yaxing Yao, Alessandro Acquisti, Lorrie Faith Cranor, Norman Sadeh, & Florian Schaub (2022) “[Increasing Adoption of Tor Browser Using Informational and Planning Nudges](#)”. *Proceedings on Privacy-Enhancing Technologies (PETS) 2022.2*, pp. 1–32.
  - [4] **Rex Chen**, Fei Fang, & Norman Sadeh (2021) “Deep Gaussian Processes for Preference Learning”. *Workshop on Human and Machine Decisions at NeurIPS 2021 (WHMD '21 @ NeurIPS '21)*, pp. 1–12.
  - [5] **Rex Chen**, Fei Fang, Aleecia M. McDonald, Thomas Norton, & Norman Sadeh (2021) “[Fighting the Fog: Evaluating the Clarity of Privacy Disclosures in the Age of CCPA](#)”. *Proceedings of the 20<sup>th</sup> Workshop on Privacy in the Electronic Society (WPES '21)*, pp. 73–102.
  - [6] Chris Cameron\*, **Rex Chen**\*, Jason Hartford\*, & Kevin Leyton-Brown (2020) “[Predicting Propositional Satisfiability via End-to-End Learning](#)”. *Proceedings of the 2020 AAAI Conference on Artificial Intelligence (AAAI '20)*, **34**(04): 3324–3331.

## Submissions Under Review

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- [7] **Rex Chen**, Fei Fang, & Norman Sadeh (2023) “Best Laid Plans: A Case Study with Gig Drivers on Designing Trustworthy AI Decision Aids under Costly Uncertainty”.
- [8] Chris Cameron, Jason Hartford, Taylor Lundy, Tuan Truong, Alan Milligan, **Rex Chen**, & Kevin Leyton-Brown (2023) “UNSAT Solver Synthesis via Monte Carlo Forest Search”.

## Skills

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- **Experienced with:** Python, PyTorch, C#, SQL, Django, Docker, HTML, CSS, Javascript, Bash
- **Proficient in:** TensorFlow, C++, Java, R, MATLAB, Celery

## Academic Work Experience

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### PHD CANDIDATE

**Software & Societal Systems Department, Carnegie Mellon University**      **Aug 2020 – Present**

- Researching applications of multi-agent reinforcement learning, computational game theory, and game theory to applications in transportation, including traffic signal control and ridesharing.
- Focusing on designing multi-agent systems for deployment in real-world contexts marked by uncertainty.

### RESEARCH ASSISTANT

**Department of Computer Science, University of British Columbia**      **May 2018 – Jun 2020**

- Trained graph neural networks end-to-end to predict propositional satisfiability with high accuracy and scalability on a challenging distribution, outperforming state-of-the-art hand-engineered features.
- Formalised conditions under which end-to-end neural network training can improve downstream optimisation performance, based on experiments with stochastic graph optimisation problems.
- Supported by Canadian NSERC Undergraduate Student Research Awards (2018, 2019).

## Industrial Work Experience

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### SOFTWARE DEVELOPER CO-OP

**Change Healthcare**

**Sep 2017 – Apr 2018**

- Worked with senior software developers to code, test, and deploy bug fixes and upgrades for two leading healthcare workflow products.
- Took on a primary role in researching, developing, and integrating an authentication service for inter-service communications, including a custom logging mechanism, using an open-source library in the .NET Core framework.

## Awards & Honours

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- 2023: **NSERC Postgraduate Scholarship – Doctoral** for proposal “Large Scale Learning for Multi-Agent Communication & Coordination in Transportation”  
(Highly-ranked applicant, offered a Canadian Graduate Scholarship - Doctoral)
- 2022: **NSF Graduate Research Fellowship – Honourable Mention** for proposal “Large Scale Learning for Multi-Agent Communication & Coordination in Transportation”
- 2022: **Mobility21** (USDOT/CMU National University Transportation Centre) funding for proposal “Alleviating Traffic Congestion: Developing and Evaluating Novel Multi-Agent Reinforcement Learning Traffic Light Coordination Techniques” (PI: Fei Fang; Co-PI: Norman Sadeh)
- 2021: **Tang Family Endowed Innovation Fund** for proposal “Large Scale Learning for Multi-Agent Communication & Coordination in Transportation” (PI: Fei Fang)