

David Radke

Cheriton School of Computer Science
University of Waterloo

dtradke@uwaterloo.ca

<https://cs.uwaterloo.ca/~dtradke/>

Education

- 2018 – 2023 PhD – Computer Science, Area: Artificial Intelligence
University of Waterloo, Waterloo, ON, Canada
Advisors:
- Kate Larson (kate.larson@uwaterloo.ca)
 - Tim Brecht (brecht@uwaterloo.ca)
- 2015 – 2018 Bachelor of Arts – Computer Science and Discrete Math
Colorado College, Colorado Springs, CO, USA
Advisor:
- Dan Ellsworth (dellsworth@coloradocollege.edu)

Professional Experience

- 6/2023 – Current Sr. Research Scientist
Chicago Blackhawks
- 9/2022 – 6/2023 Advisor, AI and Hockey Research
Chicago Blackhawks
(part-time)
- 9/2018 – 6/2023 Research and Teaching Assistant
University of Waterloo
- 2022 (Fall) Research Scientist Intern
Sony AI America
- 2018 (Summer) Computation Research Intern
Lawrence Livermore National Laboratory (LLNL)
- 5/2017 – 5/2018 Undergraduate Research Assistant
University of California, Berkeley (UC Berkeley)
PI: Dr. Gregory Biging



CHICAGO
BLACKHAWKS



CHICAGO
BLACKHAWKS



UNIVERSITY OF WATERLOO
FACULTY OF MATHEMATICS
David R. Cheriton School
of Computer Science

Sony AI



Research Interests, Key Words, and Skills

Research Interests

- Multiagent Reinforcement Learning (MARL)

- Multiagent Systems (MAS)
- Cooperative Artificial Intelligence (Cooperative AI)
- Game Theory
- Sports Analytics for “Invasion Games”

Key Words

Multiagent Systems (MAS), Reinforcement Learning (RL), Artificial Intelligence (AI)
Game Theory, Hockey Performance Analytics

Skills

Languages: Python, C++, Java, SQL

Libraries & Software: Tensorflow, PyTorch, NumPy, Pandas, SciKit-Learn, ArcGIS

Research and Scholarship

Publications

Articles in Refereed Conference Proceedings

2023

- [\[website\]](#) **D. Radke**, K. Larson, T. Brecht. Towards a Better Understanding of Learning with Multiagent Teams. *International Joint Conference on Artificial Intelligence (IJCAI)*, 2023
- **Acceptance Rate:** 15%
- [\[website\]](#) **D. T. Radke**, J. Lu, J. Woloschuk, T. Le, D. L. Radke, T. Brecht. Analyzing Passing Metrics in Ice Hockey using Puck and Player Tracking Data. *Linköping Hockey Analytics Conference (LINHAC)*, 2023
- [\[website\]](#) **D. Radke**, K. Larson, T. Brecht. The Importance of Credo in Multiagent Learning. *Autonomous Agents and Multiagent Systems (AAMAS)*, 2023
- **Acceptance Rate:** 23.3%
- [\[website\]](#) **D. Radke** and A. Orchard. Presenting Multiagent Challenges in Team Sports Analytics. *Autonomous Agents and Multiagent Systems (AAMAS) BlueSky Track*, 2023
- **BlueSky Acceptance Rate:** 19.5%
- [\[website\]](#) A. Orchard and **D. Radke**. An Analysis of Engineering Students’ Responses to an AI Ethics Scenario, *Educational Advances in Artificial Intelligence (EAAI)*, 2023

2022

- [\[website\]](#) **D. Radke**, K. Larson, T. Brecht. Exploring the Benefits of Teams in Multiagent Learning, *31st International Joint Conference on Artificial Intelligence (IJCAI)*, 2022
- **Acceptance Rate:** 15%

- [\[website\]](#) **D. T. Radke**, T. Brecht, D. L. Radke. Identifying Completed Pass Types and Improving Passing Lane Models. *Linköping Hockey Analytics Conference (LINHAC)*, 2022
- **BEST PAPER AWARD**

2020

- [\[website\]](#) **D. Radke**, O. Abari, T. Brecht, K. Larson. Can Future Wireless Networks Detect Fires?. *International Conference on Systems for Energy-Efficient Built Environments (BuildSys)*, 2020
- **Acceptance Rate:** 35.2%

2019

- [\[website\]](#) **D. Radke**, A. Hessler, D. Ellsworth. FireCast: Leveraging Deep Learning to Predict Wildfire Spread. *International Joint Conference on Artificial Intelligence (IJCAI)*, 2019
- **Acceptance Rate:** 17.9%

Articles in Peer Reviewed Workshops

2023

- [\[website\]](#) **D. Radke*** and K. Tilbury*. Learning to Learn Group Alignment: A Self-Tuning Credo Framework with Multiagent Teams. *Adaptive and Learning Agents Workshop at AAMAS (ALA-AAMAS)*, 2023

2022

- [\[website\]](#) **D. Radke**, K. Larson, T. Brecht. The Importance of Credo in Multiagent Learning. *Adaptive and Learning Agents Workshop at AAMAS (ALA-AAMAS)*, 2022

2021

- [\[website\]](#) **D. T. Radke**, D. L. Radke, T. Brecht, A. Pawelczyk. Passing and Pressure Metrics in Ice Hockey. *Artificial Intelligence for Sports Analytics Workshop at IJCAI (AISA-IJCAI)*, 2021

Journal Articles

2020

- [\[website\]](#) **D. T. Radke**, D. L. Radke, J. D. Radke. Beyond Measurement: Extracting Vegetation Height from High Resolution Imagery with Deep Learning. *Remote Sensing*, 2020, 12(22), 3797
- **Impact Factor (5-year):** 4.509 (5.001)

Other Publications

2018

- [\[website\]](#) Radke, J. D., G. S. Biging, K. Roberts, M. Schmidt-Poolman, H. Foster, E. Roe, Y. Ju, S. Lindbergh, T. Beach, L. Maier, Y. He, M. Ashenfarb, P. Norton, M. Wray, A. Alruheil, S. Yi, R. Rau, J. Collins, **D. Radke**, M. Coufal, S. Marx, D. Moanga, V. Ulyashin, A. Dalal. Assessing Extreme Weather-Related Vulnerability and Identifying Resilience

Options for California's Interdependent Transportation Fuel Sector. *California's Fourth Climate Change Assessment, California Energy Commission (CEC)*. 2018

Working Papers

- **D. Radke** and K. Tilbury. Learning to Learn Group Alignment: A Self-Tuning Credo Framework with Multiagent Teams (Full Conference Version)

Talks – Conference/Workshop

- *Analyzing Passing and Pressure Metrics in Ice Hockey Using Puck and Player Tracking Data*, Linköping, Sweden, 2023
- *Exploring the Benefits of Teams in Multiagent Learning*, IJCAI, Vienna, Austria, 2022
- *The Importance of Credo in Multiagent Learning*, ALA-AAMAS, Virtual, 2022
- *Identifying Completed Pass Types and Improving Passing Lane Models*, LINHAC, Virtual, 2022
- *Passing and Pressure Metrics in Ice Hockey*, AISA-IJCAI, Virtual, 2021
- *Can Future Wireless Networks Detect Fires?*, BuildSys, Virtual, 2020
- *FireCast: Leveraging Deep Learning to Predict WildFire Spread*, IJCAI, Macao, Macao, 2019

Posters – Conference/Workshop

- *The Importance of Credo in Multiagent Learning*, AAMAS, London, UK, 2023
- *Presenting Multiagent Challenges in Team Sports Analytics*, AAMAS, London, UK, 2023
- *Exploring the Benefits of Teams in Multiagent Learning*, IJCAI, Vienna, Austria, 2022
- *The Importance of Credo in Multiagent Learning*, ALA-AAMAS, Virtual, 2022
- *Can Future Wireless Networks Detect Fires?*, BuildSys and University of Guelph Research Group Visitor, 2020
- *FireCast: Leveraging Deep Learning to Predict WildFire Spread*, IJCAI, Macao, Macao, 2019 and Vector Institute Evolution of Deep Learning Symposium, Toronto, ON, 2019

Service & Leadership

Program Committees

- Artificial Agents and Multiagent Systems – Blue Sky Track (AAMAS) (2023)
- AAAI Conference on Artificial Intelligence (AAAI) (2023)
- Linköping Hockey Analytics Conference (LINHAC) (2022, 2023)

Awards and Honors

NSERC PGS-D	(2022, 2023)
President's Graduate Scholarship	(2022, 2023)
Ontario Graduate Scholarship – Declined	(2021, 2022 – Declined)
Ontario Graduate Scholarship	(2021)
Waterloo AI Institute Scholarship	(2021)
1 st Place: Sportsnet Hockey Hackathon: Powered by Rogers 5G	(2020)

Type 1 Cheriton Scholarship
USports Academic All-Canadian

(2020 – 2021)
(2019 – 2022)

Personal Details

- Citizenship: USA and Canada
- Language: English (native proficiency) and French (basic knowledge)
- USports Ice Hockey at the University of Waterloo (Top Canadian University League)
 - Assistant Captain
- Division 1 Men's Ice Hockey at Colorado College (Top USA University League)
- 3 years of Jr. A hockey for the Soo Thunderbirds
 - Assistant Captain
 - NOJHL and Dudley Hewitt Cup Champion