Ionatan J. Kuperwajs — Curriculum Vitae

Contact Information

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Research Interests

My research interests lie at the intersection of cognition and computation. I primarily use tools from artificial intelligence and reinforcement learning to infer what algorithms people use to plan sequences of actions in complex environments. My thesis work is on developing a normative framework for meta-planning and training deep neural networks to reproduce human play in a large-scale combinatorial game.

Education

Ph.D. Candidate in Neural Science 2018-Present
New York University (New York, NY)
Systems, Cognition, and Computation Track

B.A. in Neuroscience, Computer Science, & Mathematics 2014-2018
Macalester College (St. Paul, MN)
Honors in Mathematics, Magna Cum Laude

Publications

Preprints

- van Opheusden, B., Galbiati, G., **Kuperwajs, I.**, Bnaya, Z., Li, Y., & Ma, W.J. (2021). Revealing the impact of expertise on human planning with a two-player board game. *PsyArXiv*. pdf

Conference articles

- **Kuperwajs, I.** & Ma, W.J. (2021). Planning to plan: a Bayesian model for optimizing the depth of decision tree search. *CogSci*. pdf
- **Kuperwajs, I.**, van Opheusden, B., & Ma, W.J. (2019). Prospective planning and retrospective learning in a large-scale combinatorial game. *Cognitive Computational Neuroscience*. pdf

Honors & Awards

NSF Graduate Research Fellowship	2020-2023
CCN Trainee Travel Grant	2019
Henry Mitchell McCracken Fellowship	2018
Phi Beta Kappa National Honor Society	2018
Macalester College Neuroscience Outstanding Graduate Award	2018
Cosyne Undergraduate Travel Grant	2018
IBRO-Simons Computational Neuroscience Imbizo	2018
Macalester College Dean's List	2014-2018
Janelia Undergraduate Scholars Program	2017
MIAC Men's Soccer Academic All-Conference Team	2015-2017
NYU Center for Neural Science NSF REU Fellowship	2016
Macalester College DeWitt Wallace Distinguished Scholar	2014

Teaching Experience

Teaching Assistant, New York University

- Mathematical Tools for Neural and Cognitive Science (NEURL-GA 2201) F 19

Teaching Assistant, Macalester College

- Algorithm Design and Analysis (COMP 221) F 17, S 18

- Brain, Mind, and Behavior (PSYC 180) F 16
- Core Concepts in Computer Science (COMP 123) S 16, F 16

Talks

Cognitive Science Society 2021
University of Vienna (Vienna, Austria)
Planning to plan: a Bayesian model for optimizing the depth of decision tree search

Center for Neural Science Seminar Series 2020
New York University (New York, NY)
Model-based and model-free decision-making in a complex planning task

Concepts and Categories Seminar Series 2019
New York University (New York, NY)
Human planning in large state spaces

Artificial and Biological Computation Lab 2019
New York University (New York, NY)
Combinatorial planning

Poster Presentations

Workshop on Big Data in Cognitive Science 2019
Princeton University (Princeton, NJ)
Prospective planning and retrospective learning in a large-scale combinatorial game

Cognitive Computational Neuroscience 2019
Technical University of Berlin (Berlin, Germany)
Prospective planning and retrospective learning in a large-scale combinatorial game

Outreach & Service

Science Activism
- President, Science Action and Advocacy Network (ScAAN) 2018-Present
- Workshop on evidence-based advocacy, American Geophysical Union 2021
- Workshop on science activism, Rockefeller University 2021
- Panel on science activism, Growing Up in Science 2020

Academic Mentoring
- Ashley Yan, Stevenson High School Student 2021

Leadership

Commencement Speaker Selection Committee, Macalester College 2018
Software Development Organization, Macalester College 2015-2018
Varsity Men's Soccer Team, Macalester College 2014-2018

Skills & Service

Programming: Python, MATLAB, R, Java, C, C++, HTML/CSS, bash
Graduate Coursework: math tools for neuroscience, machine learning, Bayesian and cognitive modeling, cellular and systems neuroscience
Methodologies: behavioral modeling, reinforcement learning, statistical inference, deep learning
Lab: psychophysics, fMRI
Languages: English, Spanish, Hebrew
Interests: photography, podcasting, travel, hiking, soccer, basketball, anime, coffee