

# Alana Jaskir

PhD Candidate in Cognitive Science  
Department of Cognitive, Linguistic, and Psychological Sciences (CLPS)  
Carney Institute for Brain Science  
Brown University  
[alana\\_jaskir@brown.edu](mailto:alana_jaskir@brown.edu) | <http://amjaskir.github.io/>

## Education

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- 2018 – Present      **Brown University**, PhD Candidate, Cognitive Science  
Advisor: Michael J. Frank (CLPS, Carney Center for Computational Brain Science)  
GPA: 4.0/4.0
- Preliminary Exam: “Replay as state abstraction in reinforcement learning”**  
- Committee: Michael Frank (CLPS), David Badre (CLPS), Matthew Nassar (Neuroscience), George Konidaris (Department of Computer Science)
- First Year Project: “Computational advantages of dopaminergic states for decision-making”**  
- Committee: Michael Frank (CLPS), Amitai Shenhav (CLPS), George Konidaris (Department of Computer Science)
- 2017 – 2018      **Fulbright Student Program**, English Teaching Assistant, Ukraine
- 2013 – 2017      **Princeton University**, *magna cum laude*, B.A. in Computer Science, Certificate in Cognitive Science
- Thesis: “Learning How to Learn: The Interaction Between Attention and Learning as a Mechanism for Dimensionality Reduction in the Brain”** [PDF](#)  
- Advisor: Yael Niv (Princeton Neuroscience Institute and Psychology Department)  
- Second Reader: Barbara Engelhardt (Princeton Computer Science Department)  
- **Outstanding Computer Science Senior Thesis Award**
- 2016 Spring      **University College London**, Affiliate Student in Computer Science

## Peer-reviewed Conference Posters

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- **Jaskir, A.**, L. Lehnert, M.J. Frank (2022) “Sleep’s role in analogous transfer for sequential reinforcement learning”. *Winter Conference on Brain Research*.
- Gallo, M., A.A. Hamid, **A. Jaskir**, T. Pan, D. Ofray, M.J. Frank, C.I. Moore, K.G. Bath (2021) “Early life adversity alters reward learning and decision making mechanisms in mice”. *Society for Neuroscience*.
- **Jaskir, A.**, M.J. Frank. (2019) Computational advantages of dopaminergic states for decision making. *Computational Cognitive Neuroscience (CCN)*. <https://doi.org/10.32470/ccn.2019.1390-0>
- **Jaskir, A.**, M.J. Frank (2019) Computational advantages of dopaminergic states for decision making. *Motivation and Cognitive Control (MCC)*.
- **Jaskir, A.**, M.J. Frank (2019) The computational benefits of motivational dopamine states in the OpAL model. *RLDM\**.
- **Jaskir, A.**, M.J. Frank (2019) Simulating the benefits of motivational dopamine states. *Winter Conference on Brain Research*.
- **Jaskir A.**, Y. Niv, (2017) Modeled learning weights predict attention and memory in a multidimensional probabilistic task. *RLDM\**.

\*RLDM - Reinforcement Learning and Decision-Making Conference

## Publications

[*in prep*] Jaskir, A., Frank, M.J. “On the normative advantages of dopamine and striatal opponency for learning and choice.” Updates at <http://amjaskir.github.io/>

## Invited Talks & Presentations

- “On the normative advantages of basal ganglia opponency in risky decision making.” Verguts Lab, Ghent University, October 2020
- “Computational advantages of dopaminergic states for decision-making,” *Brown University Unconference 2020*
- “Computational advantages of motivational dopamine states for action selection,” *New England Research on Decision Making (NERD)*, June 2019
- “Computational advantages of dopaminergic states for action selection”, Shenhav Lab Meeting, Brown University, June 2019

## Honors & Funding

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|---|-------------|
| - Carney Institute’s Interactionist Cognitive Neuroscience Grant                | 2021-2023   |
| - RLDM Conference Student Travel Award  | 2019        |
| - NSF Graduate Research Scholarship - Honorable Mention                         | 2017 & 2019 |
| - U.S. Fulbright Student Program Grantee  | 2017-2018   |
| - Outstanding Computer Science Senior Thesis Prize                              | 2019        |
| - Princeton University Thesis research grant, Office of the Dean of the College | 2016        |
| - Computing Research Association (CRA) Research Scholar, Grace Hopper*          | 2016        |
| - Princeton Women in Computer Science conference sponsorship, Grace Hopper *    | 2014        |
| - HSF/Mary Molina Scholarship   | 2014-2015   |
| - Lewis-Singler Institute summer research grant                                 | 2014        |

\*Grace Hopper Celebration for Women in Computing

## Relevant Experience

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|-------------|--|
| 2019        | <b>REPRODUCIBILITY CHALLENGE   NeurIPS 2019</b><br><a href="#">[Re] Better transfer learning with inferred successor maps</a><br>Submitted as final project for coursework, Course Grade: A<br><i>Class: Learning and Sequential Decision Making (Reinforcement learning)</i><br><i>Professor: Michael Littman</i> |
| 2015 - 2016 | <b>RESEARCH ASSISTANT   Princeton University</b><br>Applications of machine learning for decoding replay for memory/sleep task<br><i>Advisors: Luis Piloto, Ken Norman (Princeton Neuroscience Institute and Psychology Department)</i>  |
| 2015        | <b>LITERATURE REVIEW   Princeton University</b><br>State representation and stimulus generalization from psychological, neuroscientific, and computational perspectives<br><i>Class: Animal Learning and Decision Making</i><br><i>Professor: Yael Niv</i>   |
| 2014        | <b>RESEARCH ASSISTANT   Princeton University</b><br>Role of hippocampal replay in constructing shortcuts in cognitive maps<br><i>Advisors: Stephanie Chan, Yael Niv</i>  |

## Relevant Coursework

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|---|---------------------|-------|------|
| - Recent Applications of Probability and Statistics | Applied Mathematics | Brown | 2020 |
| - Reinforcement Learning                            | Computer Science    | Brown | 2019 |

- Machine Learning	Computer Science	Brown	2019
- Computational Cognitive Neuroscience	CLPS	Brown	2018
- Computational Neuroscience	Neuroscience	Princeton	2017
- Computing and Optimization	ORFE*	Princeton	2016
- Probability and Stochastic Systems	ORFE*	Princeton	2016
- Animal Learning and Decision-Making	Neuroscience	Princeton	2015
- AI and Neural Computing	Computer Science	UCL	2015
- Algorithms and Data Structures	Computer Science	Princeton	2015

\*ORFE – Operations Research and Financial Engineering

## Attended Workshops

2020/2021	“Computational Cognitive Modeling of Behavioral and Neural Data,” Carney Institute for Brain Science, Brown University
2019	“Representing states and spaces”, Tim Behrens & Kim Stachenfeld, CCN

## Ad-hoc Reviewing

Neuron, Proceedings of the National Academy of Sciences, Nature Human Behaviour, npj Science of Learning

## Skills

Computer Science:	Python, MATLAB, Javascript, Java, C/C++, Bash, Git
Languages:	Intermediate/Advanced French: <i>IS Aix-en-Provence summer immersion, 2015</i> Beginner Ukrainian: <i>Ukrainian Language and Cultural School, Lviv, two-weeks, 2018</i>

## Leadership

2019-2021	<b>Structure Learning Reading Group Co-founder (Funded)</b> Monthly, interdisciplinary reading group focused on structure learning, or how to learn low-dimensional representations of higher dimensional environments that can be exploited for generalization. Computer science, neuroscience, psychology post-doctoral and graduate student attendees. Funding for supplies graciously provided by the Carney Brain Institute.
2019-2021	<b>CLPS Department Diversity and Inclusion Action Plan (DIAP)</b> - DIAP Graduate Student Representative (elected) - Community Engagement and Outreach subcommittee

## Teaching

2020/2021	<b>Carney Computational Modeling Workshop</b> TA, “Reinforcement Learning + Modeling Fitting”, <i>Instructor: Andra Geana</i>
2020/2021	<b>CLPS1492: Computational Cognitive Neuroscience</b> TA, Guest Lecture, “Temporal Reinforcement Learning”, <i>Professor: Michael Frank</i>
2021	<b>Sheridan Teaching Certificate Course</b> , <i>Brown University</i>
2021	<b>Free Will and the Brain</b> TA, <i>Summer at Brown, Instructor: Louis Gularte</i>
2019	<b>CLPS2001: Core Concepts in Cognitive Science</b> TA, Guest Lecture, “Reinforcement Learning”, <i>Professors: Bill Warren, David Badre</i>
2019	<b>Neuroeconomics: The Science of Decision-Making</b> Invited Lecturer, “Learning, Modeling, and the Brain”, <i>Summer at Brown</i>
2017-2018	<b>Fulbright English Teaching Assistant, Ukraine</b>
2015	<b>COS226: Data Structures and Algorithms</b> Peer Tutor
2015	<b>Nambala Primary School, Tanzania</b> Volunteer math and science teacher

## Mentorship

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2021 – Present      Priyanka Solanky, Brown University undergraduate  
2019                  Lise Vansteenkiste, visiting researcher

## Community Engagement

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2019/2021      **Brain Week RI: Brain Fair | Volunteer**  
2017-2018      **Technovation | Co-Organizer | Rivne Ukraine**  
Technovation is an international competition that equips young girls with coding skills to solve problems in their local communities. Community project (organized in collaboration with local activists) paired Technovation curriculum with monthly workshops on empowerment, leadership, gender roles, and team building  
  
2015-2017      **Princeton University Student Government's Big Sibs Program**  
Community-based outreach program for disadvantaged middle school students from the greater Princeton area. Program aimed at mentoring, empowering, and improving literacy of students.  
  
2014-2017      **Princeton Institute for Chocolate Studies**  
Bean-to-bar, not-for-profit, student chocolate production group  
  
2013-2017      **Princeton Student Theatre**  
Assistant Technical Director (Theatre Intime), Light Designer, Performer

## Other Research Experience

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2017              **RESEARCH INTERN | MIT Lincoln Lab**  
Implemented Kalman filter routine in object tracker for video analysis  
  
2015              **RESEARCH INTERN | Nelson Mandela African Institute of Science and Technology, Tanzania**  
Researched technical solutions to illegal animal poaching in national parks  
- *Interfaced FLIR thermal camera with Raspberry Pi for data collection*  
- *Basic drone/sensor assembly and hardware work*