**Ian Fox**
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**Phone: 413-559-1655, Email: ifox@umich.edu**

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| RESEARCH INTERESTS | Reinforcement Learning on safety-critical tasks, Reinforcement Learning with Observational Data, Sequential Representation Learning, Sequential Self-Supervision, Machine Learning for Healthcare |

EDUCATION

**University of Michigan**, Ann Arbor, MI

Ph.D., Computer Science and Engineering, *Expected:* Summer 2020

Research Area: Representing and Controlling Physiological Time Series. Advised by Jenna Wiens, Ph.D

M.S., Computer Science and Engineering, **GPA: 3.952**, April 2017

Prelim Topic: *Contextual Motifs: Increasing the Utility of Motifs Using Contextual Data* , advised by Jenna Wiens, Ph.D

**University of Massachusetts**, Amherst, MA

B.S., Mathematics and Computer Science (Dual Major), **GPA 3.992**, May 2015

Thesis Topic: *Cell list algorithms and stochastic integration for nonequilibrium molecular dynamics*, advised by Matthew Dobson, Ph.D

EXPERIENCE

**Research Assistant**          September 2015-Present

Department of Computer Science and Engineering, University of Michigan
*Advisor:* Jenna Wiens, Ph.D

- Developed deep models for blood glucose forecasting (KDD '18)
- Created new time series representation technique (Oral at KDD '17)
- Used deep RL to analyze NBA player tracking data (SSAC '18)
- Developed new supervision strategies for time-series (preparing publication) and multi-class classification (IJCAI '19)
- Created deep reinforcement learning algorithm that significantly improved closed loop blood glucose control algorithms (under review at MLHC '20)

**PhD Research Intern at MSR**          June-September 2018

Adaptive Systems Group, *Supervisor:* Eric Horvitz
Developed lifelong learning methods to handle cumulative concept drift. Applying developed techniques for blood glucose control.

**SDE Intern at Amazon**          May-August 2015

AWS Storage Gateway Team, *Supervisor:* John Jamail
Developed enterprise tools to aid in region deployments and automate VIP management

**Undergraduate Research Assistant**          June 2013-May 2015

Department of Mathematics and Statistics, University of Massachusetts
*Supervisor:* Matthew Dobson, Ph.D

- Stochastic integration algorithm for non-equilibrium environments (Thesis)
- Novel extensions to the cell list algorithm, reducing runtime from $O(N^2)$ to $O(N)$ (Comput. Phys.)

| PEER REVIEWED PUBLICATIONS | |
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PEER REVIEWED PUBLICATIONS

1. **Fox, I.** and Wiens, J. "Advocacy Learning", *IJCAI '19.*

2. **Fox, I.** and Wiens, J. "Reinforcement Learning for Blood Glucose Control: Challenges and Opportunities", *ICML (Workshop) '19.*

3. **Fox, I.**, Ang, L., Jaiswal, M., Pop-Busui, R,and Wiens, J."Deep Multi-Output Forecasting: Learning to Accurately Predict Blood Glucose Trajectories", *KDD '18.* 1387-1395

4. Wang, J.*, **Fox, I.***, Singh, S., and Wiens, J. "Doubling Down: A Deep Reinforcement Learning Approach to Studying the Double Team in the NBA". *MIT Sloan Sports Analytics '18.*

5. **Fox, I.**, Ang, L., Jaiswal, M., Pop-Busui, R,and Wiens, J. "Contextual Motifs: Increasing the Utility of Motifs using Contextual Data." *KDD '17.* 155-164. **Oral Presentation**

6. Dobson, M., **Fox, I.**, Saracino, A., "Cell list algorithms for nonequilibrium molecular dynamics", *Journal of Computational Physics*, Volume 315, 211-220 2016

PUBLICATIONS IN SUBMISSION

1. **Fox, I.**, Lee, J., Busui, R., and Wiens, J. "Deep Reinforcement Learning for Blood Glucose Control", under review at *MLHC '20.*

AWARDS, PRESENTATIONS, AND SERVICE

Received Honorable Mention for NSF GRFP                                      March 2017

*Presentations*
- Graduate Student Seminar Series on Data Science, Ann Arbor, MI November 2019
- Michigan AI Symposium, Ann Arbor, MI                                      October 2019
- IJCAI 2019, Macau, CN                                                      August 2019
- KDD 2018, London, U.K.                                                     August 2018
- Exercise and Sports Science Initiative, Ann Arbor, MI                      October 2018
- MIDAS Symposium, Ann Arbor, MI                                             May 2018
- MICHAMP invited talk, Ann Arbor, MI                                        March 2018
- Sloan Sports Analytics Conference, Boston, MA                             January 2018
- DCM&B Tools and Technology Seminar, Ann Arbor, MI                         February 2017
- KDD 2017, Halifax, N.S.                                                    June 2017
- M-CHAMP invited talk, Ann Arbor, MI                                       January 2017
- MIDAS Symposium, Ann Arbor, MI.                                           December 2016
- University of Massachusetts REU Symposium, Amherst, MA                    August 2014
- Yale REU Regional Symposium, New Haven, CT                                August 2013

*Teaching and Service*
- Reviewed for MLHC                                                          2020
- Reviewed for ICML                                                          2020
- Reviewed for AAAI                                                          2020
- Reviewed for NeurIPS                                                       2019
- NeurIPS ML4H Program Committee                                             October 2018
- Reviewed for AAAI                                                          October 2018
- Reviewed for ICML                                                          March 2018
- Intro to ML Guest Lecturer                                                November 2017
- NeurIPS ML4H Program Committee                                            October 2017
- Exploring Graduate Studies Workshop Panel Leader     September 2016, 2017, 2019
- Volunteer Coordinator and Curriculum Developer for Girls Inc Women in Computing Seminar Series                                  September-December 2014
- Teaching Assistant, Theory of Computation              September-December 2014