KATHLEEN LEWIS

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RESEARCH EXPERIENCE

Research Assistant
Computer Science and Artificial Intelligence Laboratory (CSAIL)

📅 September 2017 – Present　♀ MIT EECS

- Clinical and Applied Machine Learning Lab
- Developed learning-based method to align sparse, clinical MRI brain scans
  - Better than the fastest baseline on 92% of subjects
  - 100x faster on the CPU than the most accurate baseline

Research Assistant
College of Engineering Senior Design Project

📅 August 2016 - May 2017　♀ Boston University

- Designed and developed automated door-opening robotic system for wheelchair users
- Implemented computer vision system to automatically detect door handle type and location

Research Assistant
Computer Architecture and Automated Design Lab

📅 January 2016 - May 2017　♀ Boston University

- Improved runtime of existing Molecular Dynamics code by:
  - Multithreading and implementing existing code on the GPU
  - Designing algorithms to improve locality and cache hit rates

Software Engineer Intern
MITRE Corporation

📅 May 2015 - August 2015　♀ Boston, MA

- Developed web app for Air Force to view and edit map routes from database

Research Assistant
Cross-Disciplinary Integration of Design Automation Research

📅 August 2014 - Dec. 2015　♀ Boston University

- Developed web app for Synthetic Biology project design
- Developed a websocket and test API for web app to interact with third-party applications

Research Assistant
International Genetically Engineered Machine Competition

📅 May 2014 - November 2015　♀ Boston University

- Received gold medal at worldwide conference
- Implemented computational-experimental workflow to improve efficiency of complex genetic circuits

EDUCATION

Massachusetts Institute of Technology
Doctor of Philosophy in Computer Science

📅 Expected: June 2022

Massachusetts Institute of Technology
Master of Science in Computer Science

📅 June 2019

Boston University
Bachelor of Science in Computer Engineering

📅 September 2013 - May 2017

HONORS & AWARDS

- Frederic and Barbara Cronin Fellowship
- Women in Machine Learning (WiML) Travel Scholarship
- Machine Learning for Healthcare (ML4H) Travel Scholarship
- Boston University Trustee Scholarship (Four years full tuition)
- Joseph Healey Distinguished Fellowship
- Clare Booth Luce (Research Award)
- Boston University Engineering Scholars Program
- Honor Societies: Tau Beta Pi, IEEE-HKN

PUBLICATIONS

Learning-based Registration of Sparse Clinical Images (SparseVM)

- Fast Learning-based Registration of Sparse Clinical Images (arXiv:1812.06932)
- Spotlight Presentation at Machine Learning for Healthcare (ML4H) @ NeurIPS 2018 (**6% acceptance rate**)
- Poster presented at Machine Learning for Healthcare (ML4H) @ NeurIPS 2018
- Poster presented at Women in Machine Learning (WiML) @ NeurIPS 2018
- Poster presented at Women in Computer Vision (WiCV) @ CVPR 2019

GPU-Accelerated Charge Mapping

- Ahmed Sanaullah, Kathleen Lewis, Martin Herbordt, GPU-Accelerated Charge Mapping. IEEE High Performance Extreme Computing Conference, HPEC 2016.
- Poster presented at Performance-Aware Programming with Application Accelerators, University of Hong Kong

Synthetic Biology Web App (Phagebook)

- Poster presented at Synberc, MIT
- Poster presented at International Workshop on Bio-Design Automation, University of Washington

LEADERSHIP

- Organized STEM + Arts Workshop Series for underrepresented high school students

- Machine Learning across MIT Committee (MIT, 2019)

- EECS REFS Internal Conflict Management Counselor (MIT, 2019)

- Student Governor, IEEE-HKN Board of Governors (Nationwide position, Jan - Dec 2018)

- Teaching Assistant, 6.00 Intro: Comp Sci & Programming (MIT, Fall 2018)

- President, IEEE Student Chapter/IEEE-HKN (Boston University, April 2016 - May 2017)

- Teaching Assistant, Performance-Aware Programming with Application Accelerators (University of Hong Kong, July 2016)

- Tour Guide, College of Engineering (Boston University, January 2014 - May 2017)

- Teaching Assistant, EK127 Introduction to Computation (Boston University, January - December 2014)

SKILLS

Python, Keras, Tensorflow, C, C++, MATLAB, CUDA