

London Lowmanstone

london.lowmanstone@gmail.com

london-lowmanstone.github.io

Education

University of Minnesota - Twin Cities, Minneapolis, MN

May 2027

- Completed *Master of Science* in Computer Science (May 2024)
- Current *Ph.D. student* in Computer Science researching subjectivity in Natural Language Processing (NLP)
- Advisors: Serguei Pakhomov, Maria Gini

Harvard University, Cambridge, MA GPA: 3.7/4.0

May 2021

- *Bachelor of Arts with Honors* in Computer Science / Philosophy

Awards and Fellowships

- University of Minnesota CSE Graduate Fellowship 2021
- Harvard Undergraduate Technology Innovation Fellow 2019-2021
- Honors in Senior Thesis Spring 2021
- B.J. Whiting Award Spring 2021
 - Senior Award from Harvard's Lowell House - "Adds wit and charm to the House, shows loyalty to the House, and makes it a desirable place for interaction"
- Semifinalist for the Harvard Undergraduate Capital Partners Innovation Fund Spring 2021
- Member of the Google Computer Science Research Mentorship Program 2019-2020
- Harvard Undergraduate Technology Innovation Fellows Program Summer Fellowship Summer 2020
- Lemann Program on Creativity and Entrepreneurship Seed Fund Recipient Fall 2020
- MSBA's Student School Board Member Scholarship Recipient Spring 2017

Publications

1. London Lowmanstone, Ruyuan Wan, Risako Owan, Jaehyung Kim, and Dongyeop Kang, "Annotation Imputation to Individualize Predictions: Initial Studies on Distribution Dynamics and Model Predictions," *2nd Workshop on Perspectivist Approaches to NLP*, 2023
2. John Harwell, London Lowmanstone, and Maria Gini, "Provably Manipulable 3D Structures using Graph Theory," *Proceedings Autonomous Agents and Multi-Agent Systems*, 2023
3. John Harwell, London Lowmanstone, and Maria Gini, "A Lattice Model of Manipulable Environments for Provable Manipulation," *ARMS workshop at Autonomous Agents and Multi-Agent Systems*, 2022
4. John Harwell, London Lowmanstone, Maria Gini, "SIERRA: A Modular Framework for Research Automation," *AAMAS '22: Proceedings of the 21st International Conference on Autonomous Agents and Multiagent Systems (Demonstration Track)*, 2022
5. John Harwell, London Lowmanstone, and Maria Gini, "Demystifying emergent intelligence and its effect on performance in large robot swarms," *AAMAS '20: Proceedings of the 19th International Conference on Autonomous Agents and Multiagent Systems*, 2020
6. Tianyi Zhang, London Lowmanstone, Xinyu Wang, Elena L. Glassman, "Interactive Program Synthesis by Augmented Examples," *Proceedings of the 33rd Annual ACM Symposium on User Interface Software and Technology*, 2020
7. Elizabeth Jensen, London Lowmanstone, and Maria Gini, "Communication-Restricted Exploration for Search Teams," *DARS 2016: Proceedings of International Symposium on Distributed Autonomous Robotic Systems*, 2016

Research and Work Experience

Mount Sinai Health System, New York City, NY

Emergency Medicine Research - Artificial Intelligence Intern

Summer 2024

- Used retrieval augmented generation (RAG) techniques to improve automatic detection of stigmatizing language in electronic health records

University of Minnesota, Minneapolis, MN

Research Assistant

Summer 2022, Summer 2013-2015

- Demonstrated that using Kialo (a debate website) data improves topic diversity and relational structure, which improves model performance on relation prediction ([paper](#))
- Developed and optimized vision software to recognize and decode barcode-like structures from an image
- Programmed base architecture for robot movement for a robot exploration algorithm

Harvard University, Cambridge, MA

January 2020 - August 2021

Research Assistant

- Worked with Professor Elena Glassman on designing and implementing synthesized regular expression displays

Virtual Reality Teaching Assistant

- Provided advice to entrepreneurs on use cases for virtual, augmented, and mixed reality
- Assisted students in building virtual reality applications in Unity

Harvard Art Museums, Cambridge, MA

November 2017 – May 2019

Virtual Reality Researcher

- Designed and developed virtual reality applications for use by museum curators
- Programmed in C# to develop applications in Unity for HTC Vive virtual reality system
- Experience and familiarity with a wide range of 3-dimensional virtual reality user interfaces

DREU Program, Minneapolis, MN

Summer 2018-2019

Artificial Intelligence and Swarm Robotics Researcher

- Wrote code that enabled running large-scale robot simulation experiments on supercomputing clusters
- Researched, built, and tested the effectiveness of the triplet loss function utilized by time-contrastive networks on the MNIST dataset
- https://jadiker.github.io/dreu-2018/final_DREU_report.pdf
- https://jadiker.github.io/dreu-2019/DREU_Report_2019.pdf

Skills

Natural Language Processing: Member of [Minnesota NLP Group](#), extensive experience with large language models

Research: Published author on five papers (above), selected for the Google Computer Science Research Mentorship Program

Machine Learning: Research experience with neural networks, capsule networks, time contrastive networks, [found bug in MuZero](#)

Programming Languages: Python, C#, Java, JavaScript, Lua, C, C++

Entrepreneurship: Harvard Technology Innovation Fellow

Web Design: Flask, React, Javascript, HTML, CSS

Projects

Large Language Models and African-American English (AAE)

2022

- Demonstrated a method of machine learning bias removal in language models by fine-tuning only on minority dialects ([paper](#))
- Determined that Non-Multilingual BERT outperforms Multilingual BERT when making predictions on AAE text

Text-to-Tree

2022

- Developing a natural language processing system to convert from monologue text to an argument map by augmenting essay datasets with arguments from online debate sites ([poster](#)) ([paper](#))

AGI Safety Fundamentals Program

2021-2023

- Facilitated program, leading discussions on key issues in aligning artificial general intelligence
- Chosen as lead facilitator due to my experience with leading AI Safety discussions and knowledge on the topics
- [Developed prompts for large language models to help solve problems in AGI safety](#)

MuZero

2020

- Implemented a version of [MuZero](#) (the follow-up to [AlphaZero](#) and [AlphaGo](#))
- [Identified a bug](#) in the initial MuZero paper which the authors then corrected

Senior Thesis

2020-2021

- Worked on determining the extent to which neural networks can be used detect and process human emotions
- Designed, trained, and tested large-scale neural networks for natural language processing to detect emotionally sensitive topics from memoirs.
- Determined that small amounts of dropout increased accuracy, replicating previous results in the field
- Link to thesis: <https://docs.google.com/document/d/1dkOJ9rA6LdhNq66UILh43fSvxlohNTfiE7OLk3a3zq4/>