Alec F. Helbling
alechelbling1@gmail.com | helblazer811 @ Github

Education

Georgia Institute of Technology | 3.91 GPA   *August 2018* – December 2022
Bachelor of Science in Computer Science

Experience

IBM Research   May 2021- August 2022, May 2022-August 2022
AI Research Intern | Foundations of AI Reasoning Group
- Designed algorithms for reducing the complexity of knowledge graphs for single and multi-document summarization using unsupervised learning techniques based on optimal transport theory
- Used Pytorch Geometric for processing Graph Neural Networks and BERT Transformers for representing document graphs in an NLP Pipeline

Microsoft Azure Intune   May 2020 - August 2020
Software Engineering Intern | Insight and Analytics Group
- I designed a distributed data analytics pipeline using a microservice architecture for efficient load balancing of incoming events for Intune's mobile device management services
- The changes resolve the classic noisy neighbor issue(lack of use case isolation), and saves >$10,000 per month in server costs due to reduced latency in addition to securely isolating customer data and improving system administration experience

NASA Jet Propulsion Laboratory   May 2019 - August 2019
Summer Intern | Machine Learning and Instrument Autonomy Group
- Implemented methods of visualizing and interpreting large datasets using classical machine learning approaches for applications like studying geological information from the Mars Rover
- Utilized React.js and Redux for front end development, python websockets for the backend, and python for machine learning modeling to allow for dynamic data querying, visualizations of random forests and decision trees, and the iterative labeling of unlabeled datasets

Georgia Institute of Technology   *January 2019 – Present*
Student Researcher | Sensory Information Processing Lab(SIPLab) / CORE Robotics Lab
- Developed deep learning approaches to generative modeling using variational autoencoders and information theory, and novel approaches to searching their learned representation
- Designed differentiable decision tree neural network architectures using pytorch for reinforcement learning robotic applications

University of Pittsburgh School of Medicine   *March 2016 – August 2018*
Student Researcher and Javascript Programmer | Department of Computational and Systems Biology
- Implemented interpretable visualizations of Convolutional Neural Network based deep learning models to find drug candidates for protein structures. (See publication below)
- Developed a Javascript WebGL based molecular visualizations library called 3Dmol.js with hundreds of users and over 450 stars on Github (see at https://github.com/3dmol/3Dmol.js)

Publications

1. **Helbling, A**., Rozell, C. J., O'Shaughnessy, M., & Fallah, K. Oracle Guided Image Synthesis with Relative Queries. In *International Conference on Learning Representations (ICLR) Workshop on Deep Generative Models for Highly Structured Data,* April 2022.
2. Hochuli J., **Helbling, A.**, Skaist, T., Ragoza, M., Koes, DR. Visualizing convolutional neural network protein-ligand scoring. In *Journal of Molecular Graphics and Modelling*, 84:96-108, September 2018.

Skills

Programming(proficient in): Python, C, C++, Java, C#, Javascript, Node.js, React.js, HTML, CSS
Software Tools: Tensorflow, Pytorch, Caffe, Numpy, React.js, Numpy, Docker, Linux, Git, Bash, SSH, Unity