Contact

www.linkedin.com/in/edwardcw (LinkedIn)

Top Skills

Objective-C
Python
Java

Languages

English (Native or Bilingual)
Sumerian (Limited Working)
American Sign Language (Elementary)
Akkadian (Limited Working)
French (Elementary)

Publications

Tetranucleotide usage in mycobacteriophage genomes: alignment-free methods to cluster phage and infer evolutionary relationships

Learning to Parse Natural Language to Grounded Reward Functions with Weak Supervision

A Tale of Two DRAGGNs: A Hybrid Approach for Interpreting Action-Oriented and Goal-Oriented Instructions

Bandit-Based Solar Panel Control

Edward Williams

Machine Learning Engineer @ Terray
Los Angeles Metropolitan Area

Summary

I'm a computer scientist and software engineer excited about building modeling and automation tools for the life sciences. I have research and development experience in statistical machine learning, deep learning, reinforcement learning, cheminformatics, and software engineering for early-stage drug discovery. I'm also passionate about the intersection between the humanities and computer science, and have experience working on computer vision and NLP projects utilizing archaeological data.

Experience

Terray Therapeutics
Machine Learning Engineer
April 2022 - Present (1 year 1 month)
Pasadena, California, United States

University of Chicago
Technical Consultant - Computer Vision
December 2019 - Present (3 years 5 months)
Chicago, Illinois, United States

The DeepScribe project, a 2019 CDAC grant awardee, aims to automate transcription of cuneiform tablets using the Persepolis Foundation Archive annotated dataset consisting of hundreds of thousands of labeled cuneiform characters. As technical consultant, I have implemented a convolutional neural network (CNN)-based computer vision system including image preprocessing components and model analysis and optimization tools.

Amgen
Senior Associate
April 2020 - April 2022 (2 years 1 month)
Thousand Oaks, California, United States

Qulab Inc.

1 year 7 months

Software Engineer - Machine Learning and Computational Chemistry
July 2019 - March 2020 (9 months)
Greater Los Angeles Area

In collaboration with computational chemists and biophysical simulation research scientists, developed software tools for molecular design and biomolecule simulation. Projects included:

- Implemented several reinforcement learning algorithms for de novo molecular design and optimization, including policy gradient variants and deep Q learning.
- Implemented evolution strategies-based molecular structure optimization algorithms and used them to design novel molecules in concert with structure and ligand-based molecular scoring tools.
- Developed automated molecular structure optimization pipeline incorporating alchemical relative free energy simulations
- Development and deployment of large-scaled cloud-based automated molecule virtual screening tools using the Amazon Web Services (AWS) and Microsoft Azure cloud services. Results were used to select molecules for biochemical activity assays.
- Conducted research into adaptive sampling and deep learning techniques to improve Molecular Dynamics (MD) simulation sampling quality.
- Developed data cleaning and machine learning software to predict ligand selectivity between protein isoforms with significant early enrichment.
- Implemented Graph Neural Network (GNN) deep learning architectures for molecular property prediction.
- Collaborated with data scientists to develop in-house machine learning tools for ADMET prediction.
- Managed in-house molecular database development project in collaboration with data engineers.
- Managed high-performance computing (HPC) distributed SLURM cluster.

AI Resident
September 2018 - July 2019 (11 months)
Los Angeles, CA

Brown University
Staff Researcher - Robotics and Adaptation
January 2018 - August 2018 (8 months)
Providence, RI

Developed reinforcement learning-based control software for renewable energy systems, and investigated the commercialization potential of control technology created in Brown's robotics labs.

Humans to Robots Lab
Undergraduate Researcher
August 2016 - December 2017 (1 year 5 months)
Providence, Rhode Island Area

Developed semantic parser for natural language grounding using Combinatory Categorial Grammar, worked on RL control algorithms for renewable energy systems, and experimented with deep Q-learning using relational networks. Two publications at ICRA and IAAI, two workshop papers at ACL and AAAI Fall Symposium.

Raphael Lab at Brown University
Undergraduate Research Assistant
June 2016 - August 2016 (3 months)
Providence, RI

Performed data analysis on large-scale gene interaction networks. Developed techniques for clustering statistically significant groups of cancer genes.

Space Telescope Science Institute
Intern
June 2015 - August 2015 (3 months)
Baltimore, MD

Created data mining software to look for correlations between molecular emission lines in Herschel Space Telescope data. The processed data the software produced is intended to be included in the Herschel PACS/SPIRE data archive.

Vivaldi
Co-Founder/Backend Developer
May 2014 - January 2015 (9 months)
Indianapolis, IN

Developed a gamified music education platform in Meteor.js, writing both front-end and back-end JavaScript code, and managing MongoDB database.

Brown University
Rhode Island Space Grant Fellow
June 2014 - August 2014 (3 months)
Providence, RI

Developed instrument and astronomical simulations for the Brown University Observational Cosmology Group's Balloon-Borne Exoplanet Experiment (BEE). Integrated software with exoplanet atmospheric simulation code developed by lab researchers.

Awa, LLC
Co-Founder/Programmer
August 2013 - May 2014 (10 months)
Indianapolis, IN

Designing, coding, and testing iPhone apps for release on the iOS App Store.

IUPUI
Research Intern
June 2011 - August 2011 (3 months)
Indianapolis, IN

Constructed multiferroic devices using argon-assisted deposition and sputtering techniques, as well as constructing and programming Magento-Optical Kerr Effect (MOKE) testing apparatus to perform optical tests on their magnetic properties.

Education

Brown University
Bachelor's degree, Computer Science · (2013 - 2017)

Indiana University-Purdue University at Indianapolis
Mathematics · (2011 - 2013)

Harvard University
Astrobiology · (2012 - 2012)

North Central High School
International Baccalaureate and North Central Honors · (2009 - 2013)