Catherine Rasgaitis

Machine Learning Engineer

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Education

University of Washington - Seattle ***Expected Graduation: June 2025***

Bachelor of Science in Computer Science ***GPA: 3.7***

- **Relevant coursework**: Foundations of Computing I, II; Software Design Implementation; Hardware/Software Interface; Data Structures and Parallelism; Systems Programming; Data Visualization; Machine Learning
- **Clubs:** Synaptech (President); Computing Community, Interactive Intelligence, LUX Film Production Club

Experience

Research Assistant Oct 2023 – Present

Noble Lab @ University of Washington *Seattle, WA*

- Develop the TwinC model for predicting Hi-C contact maps for intrachromosomal loci. Interpret traditionally blackbox models to better understand predictions.
- Current TwinC model outperforms the current SOTA model for contact map predictions.

Research Assistant Oct 2022 – Present

Orsborn Lab @ University of Washington *Seattle, WA*

- Code and debug a tablet-based "cursor tracking task/game" for rhesus macaques (monkeys)
- Supervise and train subjects to interact with tablet
- Design, train, and optimize machine-learning models to predict subjects' future performance on task and automate the design of training regiments
- Analyze neural and behavioral data, such as motor learning and feedback + feedforward control

Research Assistant Mar 2023 – Oct 2023

Behavioral Ecophysics Lab @ University of Washington *Seattle, WA*

- Analyze high-speed camera trap and GoPro footage of honeyeaters feeding at flowers
- Artificially augment image datasets with randomized transformations and external data sources
- Determine presence of honeyeaters, species identification, and number of flowers probed per birds' visit

AI Intern June 2023 – Aug 2023

NASA Jet Propulsion Laboratory *Pasadena, CA*

- Leverage behavioral cloning and inverse reinforcement learning methods to automate the scheduling of mission communications on the Deep Space Network (DSN). Build gym to run tests and evaluate various RL architectures.
- Construct an extensive data preprocessing pipeline from scratch based on a human expert's scheduling changelog.
- Built a web scraper to extract data from mission wiki pages and DSN documents, to interface with Meta's LLaMA model. Conducted various experiments to query the LLM about mission requirements.

Projects

70+ Hackathons (MLH Top 50 Hacker)

Example projects: an app to predict natural disasters, an organizational app for food banks, a practice productivity app for musicians, a program that finds optimal species/locations to plant trees, a skin cancer classifier app, etc.

Opticars

Use eye movements to control mini Arduino cars on an obstacle course. Also offers AI-assisted driving.

SmartMusic

Generate original music compositions using NLP-based techniques. Iteratively improve compositions in the user's preferred musical style based on neural feedback.

Languages: Python, MATLAB, SQL, HTML/CSS/JS, TS, Java, C, C++

Additional: NumPy, SciPy, pandas, scikit-learn, TensorFlow, Keras, PyTorch, Optuna, wandb, RLlib, matplotlib, seaborn, plotly, Flask