Sander Schulhoff

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Education

University of Maryland, College Park Fall 2020 - Spring 2024
Bachelor of Science in Computer Science *GPA: 3.818*

Research

HackAPrompt Lead Organizer Spring 2023 - Summer 2023
Learn Prompting / University of Maryland

- Organized the first global scale Prompt Hacking competition, collected 600K+ adversarial prompts and published the first ontology of Prompt Hacking
- Personally raised 40K in sponsorship from OpenAI, Preamble, Scale AI, Stability AI, HuggingFace, and 7 other companies

MineRL Organizing Team Summer 2022 - Summer 2023
MineRL Labs

- Helped organize/promote the competition and wrote Sphinx documentation
- Helped write relevant publications (See section 7)

Stabilizing Hostilities through Arbitration and Diplomatic Engagement Spring 2022 - Spring 2023
University of Maryland, Professor Jordan Boyd-Graber

- Managed team of undergrad and grad students on a DARPA funded multi-university project with the goal of building bots to play the boardgame Diplomacy and talk to players
- Built CI pipelines, including Dockerized testing, precommit, and Vercel integration for the documentation website
- Ideated and pitched 4 bot presentations: Janus Bot, Janus Bot [Shortened], Janus Bot [MVP], and SOA Bot
- Wrote and presented a report on DAIDE-English translation with GPT-3 to multiple lab professors
- Wrote a DAIDE syntax parser package which also allows keyword composition and string generations

Andreou Lab Internship Summer 2021 - Fall 2021
Johns Hopkins University, Professor Andreas G. Andreou

- Built data pipelines to record data from Arduino chips and RealSense cameras and send it to Microsoft \Psi
- Implemented a CNN+GRU model from scratch with Pytorch for video classification on event camera data

CLIP Undergraduate Research Fall 2020 – Summer 2021
University of Maryland, Professor Jordan Boyd-Graber *College Park, MD*

- Worked on Diplomacy boardgame NLP project developing a Discord bot used to collect player data and display machine learning predictions
- Bot passed live Alpha and Beta tests with paid participants
- Developed a simple full-stack website to collect data for a NLP analogy project
- Built an annotation workflow for the UMD QANTA project

Neurodata Lab Internship Summer 2019
Johns Hopkins University, Professor Joshua Vogelstein *Baltimore, MD*

- Wrote unit tests for a project converting clustering algorithm libraries written in R to Python
- Wrote scripts to create presentational graphs of algorithm performance on data sets like Iris
- Performed investigations on different clustering metrics where ground truth is known based on the Zachary's Karate Club social network graph dataset

Work Experience

Semiotic Labs | *Python, Julia* Summer 2022

- Developed software for performing deep reinforcement learning to price The Graph protocol subgraph queries
- Implemented continuous policy gradient bandits (VPG, PPO) in Julia for adaptive query pricing

Farama Foundation | *Python, Jekyll, Liquid, HTML, CSS* Spring 2022 – Summer 2022

- Led development of new Gym website: managed PRs and wrote scripts to generate pages, menus, and gifs
- Made a number of small fixes to Gymnasium, built and refactored fantasia Jekyll theme from PettingZoo website, wrote and published gym-notices PyPI package, assisted in development of PettingZoo website

Teacher at Friends School of Baltimore | *HTML, CSS* Fall 2021 – Spring 2022

- Co-taught an introductory web development/design course to highschoolers

Axidraw Control Software | *HTML, CSS, Javascript, Python* Spring 2020

- Hired to build a Mac application for automating the process of writing physical notes
- Wrote frontend (Bootstrap) and backend (Python+pyaxidraw) to allow users to send tasks to be written by an Axidraw

Selected Projects

Learn Prompting | *Javascript, markdown* 2022

- Writing the most comprehensive open source guide on prompt engineering (PE)
- Reached 1 Million+ users and performed 100+ user interviews
- Cited by Wikipedia, research papers, and 100s of Youtube videos and articles

Websites | *HTML, CSS, Javascript, Bootstrap, Jekyll, MaterializeCSS* 2021

- Built my personal website and Denis Peskov's website from scratch with Jekyll and Bootstrap
- Built Teacher Recommender System Website from scratch with MaterializeCSS
- Working on candidate Augustin Saah's website (adapted from a Jekyll format) and PsiWars site (Jekyll+Bootstrap) from scratch

Teacher Recommender System | *Google Apps Scripts, HTML, MaterializeCSS* Spring 2019 – Present

- Developed suite of scripts to automate the process of matching students with teachers who will write their college recommendation letters
- College counselors control the process from a menu with functions allowing them to create forms, send them, and run a simple scoring algorithm that generates assignments
- Sold Alpha version and released Beta version as an official Google Sheet Add-On

Heart Heist App | *Swift, Objective-C* Summer 2018

- Built a top down shooter app using XCode and deployed it on the Apple App Store
- Used Gravit Designer and Garage Band to make art and music

Open Source Contributions

MineRL (Minecraft Reinforcement Learning Library): Committed 1000+ lines of documentation, bug fixes, and feature additions, including a tutorial on custom environment building. Also ported (from Project Malmo) the ability to send chat messages in MineRL and wrote a tutorial page for it. This functionality allows significant speed ups for training agents.

OpenAI Gym/Gymnasium (Reinforcement Learning Library): Led the development of new website, organized various documentation additions, and made codebase changes.

Technical Skills

Frequent Languages: Python, Google Apps Script, Javascript, Java, HTML, CSS, C, Markdown
Frequent Developer Tools: Visual Studio Code, Git, Docker, Adobe XD, Photoshop, Google Drive Scripting Environment,
Natural Languages: English, Spanish

Infrequent Languages and Tools: PHP, MySQL, Bash, Objective-C, C++, C#, Eclipse, IntelliJ IDEA, Pycharm, MAMP, SQLPro, PHPMyAdmin, Platform IO, Visual Studio, Atom, Jupyter Notebook, Google Colab, XCode, Unity

Achievements

Won UMD Hackathon 2022 (Best "Bitcamp" Hack) with Marshie's Adventure, a Bitcamp themed platformer
Won UMBC Hackathon 2020 (Cipher-Tech-Solutions challenge) with ForeTrackR, a novel application of Blockchain to Chain of Custody in digital forensics
Won True Bit design competition (UMBC Hackathon)
Paper on semantic segmentation accepted into Smoky Mountain Data Challenge (paper)
Towards Solving Fuzzy Tasks with Human Feedback: A Retrospective of the MineRL BASALT 2022 Competition (paper)
Won University of Maryland Writing Competition (Alternative Media Writing Award) for Learn Prompting