Zane Alumbaugh

San Francisco Bay Area | (510)599-6558 | zanedma@gmail.com | Portfolio | GitHub

EDUCATION

University of California, Santa Cruz September 2017-Present

Santa Cruz, California

- Bachelor of Science in Computer Science (expected Spring 2021)
- Achievements: UCSC Dean's Honors List – Winter 2021, Spring 2020, Winter 2020, Winter 2018

COMPUTER SKILLS

Languages

- Python, C/C++, Golang, HTML/CSS, Java, JavaScript, Scala, Prolog, Haskell, SQL, Postgres

APIs/Libraries/Frameworks

- PyTorch, Django, Bootstrap, Numpy, Pandas, SciPy, Matplotlib, BeautifulSoup

Software

- Windows, Unix, Git, Docker

EXPERIENCE

Student Research Assistant/Python Developer June 2020-Present

University of Washington (UW)

- Extended existing policy gradient and soft-actor critic reinforcement learning algorithms to multiplayer environments building on OpenAI's Spinningup Deep Reinforcement Learning package and PyTorch.
- Developed and implemented multiplayer reinforcement learning algorithms using PyTorch based on game-theoretic models of player interaction including linear quadratic dynamic games.
- Co-Author in: Liyuan Zheng, Tanner Fiez, Zane Alumbaugh, Benjamin Chasnov, Lillian J. Ratliff. Stackelberg Actor-Critic: A Game-Theoretic Perspective, Association for the Advancement of Artificial Intelligence Reinforcement Learning and Games (AAAI RLG) Workshop, 2021. Workshop link.
- Co-author in: Liyuan Zheng, Tanner Fiez, Zane Alumbaugh, Benjamin Chasnov, Lillian J. Ratliff. "Stackelberg Actor-Critic: Game-Theoretic Reinforcement Learning Algorithms." under review at Uncertainty in Artificial Intelligence (UAI), 2021.
- Supervisor: Lillian Ratliff, Assistant Professor, UW. Mentor: Ben Chasnov, PhD Student, UW.

Freelance Software Engineer July 2020

BuddhiBox

- Created a bot that scrubs daily update emails from "Help a Reporter" and notifies the user of any links containing keywords/phrases. Implemented using Python, Gmail API, and BeautifulSoup.

Student Research Assistant/Python Programmer July 2019-September 2019

University of Washington

- Implemented gradient-based learning algorithms for training Generative Adversarial Networks (GANs) using the PyTroch Framework.
- Implemented an optimizer class for PyTorch that used second-order derivatives to predict future optimizations and allowed for the learning agent to act on these predictions.
- Built the foundations for a novel approach to accelerate the GAN learning process by leveraging the eigenstructure of the Jacobian of the learning dynamics.