

Shengyi “Costa” Huang

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QUALIFICATION SUMMARY

- CS Ph.D student in (DRL) Deep Reinforcement Learning with 2+ years of in-depth research.
- Proficient in Python, Numpy, Pytorch for building Machine Learning models.
- Authored a DRL library CleanRL with algorithms such as Deep-Q Networks and Proximal Policy Gradient. Received 170+ upvotes from Reddit and 30+ stars from Github.
- Streamline experiment version management that keeps tracks of 200+ experiments with logging of hyper-parameters and important metrics. Selected example see <https://cleanrl.costa.sh>.
- Trained for *engineering* and *theory* due to industry experience and my B.S. in Mathematics.

EDUCATION

Drexel University, Philadelphia, PA

Ph.D in Computer Science

Expected Jun 2023

- Advisor: Dr. Santiago Ontañón
- Research Area: Game Artificial Intelligence with Deep Reinforcement Learning

Furman University, Greenville, SC

B.S in Computer Science

May 2018

B.S in Mathematics

EXPERIENCE

Drexel University, Philadelphia, PA

Ph.D Researcher

Sep 2018 – Present

- Read and reproduce the most recent literature on Reinforcement Learning and Strategy Games.
- Meet with my advisor weekly to brainstorm research ideas to explore.
- Develop game representations for an experimental Real-time Strategy Game MicroRTS and run the state-of-the-art DRL algorithms to train agents for various tasks.
- Maintain a DRL library CleanRL with streamlined cloud experiment management that records hyper-parameters and important metrics such as entropy and losses.
- Iterate hundreds of experiments to validate novel research ideas and techniques.

Graduate Research Assistant

Oct 2019 – Present

- Work with DARPA on a simulated game that deploys drones for missions.
- Write game evaluation functions to model the concept of missions.
- Input high-level strategic objectives and generate specific missions.

Graduate Teaching Assistant

Sep 2018 – Jun 2019

- Tutored students with Python and Java lab assignments for 10+ hours a week.
- Collaborate with students and gave advice on their final projects.
- Graded students' homework and provided detailed feedback.

Carely, Inc., Greenville, SC

Backend Developer

Jun 2018 – Sep 2018

- Developed API server for the web and mobile platforms by using Go and MySQL.
- Perfected the development environment cross-platforms by using Docker.
- Coordinated with the team through Jira, Slack, Github, and OpenAPI(Swagger).

Furman University, Greenville, SC

Computing in Community Developer

Jun 2017 – Aug 2017

- Developed an application that collects the pronunciation of student names for the commencement.
- Collaborated with the university registrar and IT department.
- Utilized Go and Algolia for back-end to build interactive search.

- Tutored 30+ students on Web Programming topics: JavaScript, VueJs, Webpack, Vuetify, AWS, PHP, Go, MySQL, Docker, REST API, Python, and Laravel.
- Helped the professor with preparing lab materials with respect to the latest tools and projects.
- Collaborated with the professor to create the course website using the latest front-end tools.

- Authored a Python package, StreetTraffic, that collects more than 100 GBs of traffic flow data.
- Worked with Dr. Chirs Healy to conduct research on travel plan recommendation.
- Set up proper unit-tests and documentation by using Sphinx.

PROJECTS

(2019) CleanRL*Reinforcement Learning Library with Cloud Experiment Management*cleanrl.costash.com

● Python

★ 38

(2019) Gym-MicroRTS*The OpenAI Gym wrapper for MicroRTS for DRL research*github.com/vwxyzjn/gym-microrts

● Python

★ 4

(2018) Portwarden*Create Encrypted Backups of Your Bitwarden Vault with Attachments*github.com/vwxyzjn/portwarden

● Go

★ 37

(2018) Jupyter Disqus*Add Disqus to Jupyter Notebook*github.com/vwxyzjn/jupyter_disqus

● Python

★ 11

(2017) StreetTraffic*Collects the traffic flow data of your favorite routes and cities*streettraffic.org

● Python

★ 11

(2017) SC2AI*Integrated Tensorforce and OpenAI Gym to train SC II game agents*costash.com/SC2AI

● Jupyter Notebook

★ 12

(2017) LP Optimization*Linear Programming for Finding the Optimal Scheduling by Using Gurobipy*costash.com/LP_optimization_python

● Python

(2016) Sentiment Analysis*Used RNN and LSTM to classify movie reviews based on sentiment*costahuang.me/Sentiment-Analysis-LSTM

● Python

SKILLS

Python, Pytorch, Tensorflow, Numpy, Git, Linux, Statistics, Go, Docker, JavaScript, SQL.

PUBLICATIONS

Huang, S., Ontañón, S., “Comparing Observation and Action Representations for Reinforcement Learning in μ RTS”, *AIIDE Workshop on Artificial Intelligence for Strategy Games*, October 2019**Huang, S.**, Healy, C., “StreetTraffic: a Library for Traffic Flow Data Collection and Analysis”, *ACMSE 2018 Conference*, March 2018

RELEVANT COURSES

Artificial Intelligence, Machine Learning, Computer Vision, Computer Graphics, Algorithmic Game Theory, Software Design, Statistics, Probability, Linear Algebra, Real Analysis, Abstract Algebra, Fundamentals of Databases, Developing User Interfaces