Chang Ye

LinkedIn — Github: https://github.com/yooceii — Google Scholar

Email : yooceii19960620@gmail.com
Mobile : +1-347-320-1201

Education

- **New York University** — New York, US
  Master of Science in Computer Science ; GPA: 3.8/4.0 — *August 2018 - May 2020*
- **Dalhousie University** — Halifax, Canada
  Joint Program in Computer Science ; GPA: 3.6/4.3 — *August 2017 - April 2018*
- **Zhejiang University of Technology** — Hangzhou, China
  Bachelor of Engineering in Software Engineering ; GPA: 3.3 /4.0 Ranking: 24/186 — *September 2014 - Jun 2017*

Relative Coursework

Web Intelligence	Computational Cognitive Modeling
Intro to Data Science	Algorithmic Machine Learning and Data Science
Artificial Intelligence I	Design and Analysis of Algorithms I

Programming Skills

- **Languages**: Python, Java, C++, C, C#, Shell, SQL, Haskell, Matlab
- **Software & Tools**: Tensorflow, Pytorch, OpenAI Gym, OpenAI Baseline, Numpy, Scipy, Git, Latex, .Net, Vim, Tmux

Experience

- **New York University** — New York, US
  Research Intern — *January 2019 - Present*
  - Applied **OpenAI Gym**, **OpenAI Baseline**, **Numpy** and **Tensorflow** to design networks, reinforcement learning algorithms and evolutionary algorithms such as **Map-Elites**, **PPO**.
  - Built a data analytic and visualization tool that adopts **T-SNE**, **PCA** to analyze the learned features and model performance visually.
- **Jinggong Steel Structure Corporation** — Shaoxing, China
  Software Development Intern — *July 2018 - August 2018*
  - Utilized **.Net Core** and Surging framework to handle database management-A database consisting of tens of thousands of records, including find, add, delete and update. The **SVN** was used to perform version control on this project.
  - Applied data structure and algorithm knowledge to improve data retrieval and sorting efficiency by **60%**.

Projects

- **A RL approach for Systematic Generalization in Grounded Language Understanding**
  - Worked with 3 teammates, shared progress and discussed the idea and implementation details weekly. Utilized **Git** to perform the integration of independently developed modules.
  - Inspired by the **SeqGAN**, adopt **REINFORCE** algorithm to update a model that is combined the **Seq2Seq** model fused with a visual encoder in the original paper and a **GRU** discriminator. Implemented the sample sequence and rollout policy function for the **REINFORCE** algorithm.
  - Implemented the whole model with **PyTorch** and replicated the state-of-art performance by utilizing HPC resources.
- **Generalization in Deep Reinforcement Learning**
  - Designed a gym wrapper to realize the crop, rotate and translation functions by using functions in **OpenCV** and **Numpy**.
  - Adopted the standard **A2C** algorithm and standard **CNN** network as the policy network to train the agent.
  - Conduct the experiments on **HPC**. The agent achieved around **20%** win rate on unseen levels comparing to the 0% win rate on default observation.
- **Human-face recognition and mosaic**
  - Utilized **histogram equalization** in **OpenCV** to solve the problem that low contrast causes the face recognition algorithm unable to recognize the face features. The face recognition rate improved **30%** by adopting that technique.
  - Took function from **Dlib** to extract face features and used these features to designed a module that is able to efficiently locate the multiple facial features on multiple faces and convert them to contours for Gaussian blur purpose.
  - Designed the whole backend pipeline, implemented in **C++** under the **Qt** platform and ran backend unit tests. Built the system that is able to process up to **40** frames per sec with ignorable latency. The system achieved a **95%** detection rate in the real-time video under a low-light environment.
- **CleanRL**
  - Reimplemented the **random network distillation** in PyTorch achieved the state-of-the-art performance. The repo now has around **240** stars on GitHub

Publications

- **C. Ye**, A. Khalifa, P. Bontrager, J. Togelius, "Rotation,Translation,and Cropping for Zero-Shot Generalization," in *IEEE Conference on Games (CoG)*, 2020. [accepted, to appear in Aug 2020.] arXiv:2001.09908 [cs.LG].
- **C. Ye**, M. Heywood, "Uniform Cost Search in Procedural Content Generation for Angry Bird Games", Honor Thesis, 2017