YUFAN REN

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Department of Computer Science, College of Computer Science and Technology
Zhejiang University, P.R. China

RESEARCH INTERESTS

- **Machine Learning and Computer Vision**, especially generative model for image and music generation, e.g. Generative Adversarial Nets (GAN) and Energy Based Models (EBM)
- **Cross-disciplinary Areas**, where Machine Leaning and Computer Vision can be applied and boost other subjects

EDUCATION

Zhejiang University Hangzhou, China
Bachelor of Engineering (expected) *Sept. 2016 - Jun. 2020*

- **Cumulative GPA: 3.99/4.00 (91.71/100); Major GPA: 4.00/4.00 (93.35/100); Rank: 1/48;** admitted to Zhejiang University on the basis of outstanding performance on national college entrance exam (top 2‰ statewide)
- **Chu Kochen Honors College: Advanced Honor Class of Engineering Education; GPA: 4.00/4.00** (Honored minor for the selected top 40 students with leadership and research capacity from about 5600 engineering students in Zhejiang University)
- **Honors Program: Morningside Culture China Scholar** (This program aims to nurture future social leaders who are knowledgeable about Chinese culture and have a global vision)

University of California, Los Angeles CA, U.S.
Visiting Student *Jul. 2019 - Sept. 2019*

- Cross-Disciplinary Scholars in Science and Technology(CSST)
- Advisor: Prof. Ying Nian Wu
- Project: Generative Model and Hamiltonian Monte Carlo (Details see Research Experience)

PUBLICATION

- Zhaolin Qiu, **Yufan Ren**, Canchen Li, Hongfu Liu, Yifan Huang, Yiheng Yang, Songruoyao Wu, Hanjia Zheng, Juntao Ji, Jianjia Yu, Kejun Zhang. *Mind Band: A Crossmedia AI Music Composing Platform*. Proceedings of the 27rd ACM international conference on Multimedia. ACM, 2019 (preprint)

RESEARCH EXPERIENCE

Energy Based Model and Generative Model UCLA
Center for Vision, Cognition, Learning, and Autonomy; Advisor Prof. Ying Nian Wu *Jul. 2019 - Sept. 2019*

- Proposed the implementation of Hamiltonina Monte Carlo (HMC) methods in Generative models for more realistic image generation, which managed to go beyond simple MCMC methods
- Conducted overall experiments on benchmark dataset CIFAR-10 to compare both the efficiency and accuracy between HMC and Langevin dynamics

Automatic Music Generation Model and Platform Zhejiang University
Next Lab; Advisor Prof. Kejun Zhang *Oct. 2018 - Jul. 2019*

- Established the startup - *Mind Band* at Hangzhou, P.R. China, devoting to automatic music generation and innovating the way of emotional expression
- Mainly worked on symbolic music generation (, especially chord learning) with the innovation of using Wassertein GAN; wrote a 10-page paper about this model and submitted to ISMIR[1]
- Built a large platform (an app and a website) with teammates to combine music generation, music emotion extraction and humming recognitio
- One of our paper is accepted by ACM Multimedia 2019

[1] some generated samples can be found at my webpage

Music Note Classification Zhejiang University
Next Lab; Advisor: Prof. Kejun Zhang *Jul. 2019 - Sept. 2019*

- Program: National Undergraduate Training Program for Innovation
- Established a music note recognition framework (OCR) to translate sheet music into Musical Instrument Digital Interface (MIDI) for the ease of editing and preservation
- Conducted a systematic study and practice of the knowledge for Programming (Python, Shell Script), Machine Learning (object classification task), Computer Vision and Music

Machine Learning with Differential Privacy Zhejiang University
Computer Network Security Course Project, Advisor: Prof. Kai Bu *Mar. 2019 - Jun. 2019*

- Searched for and summarized literature on relevant topics for research direction
- Proposed a noise introducing method to prevent membership attack on pretrained model and provide differential privacy
- Programmed for the study and conducted toy example on MNIST and CIFAR-10
- Wrote and presented an introduction paper on this topic

SCHOLARSHIPS

- 2018: **Tang Lixin Scolarship**, 40 out of 23,000 undergraduate students
- 2018 & 2017[2]: **National Scholarship**, Top 0.2% across China
- 2018 & 2017: **First-Class Scholarship for Outstanding Students**, Top 3% across Zhejiang University
- 2018 & 2017: **First-Class Scholarship for Outstanding Merits**, Top 3% across Zhejiang University

AWARDS

- 2018: **Golden Award for China College Students Internet+ Innovation and Entrepreneurship Competition**, 58 winners teams out of 60,000
- 2018: **Outstanding Winner of China Collegiate Computing Contest - Mobile Application Innovation Contest**, highest prize of the only official competition by Apple Inc. in China
- 2017: **The Second Prize of Provincial Innovation Competition of Physics**

ADDITIONAL INFORMATION

Additional Professional and Extracurricular Experiences

- **Mornside Scholars Program's American Visit**: Coordinator and active member (2019 summer)
- **College Students' Summer Supporting Education Activities**: Active member in Dream of Meitan (2017 summer)
- **Students Quality Training Project**: Team leader of residential college website design (2016)

Interests

- **Novels and Science fiction literature**: *Guns, Germs and Steel:A short history of everybody for the last 13000 years*, *The Three-Body Problem*, *Love in the Time of Cholera*
- **Ancient Chinese books**: *Mencius*, *the Great Learning*
- **Sports**: swimming, jogging

Computer and Language Skills

- **Computer Languages**: Python, MATLAB, C++, Linux Shell, C
- **Frameworks**: PyTorch, Tensorflow, QT, OpenCV
- **Operation Systems**: Linux, MacOS, Windows
- **Language**: Native speaker of Mandarin Chinese and fluent English

[2] refering to more than once