Jinxin Zhou

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🎓 Education

Univeristy of Michigan, Ann Arbor (UMich), Ann Arbor, USA   Sep.2019 – Present
Master student in Electrical and Computer Engineering (ECE), expected May 2021   GPA: 4.0 / 4.0

Huazhong University of Science and Technology (HUST), Wuhan, China   Sep.2015 – Jun.2019
B.S. in Electrical Engineering and Automation   GPA: 3.88 / 4.0

Courses: Deep Learning for computer vision; Machine Learning; Foundation of computer vision; Reinforcement Learning Theory; Ecological Approach to Vision; Medical image.

ⓘ Publication

[1] "Deep learning based similarity-consistency abnormality detection (SCAD) model for classification of MRI patterns of multiple myeloma (MM) infiltration."   submitted to SPIE of medical imaging, 2021
Jinxin Zhou, Chuan Zhou, Heang-Ping Chan, Lubomir M. Hadjiiski, Qian Dong

👥 Experience

One-class GAN based abnormality detection on MRI image   UMich, Jan.2020 – Present
Python, Linux   **Research Project**, **Advisor:**Prof. Chuan Zhou

- Implemented existing GAN-based model in medical image abnormality detection field and conduct experiment to verify drawbacks of these models.
- Design CNNs based on Bi-directional GAN to learn an encoder together with generator for speeding up inference time, and design additional two discriminators to guarantee cycle-consistence.
- Our model achieved AUC of 0.71, 0.79 and 0.87 in differentiating three different vertebra diseases (focal, variegated and diffused) from normal pattern and average AUC of 0.77 which is much better than 0.645 of Anogan and 0.657 of Ganomaly.

Intelligent Power System Economic Dispatch   HUST, Jul.2017 – Dec.2017
Matlab   **Research Project**, **Advisor:**Prof. Yuanzheng Li

- Aim to deal with multi-object constrained non-convex problems in real power system dispatch.
- Conducted literature review to learn the principle of particle swarm optimization algorithm, mathematical model of real power system and model real power dispatch problem into a multi-object constrained non-convex optimization.
- Programmed modified particle swarm optimization algorithm to overcome local convergence problems and incorporated the uncertainty of wind speed when wind power integrated to achieve optimal economic dispatch.

Reconstruction-Driven Curiosity   UMich, Jan.2020 – May.2020
Python, pytorch   **Course Project**, **Advisor:**Prof. David Fouhey

- Aim to deal with extreme dependency on dense denoted reward of traditional reinforcement learning.
- Implemented a new curiosity-related reward focusing on compressing images in a way that allows accurate reconstruction, which is more interpretable compared to random distillation.
- Achieved comparable results on Montenzuma's Revenge and Venture with RND which first achieves better performance than human on these games without demonstration.

SiamPolarMask:Unify Object Tracking and Segmentation   UMich, Jan.2020 – May.2020
python, Pytorch   **Course Project**, **Advisor:**Prof. Andrew Owens

- Aim to design a fast end-to-end architecture for Object tracking and segmentation in video.

- Decomposed the object tracking task into two sub-problems as classification for pixel category and instance segmentation by polar representation.
- Came up with a new model called SiamPolarMask for object tracking and segmentation in an anchor-free way.

Deep learning for vision   UMich, Sep.2019 – Dec.2019

Python, Pytorch **Course Project**, **Advisor:**Prof. Justin Johnson

- generation project contains implement of different Generative adversarial network(GAN) on MNIST from scratch(vanilla GAN, LS-GAN and DC-GAN), latent space interpolation.
- Image caption project contains implement of forward and backward poprogation of vanilla RNN, LSTM and LSTM with attention, MobileNet v2 for image feature extraction model, word embedding preprocessing.
- Object detection project contains implement of anchor and proposal generator, IOU calculation, Loss function(confidence score regression, bounding box regression and object classification), non-maximum suppression.

♡ Honors and Awards

Oustanding Graduate Award, HUST	Jan. 2019
Academic Excellence Scholarship, HUST	Nov. 2018
Wuhan Longcheng Electric Scholarship, HUST	May. 2018
Academic Excellence Scholarship, HUST	Nov. 2017
Social Public Welfare Scholarship, HUST	Nov. 2017
Shanghai Siyuan Electric Scholarship, HUST	May. 2017
Self-improvement College Students Model, HUST	Jan. 2017

⚙ Skills

- Programming Languages: Python, Matlab,C++, Java
- Platform: Window, Linux
- Language: Mandarin (Native), English (Fluent)