Senqiao Yang

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EDUCATION

Harbin Institute of Technology   Shenzhen, CHN

Bachelor of Engineering in Data Science and Big Data (Mathematics)   *Sep. 2020 – Jun. 2024*

- GPA: 88.114/100, 3.78/4.0
- Kaggle *Competitons Expert*
- I got First-class scholarship of Harbin Institute of Technology (highest level) **every year**.
- I was selected as the outstanding student of Harbin Institute of Technology **every year**.

RESEARCH INTERESTS

My research interests mainly lie in AI and deep learning.

My work span Domain Adaptation, Interpretable Deep Learning, Computer Vision, Trajectory trackings, Generative model, etc.

My academic goal is to do solid and interpretable AI research.

EXPERIENCE

Contrastive Learning and Domain Adaptation   July. 2022 – Oct. 2022

Research Intern   CAIRI Lab

Supervisor: Prof. Stan.Z.Li   *Google Scholoar citations 5 millons+*

- We propose a method named Noise-resistant soft contrastive learning to solve the view-noise problem in data argumentation for contrastive learning.
- We propose a new classifer which is started from common sense to solve the label noise problem of universal domain adaptation.
- We achieves a new state-of-the-art in the most challenging universal domain adaptation settings
- I was responsible for the proposal and implementation of the second invention of this article. Also, I deduce and prove the formulas and theorems in the Appendix.

Neuroevolution in Regularized Neural Networks   Jan. 2022 – Oct. 2022

Undergraduate Resarch Assistant   Harbin Institute of Technology

Supervisor: Prof. Ho-kin Tang

- We propose a new optimization algorithm by combining the backpropagation with the evolutionary algorithm.
- We've done lots of experiments on MNIST CIFAR and ImageNet to demonstrate our new algorithm could improve the classifier accuracy of all the benchmark models which SGD or ADAM trains.
- I was responsible for the proposal and implementation of ideas. Also, I am writing this paper.

Time Series and Complex Networks in Pattern Recognition   July. 2021 – Apr. 2022

Undergraduate Resarch Student   Harbin Institute of Technology

Supervisor: Prof. Yi.Zhao

- We propose a strategy for measuring the random error of low-cost inertial sensors by transforming the time series into complex networks
- We demonstrate the value of complex network topological features in motion state recognition and time series analysis by comparing the gesture recognition accuracy of various machine learning and deep learning models.
- I was responsible for the proposal and implementation of the ideas and writing the article.

Universal Approximation and Explicit Training Strategy   Nov. 2020 – June. 2021

Undergraduate Resarch Student   Harbin Institute of Technology

Supervisor: Prof. Yi.Zhao

- Constructed a CNN structure with **universal approximation**, which is called UniverApproCNN. It is ensured that the approximation error of such CNN is bounded by an explicit approximation upper bound that relies on the hyperparameters of this model.
- Provided an explict **training strategy**, and applied the strategy into inertial guidance. We use the curve similarity index defined by Fréchet distance to prove that the experimental results are highly consistent with the functional relationship given by the theory.
- I was responsible for all the coding, part of the article writing, and oral at the conference.

Publications & Preprints

* indicates equal contribution.

3. Zelin Zang*, **Senqiao Yang***, Lei Shang*, Baigui Sun, Xuansong Xie and Stan.Z. Li, One conference paper about domain adaptation is being blind reviewed by *ICLR2023*

2. **Senqiao Yang**, Yifeng Wang, and Yi. Zhao, " Signal enhancement and gesture recognition for low-cost inertial sensors," accepted to *Chinese Journal of Sensors and Actuators*, 2022.

1. Yang Yin*, Yifeng Wang* and **Senqiao Yang***, " UniverApproCNN with Universal Approximation and Explicit Training Strategy," *International Conference on Collaborative Computing: Networking, Applications and Worksharing*, 2022.

Honors & Awards

- Silver Prize: Google Brain - Ventilator Pressure Predictio (top 2 %)
  Awarded by Kaggle in 2021

- Bronze Prize: G2Net Gravitational Wave Detection (top 6 %)
  Awarded by Kaggle in 2021

- Meritorious winner: the Mathematical Contest In Modeling (MCM) (top 7 %)
  Awarded by COMAP(Consortium for Mathematics and Its Applications) in 2022

- Outstanding winner: Mathematical Contest In Modeling (top 2 %)
  Awarded by HIT in both 2021 and 2022

- First class: Undergraduate Academic Merit Scholarship (top 5%)
  Awarded by HIT in both 2021 and 2022

- First Prize: 20th Chinese Student Robot Competition (top 4%)
  Awarded by CYLC(Communist Youth League of China) and DJI in 2021

Skills

Languages: English (Fluent), Mandarin Chinese (native)

Programming: Proficient in Python, Familiar with C/C++

Tools: Git, PyTorch, Wolfram Mathematica, Numpy, LaTeX