ZIHAO XU

Computer Science
Rutgers University
zihao.xu@ rutgers.edu

EDUCATION

- **Rutgers University** **New Brunswick, NJ**
  Ph.D. in Computer Science and Technology Sep. 2022 – Now
- **ACM Honored Class, Zhiyuan College, Shanghai Jiao Tong University** *GPA: 3.70 / 4.3* **Shanghai, China**
  B.E. in Computer Science and Technology Sep. 2016 – Jun. 2020

PUBLICATION

- Zihao Xu, Guang-He Lee, Yuyang Wang, Hao Wang, et al. Graph-relational domain adaptation. In ICLR 2022

RESEARCH INTEREST

- Bayesian Deep Learning, Domain Adaptation

CODING LANGUAGE

- Python: Proficient
- C++: Familiar
- Java: Familiar
- Matlab: Familiar

RESEARCH EXPERIENCE

Amazon AI Lab **Shanghai, China**

Research Intern Aug. 2020 – Aug. 2021

- Existing methods of Domain Adaptation (DA) usually treats every domain equally, but domains are heterogeneous. Such heterogeneity can be captured by a graph. In this project, we first propose the method for domain adaptation across a graph, which leads to the publication: "Graph-relational domain adaptation" in ICLR 2022. It generalizes the traditional adversarial learning method with a novel discriminator that models the encoding-conditioned graph embedding. Theoretical analysis has shown that graph-invariant features can be obtained with this new method, and experiments on both synthetic and real datasets verified the effectiveness of our method. Supervised by Prof. Hao Wang and Bernie Wang.

Shanghai Jiao Tong University – BCMI Laboratory **Shanghai, China**

Graduate Design (Paper-Oriented) Jan. 2020 – Jun. 2020

- A new loss function called "focal IOU loss" is proposed for object detection. Compared with original IOU-based losses, this new loss not only improves the overall accuracy, but also increases the convergence speed. The project is written in PyTorch. Directed by Prof. Hongtao Lu.

Pennsylvania State University – College of Information Sciences & Technology **University Park, PA**

Research Intern Jun. 2019 – Dec. 2019

- An Imitation-Learning-based method is adopted for the training of 3D object localizer, to see if action feedback can serve as a supervised signal. In a virtual environment, we trained the robot agent to navigate to certain

objects (like chair) in the fewest steps. We made this pipeline differentiable, thus incorporating an imitation learning framework where agents are trained by expert trajectory. The project is written in Keras and Tensorflow. Directed by Prof. Zihan Zhou.

Shanghai Jiao Tong University – BCMI Laboratory **Shanghai, China**

Research Assistant Jul. 2018 – Jun. 2019

- Collaborating with hybrid generation models (GAN, VAE, etc.), we generate images with high quality and diversity. During this time, I completed a project about style transfer on hand-written digits, using a GAN-like structure with VAE as a "style extractor". **The project** is written in PyTorch. Directed by Prof. Hongtao Lu.

OTHER SELECTED PROJECTS

Shanghai Jiao Tong University – Computer Vision (CS348) *score: 100 / 100* **Shanghai, China**

- Complete a project that using visual input to predict the background music rhythm.

Shanghai Jiao Tong University – Computer Science: Advanced Topics (CS086) *score: 91 / 100* **Shanghai, China**

- Propose a new neural network model called **Random ODENet** that shows great robustness against image fooling. The basic idea is adding randomness to ODENet[1] to confuse the attack algorithm.

Shanghai Jiao Tong University – Compiler Design and Implementation (MS208) *score: 85 / 100* **Shanghai, China**

- **X-compiler**: a toy compiler for my compiler course, written in **Java**.

Shanghai Jiao Tong University – Database System (CS392) *score: 98 / 100* **Shanghai, China**

- **ACMDB**: a toy database system for my database system course, written in **Java**.

TA EXPERIENCE

- **Design and Analysis of Computer Algorithms (CS344)** Rutgers University, Spring, 2022
- **Great Insights in Computer Science (CS105)** Rutgers University, Fall, 2021
- **Database System (CS392)** Shanghai Jiao Tong University, Spring, 2020
- **Programming Practice (MS106)** Shanghai Jiao Tong University, Spring, 2018

SELECTED AWARDS AND HONORS

- SMC Scholarship 2018
- Eleme(饿了么) Scholarship 2017
- Zhiyuan Honors Scholarship 2018, 2017
- Academic Excellence Scholarship (Third-Class) 2018, 2017
- Shanghai Adolescents Science & Technology Innovation Contest (Second-Class) 2015
- Shanghai Young Physicists' Tournament for High School (First-Class) 2015
- Shanghai Applied Mathematics paper Contest for High School (First-Class) 2015

ADDITIONAL INFORMATION

Activities

- I am the monitor of the ACM Class of 2016
- I am a member of Zhiyuan College's debate team

[1] Chen, T.Q., Rubanova, Y., Bettencourt, J. and Duvenaud, D.K., 2018. Neural ordinary differential equations. In Advances in neural information processing systems (pp. 6571-6583).