Shuya Zhao

sz2257@nyu.edu | +1-848-702-6754 | https://www.linkedin.com/in/shuya-zhao-485670139/

Education

Ph.D. in Computer Science, **New York University**, NY — Sept. 2019 - May. 2024
M.S. in Computer Science (GPA: 4.0), **Rutgers University**, NJ — Sept. 2017 - May. 2019
B.Eng. in Information Engineering (GPA: 3.7), **NUAA**, China — Sept. 2013 - Jun. 2017
Visiting program in Electrical Engineering (GPA: 3.7), **UC Riverside**, CA — Aug. 2016 - Jun. 2017

Skills

Programming Languages:Python,Java,JavaScipt,C#, C/C++,MATLAB
Tools:TensorFlow, PyTorch, Scikit-learn, Keras, SQL/MySQL, Spark, Latex, Unity
Knowledge:Computer Vision(Image-to-Image Translation, Object Recognition, Image-caption Generation), Language Synthesis(RNN, LSTM, GRU), Machine Learning(SVM, Bayesian Models), Big Data(Recommender system, similarity algorithm), Data Visualization

Projects

Matched Image-Title Synthesis, Group Project — Oct. 2019-present

- Designed an **image-text** generator developed by Python (**TensorFlow**) to synthesize a pair of matched birds image and caption with the same input.
- Used two **autoencoders (TAE & IAE)** to improve the generation of texts and images. Strengthened the strong correlation between a pair of image and text by using an **attention network** to measure their **cosine similarity**.
- Aimed to train image-text generator in **GAN** to generate high-quality birds images with meaningful matched captions within 10% fewer iterations than **attnGAN**.

Exploring Echo Chamber in E-commerce, Submitted Paper — June 2019 - Oct. 2019

- Detected the existence of **Echo Chamber Effect** in Real-world E-commerce Recommender System, not only in Social Networking Sites, by measuring polarization and content diversity in **user interests** with Python (**Scikit-learn,SciPy**).
- Analyzed polarization in user preference on a population level by applying **cluster validity indexes** in user latent vector space. And examined **Filter Bubble** by measuring the reduction in content diversity of recommended items to users.
- Found that **Echo Chamber** appears in the users who take the recommendations but not in the users who do not via significant difference with a **p-value** of 2.16e−56 between two groups in the metric analysis.

Image Style Transfer, Master Thesis — Sept. 2018 - Mar. 2019

- Designed an image generator conditioned style feature vectors with Python (**PyTorch**) to transfer landscape photos into multiple styles by employing a pre-trained style encoder and training the generator in **GAN**.
- Encoding images' style into 100-length vector instead of labeling them to extract more characteristics from images via building encoder and classifier branches in the style encoder network, avoiding the influence of image contents.
- Added **cross-cycle consistency loss** in **GAN** training to strengthen both content learning and style transfer.
- Completed **bidirectional** style transfer with 50% higher efficiency than the **ResNet** models by sharing parameters of whole generator in two directions.

Pet Auto-Feeding Machine, Senior Project — Sept. 2016- Mar. 2017

- Designed a pet auto-feeding system including the mechanical structure of food feeding switch, hardware module of sensors and software module, which could complete **remote control**, **auto-feeding**, **health monitoring**, and dog recognizing.
- Designed motor and sensor modules based on **Arduino** using C and **Raspberry Pi** using Python to add food with the maximum speed of 80 rpm, measure food consumption rate for every 5 seconds via time duration, weight consumption and detect dog tag color.
- Developed an Android APP with JAVA to customize the feeding settings, remotely control the auto-feeding system and monitor dog health status.
- Completed the data transmission operation using **web server** and **database** with SQL, which transmits the data measured by sensors to APP.

Experience

Rutgers University,New Brunswick, NJ — Sept. 2018 - May 2019

Grader for graduate courses

- Graded assignments and term projects in Course Computer Graphics which covers a wide range of topics such as rigid body dynamics, volumetric elastic solids, and incompressible fluids.
- Instructed students in Physics-based animation techniques using **C++** and hardware circuit design using **C**.