

# Shuya ZHAO

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## EDUCATION

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

## SKILLS

**Programming Languages:** Python, JavaScript, Java, C#, C/C++, MATLAB

**Tools:** TensorFlow, PyTorch, Scikit-learn, Keras, SQL/MySQL, Spark, Latex, Unity

**Knowledge:** Computer Vision (Image-to-Image Translation, Object Detection, Image-caption Generation), Language Synthesis (RNN, LSTM, GRU), Machine Learning (SVM, Bayesian Models), Big Data (Recommender system, similarity algorithm), Data Visualization

## PUBLICATIONS

Yingqiang Ge\*, **Shuya Zhao\***, Honglu Zhou, Changhua Pei, Fei Sun, Wenwu Ou, and Yongfeng Zhang.  
**Understanding Echo Chambers in E-commerce Recommender Systems.** In Proceedings of SIGIR 2020 Industry Track, July 25 – 30, 2020, Xi'an, China.

## PROJECTS

**Visual Analytics with video representation learning on Baseball Game Videos** June 2020 - Present

- Display temporal attributes from **frame-level embeddings** with interactive tools developed by **JavaScript**.
- Improve **Auxiliary Label Classification** on sub-actions via **Interactive Machine Learning** methods.

**Exploring Echo Chamber in E-commerce, Published 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 for **remote control**, **auto-feeding**, **health monitoring**, and dog recognizing, which includes the mechanical structure of food feeding switch, hardware module of sensors and software module.
- Designed motor and sensor modules based on **Arduino** using C and **Raspberry Pi** using Python to add food with speed up to 80 rpm, measure food consumption every 5 sec 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

**New York University, NY** **Research Assistant** Sept. 2019 - Present

- Work in the Visualization and Data Analytics Research Center, advised by Prof. **Dr. Cláudio T. Silva**

**Rutgers University, NJ** **Grader for graduate courses** Sept. 2018 - May 2019

- Graded assignments and instructed students in Physics-based animation techniques using **C++** and hardware circuit design using **C**.