

# Guoming Li

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## ■ Research Interests

- Deep Learning on Graph and its application on real-world
- Graph Signal Processing and Denoising
- Graph Topology Inference

## ■ Education Background

**B.Eng in Information Engineering, South China University of Technology, China** *Sep 2016 – Jun 2020*

- Thesis: Deep learning method in Super-Resolution
- GPA: 3.63 / 4.0 (**Merit Graduate Student Awards**)
- Selected Courses: Data Structure(88), Basic Theory of Information(88), Electromagnetic Fields and Waves(91), Signal and System, Digital Signal Processing, Digital Image Processing

**Postgrad Courses study, University of Chinese Academy of Sciences, China** *Sep 2021 - Jul 2022*

- Major: Social Computing (AI + Network Science)
- GPA: 3.57 / 4.0 (One-year courses, all about AI and Applied Maths)
- Selected Courses: Multivariate Statistical Analysis(93), Funtional Analysis(95), Machine Learning, Deep Learning, Pattern Recognition

## ■ Project(new to old)

**Network Topology Inference with Graph Learning** *Jun 2022 – present*

- Mentor: Prof D.S Luo at Florida International University(FIU), USA
- This topic is just one of the sub-problems of my big idea about Graph Signal Processing. I proposed the main idea and designed the model. I am now cooperating with Prof. Luo and concentrated on solve this sub-problem.

**Network epidemic dynamic model of COVID-19 in China** *Dec 2020 – Jul 2021*

- Mentor: Prof Z Cao at CASIA, China
- Modeling the network epidemic processes of COVID-19 in China. Using Matlab to implement SEIR、SIR、SEIRD models which fitted the epidemic data in China and building mobility dataset with Python-Spider.

**Deep learning method in Super-Resolution** *Nov 2019 – May 2020*

- Mentor: Prof J.L Shi at South China University of Technology(SCUT), China
- This is my undergraduate thesis. I tried to find out what and how the factors in input-data influence the efficiency of the algorithm based on paper *Image super-resolution using deep convolutional networks*. (Dong et al, 2016)

**Image style transfer apps (for mobile device)** *Mar 2019 – Jul 2019*

- Co-workers: D Wang, K.B Chen at South China University of Technology(SCUT), China

Update in Sep 8th, 2022

- All deep learning modules were implemented by myself. MS-COCO dataset and VGG-14 backbone were used to train the model and got different Style Gram Matrices, which could be used to image style transfer at our online server. **However, our online server had been terminated now.**

## ■ Research Experience(new to old)

### (Remote) research internship in Florida International University(FIU)

Jun 2022 – present

- Mentor: Prof D.S Luo at Florida International University(FIU), USA
- Topic: Graph Topology Inference and Graph Signal Denoising
- Proposing the idea and leading the research project. Now focusing on a sub-question about bridging the gap between GTI(Graph Topology Inference) and GSL(Graph Structure Learning). My goal is to solve a problem about denoising on both Graph Structure and Graph Signal at the same time.

### Research Assistant in Institute of Automation, Chinese Academy of Sciences(CASIA)

Dec 2020 – Jul 2021

- Mentor: Prof Z Cao at CASIA, China
- Topic: Epidemic dynamic of COVID-19 and (Complex) Network Science
- Extracting spatial-temporal data of COVID-19 and creating a dataset with Python-Spider, independently using Matlab to implement SEIR、SIR、SEIRD models which fitted the epidemic data in China.

### Student Research Assistant in Image Processing Group(SCUT)

Mar 2018 – Nov 2018

- Mentor: Prof X Xing at South China University of Technology(SCUT), China
- Topic: Image processing with deep learning
- Required to implement some papers about Image processing with Pytorch, such as *AdaIN* (Huang et al, 2017), and compare their performance in MS-COCO dataset, also required to do the data pre-processing.

## ■ Research Publications

- No publication at present.

## ■ Coding Skills

- Python, (*Proficient in using Pytorch, Spider and so on.*)
- C++, (*Proficient*)
- Matlab, (*Proficient*)

## ■ Adwards

- The Chinese Mathematics Competitions, ***The third prize***, 2017, ***The second prize***, 2018
- Contemporary Undergraduate Mathematical Contest in Modeling, ***The third prize***, 2018
- “Hong-ping-chang-qing” ——Student science and technology innovation competition scholarship, ***The third prize***, 2019

## ■ Social Activities

- The 2019 GUANGZHOU International Marathon, Volunteer, 2019
- The 2022 CHINA AUTOMATION CONGRESS, Volunteer, 2022

## ■ Referees

*I am grateful and proud to be recommended by the following people:*

*Update in Sep 8th, 2022*

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