*Huazhong University of Science and Technology* ***(HUST)***
*1037 Luoyu Road, Wuhan, China, 430074*
*(086) 130 0610 6862*
*szrlee@gmail.com*
*sites.google.com/view/yingru*

# Yingru Li

## Education

Sept.2013 – June.2017 **BEng in Computer Science**, *Huazhong University of Science and Technology*, *Summa Cum Laude*, in ACM Honors Degree Program.
*Major GPA–3.95/4.0, 89.7/100 (in Math and CS) | Overall GPA–3.75/4.0, 85.7/100*

2010 – 2013 **High School**, *Shenzhen Experimental School.*

2007 – 2010 **Middle School**, *Shenzhen Middle School.*

## Technical Reports

Journal paper Kun He, Yingru Li*, Sucheta Soundarajan, John E. Hopcroft. ***Hidden Community Detection in Social Networks.*** in Volume 425, January 2018, Pages 92-106, Information Sciences. *First student author and corresponding author.

Thesis Yingru Li. ***Learning Multi-Channel Influence in Networks.*** Undergrad Thesis. Advised by Prof. Kun He, Prof. Wei Chen and Prof. John Hopcroft.

Survey Yingru Li, Ken Xingze Wang. ***A Survey : Unitary Transformation in Recurrent Neural Networks.*** Survey. Working paper.

## Selected Award

Nov.2015 **Outstanding Achievements in terms of Academic Performance**, *Top 1%*, Highest Honor, 30,000 CNY.

Oct.2016 **Qiming Star Award**, *One of the 5 Prizewinners.*, 5,000 CNY.

Sept.2015 **First Prize in Parallel Application Contest (PAC2015)** , *joint held by Intel and CCF-TCHPC*, 15,000 CNY for team.

Sept.2015 **First Prize in National Competition on SDN**, 8,000 CNY for team.

14 & 16 **Innovation and Research Scholarship in Science and Engineering**.

Feb.2016 **Honorable Mention in MCM/ICM Contest 2016**, *Sponsored by MAA, INFORMS and SIAM.*

## Experience in brief

Jan.2018 – Present **Trainee Researcher**, *SenseTime Research*, mentored by Senior Research Manager **Dr. Jing Shao**, Focusing on Continual/Incremental Learning problem.

July.2015 & (Mar.2017 – June.2017) **Exchange Student & Research Assistant**, *Department of Computer Science, Cornell University*, Invited by **Prof. John Hopcroft** (He was honored with the A. M. Turing Award in 1986.).

June.2016 – Sept.2016 **Research Internship**, *Theory Group in Microsoft Research Asia*, supervised by Senior Researcher and Research Manager **Prof. Wei Chen**.
Received the Excellence Award during internship

2015 – Present **Research Assistant**, *John Hopcroft Lab for Data Science*, Supervised by **Prof. Kun He** .

14 – 17 **Senior Membership**, *Unique Studio*, A Famous Student Tech Club in HUST.

Aug.2014 **Social Practice**, Visited several famous companies as well as startups located in Shenzhen including Huawei, Tencent, ZTE and Ping-An.

## Interests

Research Interests His research interests lie broadly in theoretical computer science and machine learning including algorithms and optimization. He studied on the (hidden) static structure and random process in networks. He is interested in making deep (reinforcement) learning interpretable and robust using knowledge, which will guarantee the security and safety in tremendous applications such as computer vision, natural language understanding and decision making tasks. As for long-term goal, he is interested in artificial general intelligence such as continual learning, k-shot learning and meta learning, which would enable machine to achieve human-like performance in learning.

Language Chinese Mandarin(native), English

Art Erhu and Hulusi(two traditional Chinese music instruments)

## Research Experience

Jan.2018 – Present **Trainee Researcher**, *SenseTime Research*, working on continual/incremental learning problem and aiming to use these techniques to handle newly arriving image data.

June.2016 – Sept.2016 **Research Internship**, *Theory Group in Microsoft Research Asia*, Worked on models, algorithms and theory(specifically *submodularity*) related to influence propagation in social network. Finished the proof on the submodularity of mutual competing case in Com-IC model and the further work was accomplished in a FAW2017 paper after he left Microsoft Research. Also initialized the research project on multi-channel influence learning problem..

July.2015 & (Mar.2017 – June.2017) **Research Assistant**, *Department of Computer Science, Cornell University*, Invited by **Prof. John Hopcroft**.
In summer of 2015,
1. Participated in the seminars on various small projects on *Why* ***deep learning*** *works*;
2. Joined the lectures by professors in different areas from CS Department in Cornell;
3. Continued the research project on Hidden Community Detection and gave a talk.
During the spring semester in 2017,
he was an exchange student and an independent research assistant in Cornell University, under the supervision of Prof. John Hopcroft and Prof. Kun He, working on the multi-channel (hidden) influence model, bridging hidden concept (Generalization for Noise-or Bayesian Network) and influence diffusion in social network. This research successfully defended the undergraduate thesis and is being extended to a conference paper.

2015–Present **Research Assistant**, *John Hopcroft Lab for Data Science*, Supervised by **Prof. Kun He** .

**1**. They proposed a fundamentally new paradigm of **hidden community structure**, which is characterized by the presence of multiple layers of community structure. In this conception of community structure, networks(Social, Biology network, etc.) contain a single, dominant set of strong communities, which interferes with the accurate detection of weaker, but still meaningful hidden community structure;
**2**. They also proposed a hidden influence model. Roughly speaking, this research look into the cases where influence cascades also have multiple layers, the higher layers are stronger than the lower layers, and wants to see from the cascade data whether useful information about the lower layers (hidden layers)'s influence can be learned. This project was initiated with Wei Chen when he was a intern in MSR Asia Theory Group and is the topic of his undergraduate thesis.
**3**. He served as the **student leader** of reading group in the lab, mainly focusing on organizing and leading group study.

## Selected Project Experience

Dec.2017 **Stock Time Series Data Analysis**, *Course Project*, Python/R, https://github.com/szrlee/Stock-Time-Series-Analysis.
Published a new dataset named 'DJIA 30 Stock Time Series' in Kaggle. Used ARIMA to model and predict the stock data.

June.2015 – Present **HICODE | HIdden COmmunity DEtection Framework**, *Research Project*, C++, https://github.com/szrlee/HiCode.
Developed the overlapping base and corresponding algorithms and metrics for research.

June.2016 **MIPS CPU on FPGA**, *Course Project for Computer Organization*, Verilog.
Developed FPGA based MIPS CPU with 5-Stages Pipeline

Jan.2016 – Feb.2016 **Filtering and Propagation in Information Network**, *Project for MCM/ICM Contest 2016 with Honorable Mention*, MATLAB.
1. Using clustering and label-propagation on Time-Series Data from SNAP to answer the question about what is News and what is not; 2. Formalizing the tweets diffusion problem with Infectious Diseases Model and fitting the model by the same Time-Series data above for prediction.

Mar.2015 – Apr.2015 **Image Processing and Object Removal by Exemplar-Based Inpainting**, *Curriculum Project for Numerical Analysis*, MATLAB.

Apr.2014 – Sept.2014 **AIPS | Automatic Intrusion Prevention System using SDN**, *Project for 2014 SDN Competition*, https://github.com/szrlee/AIDS.

June.2015 – Sept.2015 **SDN-E | SDN Extension Framework**, *Project for 2015 SDN Competition*, https://github.com/cubarco/SDN-2015, working as a contributor.

## Funding

2016 – 2017.6 **National Scientific Innovation Program for Undergraduate No. 201610487027**, *Clustering and Community Detection*, 15,000 CNY, awarded as excellent program in the University-Level examination and recommended to National-Level program.