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<http://yhx189.github.io>

## 1 EDUCATION

Ph.D, Computer Science,  
Northwestern University  
B.S., Electrical Engineering,  
Tsinghua University, China

09/2014 - 06/2019(expected)

09/2010 - 06/2014

## 2 RESEARCH INTERESTS

Android Networking, Networking measurement

## 3 PROFESSIONAL EXPERIENCE

**Research Assistant, NULIST lab, Northwestern University** **09/2014 - present**

- Network latency has been fully analysed and successfully predicted in the Web era. However, such research has not been introduced to the mobile network, which differs from traditional web environment due to the mobility of the end devices and the significantly larger available bandwidth.
- My research measurements the Android network latency by breaking down the overall latency into three parts, i.e. first mile latency, network transmission latency and server-side response latency.
- First mile latency is measured by implementing the train of packet pairs algorithm. The end device sends consecutive ICMP packets to the first responsive router and computes the available bandwidth to the router by subtracting the arrival times of response packets.
- Network transmission latency is measured by taking the advantage of DNS servers. We find the closest recursive DNS server by computing ARPA address of the source and destination and then send DNS request to the server. The available bandwidth is computed by subtracting the arrival times of response packets.
- Server-side response latency is negligible in most cases. We will further take this part into consideration by analysing the dependency graph of the HTTP requests.
- First mile latency measurement app published on Google Play. <https://play.google.com/store/apps/details?id=com.zjulist.video>

**Teaching Assistants, EECS department, Northwestern University**

- Data structure, Fall 2015
- Mathematical Foundations of Computer Science, Winter 2016

**Research Assistant, OCR Lab, Tsinghua University**

Handwritten Mathematical Expression Recognition Program, 06/2013 - 06/2014

- Proposed and implemented a dynamic programming based online handwritten image segmentation and symbol recognition algorithm. Utilized Gaussian mixture model and EM algorithm for symbol classification.
- Designed a method for mathematical expression semantic structure analysis based on adjacent matrices and a ranked ternary tree model.
- Designed a web-service user interface which produced text output in  $\text{\LaTeX}$  grammar.
- Proposed an algorithm to recognize ambiguous characters in similar shapes via sparse representation.

**Research Assistant, Institute of Image and Graphics, Tsinghua University**

3D Object Detection Program 09/2012 - 04/2013

- Co-developed a framework of object detection with a four-member team. Our system could detect flying objects in laser images that were generated and re-collected by a laser dispenser and receiver.
- Proposed a hardware based algorithm to down-sample and convert binary laser images into gray-level images through distance transformation (B2G module). Implemented the module of extracting and matching speeded up robust features (SURF) on gray-level images that were the output of the B2G module.

## 4 PUBLICATIONS

**YANG HU**, Liangrui Peng, Yejun Tang, *On-line Handwritten Mathematical Expression Recognition Method based on Statistical and Semantic Analysis*, DAS'2014

## 5 HONORS AND AWARDS

- Murphy Fellowship, EECS department, Northwestern University 09/2014
- Comprehensive Excellence Scholarship, Tsinghua University 10/2013
- Comprehensive Excellence Scholarship, Tsinghua University 11/2012

## 6 EXTRACURRICULAR EXPERIENCE

**Wildhacks 2015** 10/2015

- Worked in a team of 4 as the major programmer. Our project, YoursTruly, won the Best Hack that Facilitates Communication award
- <http://devpost.com/software/yourstruly-oz95er>

**Wildhacks 2014** 10/2014

- Worked in a team of 4 as the back-end engineer taking charge of the google-app-engine and mailjet part. Our project, NU Infoboard, is rewarded as one of the top 10 projects.
- <http://devpost.com/software/nu-infoboard>

**Aarogya project** 03/2015 - 09/2015

- Implemented an Android app that facilitates users on their health related search. Designed user-friendly interface for Indian people to search for near-by hospitals for specific diseases. Implemented an interface for health organizations to analyse user search history based on their geo-location. Implemented a framework to recommend health insurance plans based on user's search history.
- Advised by Professor Chaitanya Bandi of the Kellogg school of Management and World Health Organization.
- Published on Google Play. <https://play.google.com/store/apps/details?id=com.yanghu>

**Chief Member attending the Pattern Recognition Contest, Workshop on Brain Tumor Detection, Tsinghua University** 04/2013-06/2013

- Introduced and improved speeded up robust features that were extracted and matched in magnetic resonance images to detect and classify brain tumors.

## 7 SKILLS AND EXPERTISE

Proficient Languages : C/C++, Java, HTML/CSS/Javascript, python  
Familiar Languages Swift, Perl, Lisp, PHP  
OS : Unix, Windows