# Hu Wang

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**Education**

July 2017--- Now, **Singapore Management University**, Singapore
**Research Engineer, LARC Lab co-founded by Carnegie Mellon University and Singapore Management University**

- Research in LARC Lab (Living Analytics Research Centre) with Professor Steven Hoi.
- Research in Deep Learning and Machine Learning.
- In charge of FoodAI research project (http://foodai.org) and medical images processing.

September 2014 --- June 2017, **South China University of Technology**, Guangzhou, Guangdong, China
**Masters of Software Engineering**, Computer Vision & Visual Programming Emphasis

- Ranked 4$^{th}$ (52 students).

Fall 2016, **Pittsburg State University**, Pittsburg, Kansas, USA
Visiting student,  **Computer Technology Emphasis**

- Built a remote-controlled car.
- Built a mp3 player using hcs12 dragon board, programmed with assembly language of hcs12 microcontroller.
- Learned project management knowledge, gained computer security experience.
- All selected classes (7 classes) are As, GPA 4.0.

September 2010 --- June 2014, **Hunan Agricultural University**, Changsha, Hunan, China
**Bachelors of Information Engineering**

- Ranked 2$^{nd}$ (72 students).

**Research & Projects**

December 2017 to Now
**Medical image processing**
- X-Ray image processing on chest diseases.
- Solving data imbalance problems.
- Multi-label Learning

July 2017 to Now
**Food Image Fine-grained Classification**
- Researching on Fine-grained classification and semi-supervised learning.
- In charge of FoodAI research project (http://foodai.org) and raised the original  top1 / top5 accuracy of food classification from 70% / 90% to 78% / 94%.

May 2017 to December 2017
**Online Learning and Tensor Decomposition**
- Researched on Online Learning and Tensor Decomposition.
- Published a paper named "Online Learning and Tensor Decomposition" on the 10th International Conference on Advanced Computational Intelligence 2018 (ICACI 2018).

January 2017 to May 2017
**Image Matting algorithm research**
- Came up with ideas of algorithms to solve natural image matting problem efficiently.
- Published a paper named "A Fast Image Matting Method based on Interval-line Sampling" on Proceedings of the 2017 IEEE International Conference on Computational Science and Engineering(ICSE'17)

December 2015 to May 2016
**Visual Programming Compiler**
- Visual Programming Compiler architecture, encapsulation programming interfaces and packages.
- Compile the graphic icon into actual machine code to drive robots.
- C++ architecture, good transfer ability among different platforms (eg. Windows, Linux, Mac OS or Android).
- Implemented the backend of the platform, more than 25000 lines of C++ codes have been written by me.
- Under volume production and into market now.
- On my GitHub https://github.com/billhhh/whEST.
- Two patents were gotten: (1) "A Graphical Programming Multithreading Synchronization Method." 1 June 2017. Patent (201710405733.7). (2) "A Visual Programming Control and Store System." 30 November 2016. Patent (201611092887.7).
- Two international patents: (1) "A Graphical Programming Auto compile Method." In processing, (PCT/CN2017/111231). (2) "A Visual Programming Control and Store System." In processing, (PCT/CN2017/107726).

November 2015
**"Know Video" System**
- Implemented with JS+PHP in 24 hours, a chrome add-in, fancy trailer previews would show up whenever users type the keywords in the search engine (multiple search engine supported).
- Came up with a business model, designed a UGC platform by which users can upload their video clips.
- "Hack Shanghai Global Hackathon" Contest ranked 3rd.

December 2014 to May 2015
**Shoes shopping guide-system**
- System architecture and coding, including database, web-crawler

design and coding.

- Implemented with Java.

- "Ali Baichuan" Hachathon Programming Contest Ranked 3rd.

December 2014 to January 2015
**Students homework checking system**
- Came up with String comparison Algorithms.

- System architecture and coding.

- Implemented with C++ (including Qt framework)

- Over 99% checking accuracy.

June 2014 to September 2014
**Masked-Men Detection Computer Vision research**
- Designed an algorithm to detect masked-men in real-time videos.

- Based on skin color features and gradients features combine with statistics methods.

- Two patents were gotten: (1) "Dual Mode Video Masked-men Detection Based on Statistical Characteristics." 20 December 2015. Patent (201510971527.3). (2) "Masked-men Detection Based on Color Features." 7 July 2015. Patent (201510451280.2).

- One Software copyright were gotten: "Intelligent Masked-Men Detection system." 26 September 2014. Software copyright (2015SR035707).

January 2014 to March 2014
**ACM Online Judge**
- Automatically judged ACMers' submissions, has been used in competitions.

- Implemented with C++ (Compile core) and Java (Web-end, implemented with Struts + Hibernate).

- One Software copyright were gotten: "ACM/ICPC Online Judge." 26 March 2014. Software copyright  (2015SR035709).

March 2013 to April 2013
**Digital clock based on FPGA**
- Programmed based on VHDL of FPGA (Field-Programmable Gate Array).

- Published a paper named "Design of digital clock based on FPGA (In Chinese)" on Electronic Design and Engineering. 2014.

**Publications**
- Congbo Ma, Xiaowei Yang and Hu Wang. Randomized Online CP Decomposition (Newly accepted by ICACI 2018 in January 2018).
- Hu Wang, Zhongming Yang and Congbo Ma. A Fast Image Matting Method based on Interval-line Sampling. In: Proceedings of the 2017 IEEE International Conference on Computational Science and Engineering(ICSE'17), Guangzhou, China, July 21-22, 2017.

- Hu Wang, Jun Ren. Design of digital clock based on FPGA (In Chinese). Electronic Design and Engineering. 2014, (04):127-129.

**Patents & Copyrights**

- International Patent. "A Graphical Programming Auto compile Method." In processing, (PCT/CN2017/111231).
- International Patent. "A Visual Programming Control and Store System." In processing, (PCT/CN2017/107726).
- "A Graphical Programming Multithreading Synchronization Method." 1 June 2017. Patent (201710405733.7).
- "A Visual Programming Control and Store System." 30 November 2016. Patent (201611092887.7).
- "Dual Mode Video Masked-men Detection Based on Statistical Characteristics." 20 December 2015. Patent (201510971527.3).
- "Masked-men Detection Based on Color Features." 7 July 2015. Patent (201510451280.2).
- "Intelligent Masked-Men Detection system." 26 September 2014. Software copyright (2015SR035707).
- "ACM/ICPC Online Judge." 26 March 2014. Software copyright (2015SR035709).

**Internship**

June 2016 to August 2016
**Senior Java-Programmer internship of Ant Financial Services Group affiliate with Alibaba Corporation**, Hangzhou, China
- Built a web-crawler, Implemented with Java.
- Familiarized with Alipay SOFA architecture.

August 2015 to May 2016
**Internship of Dr. Luck Corporation**
- Visual Programming Compiler architecture, encapsulation programming interfaces and packages.
- Compile the graphic icon into actual machine code to drive robots.

**Awards & Honors**

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|---|---|
| South China University of Technology        Excellent Students Awards | 2016 |
| IBM Master the Mainframe Global Individual Contest        Third Prize | 2015 |
| Hack Shanghai Global Hackathon        Ranked Third | 2015 |
| Microsoft campus Hackathon Contest        Excellence Award | 2015 |
| South China University of Technology Samsung Scholarship | 2015 |
| "Ali Baichuan" Hachathon Programming Contest        Ranked Third | 2015 |
| Tencent Internet innovation and startup contest        National top 100 | 2015 |
| "Star Cup" English Speech Contest        Second Prize | 2015 |
| SCUT Graduate Student Debate Contest        Ranked Second | 2014 |
| Hunan Agricultural University ACM Programming Contest   First Prize | 2013 |
| The Eleventh "Truth Seeking Cup" Programming contest     First Prize | 2012 |

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| ▪ The Praise of "China Cup" calligraphy contest | Third Prize | 2012 |
| ▪ National Electronic professionals' skills contest | Excellence Award | 2012 |
| ▪ Hunan Agricultural University English Speech Contest | Third Prize | 2012 |
| ▪ Hunan Agricultural University ACM Programming Contest | First Prize | 2012 |
| ▪ The Praise of "China Cup" calligraphy contest | First Prize | 2010 |

| Activities | | | |
|---|---|---|---|
| | ▪ Microsoft Research Asia | Campus Hackathon Conference | 2015 |
| | ▪ Microsoft Corporation | Microsoft Summer Camp | 2015 |
| | ▪ SCUT Microsoft Technology Club | Vice-president | 2015 |
| | ▪ Guangzhou Import/Export Commodity Fair | Interpreter | 2015 |
| | ▪ Oral English class | Teaching Assistant | 2015 |
| | ▪ Algorithm & C++ class | Teaching Assistant | 2015 |
| | ▪ Qide International Education | Interpreter | 2013 |
| | ▪ Aoji International Education | Interpreter | 2013 |
| | ▪ ACM Programming Innovation Lab | Team Leader | 2011 |

**References**

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