

# Yuhang Song

## Curriculum Vitae

Computer Science  
University of Oxford, UK.

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YuhangSong



## BIOGRAPHY

Oct. 2018 – **Ph.D.**, Computer Science, University of Oxford, UK.

Present

- o Groups:
  - Intelligent Systems ([See Home Page](#))
  - Models of Brain Decision Networks ([See Home Page](#))
- o Topics:
  - Reinforcement Learning, Computational Neuroscience
- o Supervisors:
  - Prof. Thomas Lukasiewicz ([See Scholar Page](#))
  - Prof. Rafal Bogacz ([See Scholar Page](#));

Jun. 2017 – **Research Assistant**, Computer Science, Brown University, USA.

Apr. 2018

- o Group:
  - Humanity-Centered Robotics Initiative ([See Home Page](#))
- o Topics:
  - Reinforcement Learning, Generative Adversarial Networks
- o Advisor:
  - Prof. Michael Littman ([See Scholar Page](#))

Sep. 2014 – **Bachelor Degree**, Electronic Information Engineering, Beihang University, China.

Jul. 2018

- o GPA: 3.71/4.0
- o Group:
  - Multimedia Computing Towards Communications ([See Home Page](#))
- o Topics:
  - Reinforcement Learning, Computer Vision
- o Advisor:
  - Prof. Mai Xu ([See Scholar Page](#))

## Scholarships

2018	State Scholarship of China   150 among 6,000	RMB 1,500,000   Four Years' PhD Fully Funded
2019	Special Project Grant of Somerville College, University of Oxford	GBP 1000
2018	Honorary China Oxford Award   15 awarded	GBP 3000
2017	National Innovation Scholarship   20 among 200,000+ Offer highest bonus among all the scholarships in our university. Awarded directly by the National Ministry of Industry and Information.	RMB 80,000   1st Prize
2015	Airbus Academic Scholarship   2 among 600+	RMB 8,000   1st Prize
2016	Outstanding Science and Technology Scholarship   12 among 256	RMB 1,500   1st Prize

## TEACHING

- 2019 **Advanced Machine Learning** ([See Home Page](#)), Department of Computer Science, University of Oxford, UK.
- Role: Teaching Assistant & Tutor
  - Lecturers:
    - Prof. Yarin Gal ([See Home Page](#))
    - Prof. Thomas Lukasiewicz ([See Scholar Page](#))
- 2019 **Imperative Programming 3** ([See Home Page](#)), Department of Computer Science, University of Oxford, UK.
- Role: Teaching Assistant & Tutor
  - Lecturers:
    - Prof. Peter Jeavons ([See Home Page](#))
- 2018 **Introduction to Machine Learning**, Department of Computer Science, Beihang University, China.
- Role: Teaching Assistant & Tutor
  - Lecturers:
    - Prof. Mai Xu ([See Home Page](#))

## PUBLICATIONS

(\*: Advisor. †: Equal Contribution.)

- [1] **Yuhang Song**<sup>†</sup>, Andrzej Wojcicki, Thomas Lukasiewicz<sup>†</sup>, Zhenghua Xu<sup>†</sup>, Jianyi Wang, Mai Xu, Zihan Ding, Lianlong Wu. *Arena: A General Evaluation Platform and Building Toolkit for Multi-Agent Intelligence.* Pre-print. ([Project Home Page](#)) ([Paper](#)) ([Supplementary Material](#)) ([Code Release: Baselines](#)) ([Code Release: BuildingToolkit](#))
- [2] **Yuhang Song**<sup>†</sup>, Jianyi Wang<sup>†</sup>, Thomas Lukasiewicz\*, Zhenghua Xu, Shangdong Zhang, Mai Xu. *Mega-Reward: Achieving Human-Level Play without Extrinsic Rewards.* Pre-print. ([Paper](#)) ([Supplementary Material](#))
- [3] **Yuhang Song**<sup>†</sup>, Jianyi Wang<sup>†</sup>, Thomas Lukasiewicz\*, Zhenghua Xu, Mai Xu. *Diversity-Driven Extensible Hierarchical Reinforcement Learning.* AAAI 2019. **Oral Presentation.** ([Slides](#)) ([Paper](#)) ([Supplementary Material](#)) ([Code Release](#))
- [4] **Yuhang Song**<sup>†</sup>, Mai Xu<sup>\*†</sup>, Minglang Qiao, Jianyi Wang, Liangyu Huo. *Predicting Head Movement in Panoramic Video: A Deep Reinforcement Learning Approach.* TPAMI 2018. ([Paper](#)) ([Code Release](#))
- [5] **Yuhang Song**, Mai Xu\*, Songyang Zhang. *Generalization Tower Network: A Novel Deep Neural Network Architecture for Multi-Task Learning.* NIPS 2018. Deep RL Symposium ([Paper](#)) ([Code Release](#))
- [6] **Yuhang Song**, Christopher Grimm, Xianming Wang, Michael Littman\*. *Learning Approximate Stochastic Transition Models.* ([Paper](#)) ([Code Release](#))
- [7] Christopher Grimm, **Yuhang Song**, Michael Littman\*. *Summable Reparameterizations of Wasserstein Critics in the One-Dimensional Setting.* ([Paper](#))
- [8] **Yuhang Song**, Mai Xu\*, Shengxi Li. *Watching Videos with Certain and Constant Quality: PID-based Quality Control Method.* DCC 2017. ([Paper](#)) ([Code Release](#))

Patents (A total of 8)

- [7,...,14] **Yuhang Song**, Xianglong Kong, Jianyi Wang. *A Power/Joint/Servo/Connector Module Device in a Modular UAV System.* 4 Invention & 4 Utility Model Patents. ZL201620302692.X, ZL201620302142.8, ZL201620302048.2, ZL201620302137.7, 201610224780.7, 201610225217.1, 201610225216.7, 201610224853.2.

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## HONORS & AWARDS

### The most representative 4 honors:

- 2016 Challenge Cup National Innovation Contest | **9 among 60,000+** **1st Author & 1st Prize**  
*The **top** entrepreneurship competition in China;*  
**Directly** obtain graduate admission privilege to our university for this honor;
- 2017 The 22th "Fengru Cup" Academic Contest | **15 among 4,600+** **1st Author & 1st Prize**  
*The **top** academic competition in our university;*  
**Directly** obtain graduate admission privilege to our university for this honor;
- 2016 The 21th "Fengru Cup" Innovation Contest | **16 among 4,500+** **1st Author & 1st Prize**  
*The **top** innovation competition in our university;*  
**Directly** obtain graduate admission privilege to our university for this honor;
- 2016 National Information Technology Contest | **89 among 13,000+** **1st Author & 1st Prize**
- Other 9 awards, including:**
- 2016 Fengru Cup "Nokia" Innovation Contest | **9 among 120+** **1st Author & 1st Prize**
- 2016 Fengru Cup Entrepreneurship Contest | **6 among 1100+** **1st Author & 1st Prize**
- 2016 China Aviation Industry Innovation Contest | **1 among 1200+** **1st Author & 1st Prize**
- 2016 Beihang Electronic Innovation Contest | **1 among 240+** **1st Author & 1st Prize**
- 2016 Top Comprehensive Performance in Department | **1 among 256** **1st Author & 1st Prize**
- 2015 Beihang Electronic Innovation Contest | **1 among 240+** **1st Author & 1st Prize**
- 2015 Top Innovation Performance in the Department | **1 among 256** **1st Author & 1st Prize**
- 2014 Beihang Electronic Innovation Contest | **1 among 240+** **1st Author & 1st Prize**
- 2014 Top Innovation Performance in the Department | **1 among 256** **1st Author & 1st Prize**

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## PROJECTS

- 2014 – 2016 **iDrone: A Modular Reconfigurable Drone System** ([See video](#)) **1st Author**  
I spent two years focusing on this project, from innovating the original idea to designing the basic model. Eventually, I built a team of 10 members from diverse backgrounds which we worked together through the project. Although we decided not to accept venture investment from a few companies, yet it represents the outstanding level of our product.
- 2014 – 2015 **MFR: A Somatosensory Equipment for Shooting Games** ([See video](#)) **1st Author**  
A really cool project aiming at developing more natural human-computer interface for first-person shooter game. I spend my freshman year in this project.

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## SOCIAL WORK

- 2015 – 2016 **Deputy Minister of Science and Technology Sector in the department.**
- 2014 – 2016 **Deputy Squad Leader of the department.**
- 2013 – 2014 **Elite Program: A Charity Program.** **One of the Sponsors**

We were then students from the elite class, which spoke of our excellent performance in the National High School Entrance Examination. So, we figured out a charity program which benefits more. Specifically, we provided tutoring service to the students that were going to take that examination. Indeed, what we've earned from it went directly to the funding program for the poor children. We eventually tutored more than 300 students and funded more than 2000. The program received a great deal of attention from the press and was employed and developed by later generations due to its influential social response.