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**Li-Ke Ma**  
*Tsinghua University*

## BIOGRAPHY

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Li-Ke Ma is an energetic researcher. His research interests include physics-based simulation, physics-based character animation and reinforcement learning. He is familiar with optimization and deep learning techniques. He is currently focusing on character control strategy discovering using deep reinforcement learning. He likes mathematics and playing strategy games such as StarCraft.

## EDUCATION

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### **Tsinghua University**

PhD in Computer Sciences

**Beijing, China**

**Sep 2015 - Present**

- **Total GPA:** 3.68/4.00; **Major GPA:** 3.70/4.00
- **Selected Courses:** Modern Algebra (4.0), Combinatorics (4.0), Numerical Methods (4.0), Computational Geometry (4.0), Optimization Methods (3.7), Computer Graphics (3.3), Advanced Machine Learning (3.3)

### **Peking University**

Bachelor of Science in Physics

**Beijing, China**

**Sep 2011 - Jul 2015**

- **Total GPA:** 3.79/4.00 (top 5%); **Major GPA:** 3.86/4.00 (top 5%)
- **Selected Courses:** Linear Algebra, Classical Mechanics, Statistical Mechanics, Quantum Mechanics, General Relativity, Computational Mathematics

Bachelor of Art in Economics

- **Selected Courses:** Microeconomics, Macroeconomics, Econometrics

## RESEARCH AND ACADEMIC EXPERIENCE

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### **Strategy Discovering of Physics-based Character Control**

*Mentored by Xin Tong, Internet Graphics Group, MSRA*

**Beijing, China**

**Sep 2019 - Present**

- Discovering character control strategy by DRL when sparse constraints are given for tasks.

### **Physics-based Character Control using DRL**

*Advised by Prof. KangKang Yin, GrUVi Lab, Simon Fraser University*

**Vancouver, Canada**

**Sep 2018 - Aug 2019**

- Pipeline to train a physics-based character following given motion trajectory.

### **Computational Design and Control of Inflatable Objects**

*Mentored by Yizhong Zhang, Yang Liu and Xin Tong, Internet Graphics Group, MSRA*

**Beijing, China**

**May 2017 - Aug 2018**

- FDM-based simulation tool for inflatable objects.
- Pipeline that automatically divides and flattens given 3D shape to plane so that inflatable object with similar shape can be manufactured by sewing plane pieces together.

### **Computational Design and Fabrication of Soft Pneumatic Objects**

*Mentored by Yizhong Zhang, Yang Liu and Xin Tong, Internet Graphics Group, MSRA*

**Beijing, China**

**Sep 2016 - May 2017**

- FEM-based simulation tool for soft pneumatic objects.
- A framework automatically designs and optimizes chambers' location and material distribution for soft pneumatic objects.

## PUBLICATIONS

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**Li-Ke Ma**, Zeshi Yang, Baining Guo, KangKang Yin: *Towards Robust Direction Invariance in Character Animation*. Computer Graphics Forum (Pacific Graphics), 38(7), 2019.

**Li-Ke Ma\***, Yizhong Zhang\*, Yang Liu, Kun Zhou, Xin Tong: *Computational Design and Fabrication of Soft Pneumatic Objects with Desired Deformations*. ACM Transactions on Graphics (SIGGRAPH Asia), 36(6), 2017.

## SELECTED AWARDS AND HONORS

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<b>Guanghua Scholarship</b>	Tsinghua Univ., Beijing	Dec 2017
<b>Excellent Graduate Student</b>	Peking Univ., Beijing	Jun 2015
<b>Excellent Student (top 5%)</b>	Peking Univ., Beijing	Nov 2014
<b>National Scholarship (top 1%)</b>	Department of Education, China	Dec 2013
<b>Excellent Student (top 1%)</b>	Peking Univ., Beijing	Dec 2013
<b>Gold Medal of 12th Asia Physics Olympiad</b>	12th APhO Committee, Israel	May 2011