

Mail milkpku@gmail.com

Homepage milkpku.github.io

Li-Ke Ma
Tsinghua University

BIOGRAPHY

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

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

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

Li-Ke Ma, Zeshi Yang, Baining Guo, KangKang Yin: *Towards Robust Direction Invariance in Character Animation*. Computer Graphics Fourm (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

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