

# Pi Square

## PERSONAL INFORMATION

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BIRTH DATE: Feb 18, 1992      PHONE: 86 15201523301  
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## EDUCATION

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2010.9-2014.7 | Department of Engineering Physics, Tsinghua University, Bachelor  
Majored in Physics. Received the first-class scholarship for outstanding academics at Tsinghua University

2014.9-Now | Tsinghua University Institute of Advanced Studies, Ph.D.  
Majoring in applied mathematics

## PROJECT AND RESEARCH

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2014.3-2014.6	Numerical Simulation of Porous Media Combustion	THU
	<ul style="list-style-type: none"><li>• Learning Linux and the open source fluid numerical calculation software OpenFoam,</li><li>• Make numerical simulation on the combustion of porous media, and won the excellent graduation thesis of Tsinghua University.</li></ul>	
2017.6-2018.10	Application of Machine Learning in the Determination of Flow Stability	THU
	<ul style="list-style-type: none"><li>• Through the method of machine learning, the phase transition point in the physical process is identified. For example, the Kelvin-Helmholtz instability can occur when there is velocity shear in a single continuous fluid, or where there is a velocity difference across the interface.</li><li>• Extract the feature matrix and try to understand how the machine learning works from a physics perspective.</li></ul>	
2018.6-2018.10	Machine Learning Investment Stock	THU
	<ul style="list-style-type: none"><li>• Received more than 500,000 sponsorships and led a team of three PHDs from Tsinghua University. Through the LSTM machine learning method, we judged that the stocks were up and down, and earned some profit.</li></ul>	
2017.6-2017.9	Visiting Scholar: Evolution of Nonlinear Wave Equations with TB model	CU Boulder
	<ul style="list-style-type: none"><li>• Numerical calculation of nonlinear waves in a honeycomb structure,</li><li>• Analyze data structures, design numerical formats, calculate solutions for partial differential equations, and use Matlab and Python code for thousands of lines.</li></ul>	
2017.3-2018.3	Simplification of nonlinear wave equations near Dirac point	THU
	<ul style="list-style-type: none"><li>• Dynamics of nonlinear waves near the Dirac point in a two-dimensional honeycomb structure, in preparation,</li><li>• The existence of Dirac point in two-dimensional honeycomb structure (such as graphene) is studied. The multi-scale method is used to analyze the nonlinear wave equation in two-dimensional honeycomb structure.</li></ul>	
2018.1-2018.10	Topologically protected edge mode simulation	THU
	<ul style="list-style-type: none"><li>• Dynamic Analysis and Calculation of Topologically Protected Edge States in Two-Dimensional Honeycomb Structure, in preparation,</li></ul>	

## BASIC SKILLS

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English: CET/6 562      Literature reading, free communication with native English speakers.

computer : Proficiency in Python, Matlab and other languages or software, good at  $\text{\LaTeX}$ , Familiar with Linux, skilled use of Vim, personal website [www.cam1681.com](http://www.cam1681.com) on Github

mathematics : studied algorithm design, and numerical methods for matrix calculation and PDEs. Good at modeling, analysis and numerical calculation of partial differential equations.