

XITIAN HUANG

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Education

The University of Manchester

BSc in Maths and Physics

Sep 2019–June 2022

Manchester, UK

University of Shanghai for Science and Technology

Mechanical Engineering

Sep 2018 – June 2019

Shanghai, China

Experience

Two dimensional border collision bifurcation

Feb – June 2022

Undergrad Math Research Project | Supervised by Prof Paul Glendinning

- Studied the existence and behaviour of the attractor, absorbing region, periodic and chaotic orbits in the parameter spaces of a two dimensional border collision piecewise smooth systems.
- Analysed numerically and theoretically, the bifurcations in the geometry of the attractors under a small perturbation from the case similar to that of Markov partition.
- Studied other interesting behaviour of the bounding area under certain restrictions on the parameters.

High-Resolution γ -Ray Spectroscopy

Nov – Dec 2020

Undergrad Lab (nuclear physics) | Supervised by Prof Hywel Owen

- Studied the working principle of Ge detector associated with the semiconductor's electron hole excitation and the γ -ray spectrum in relation to Compton scattering, photoelectric absorption.
- Calibrated the detector with known isotopes such as: ^{137}Cs ^{152}Eu ^{60}Co and their corresponding decay schemes.
- Calibrated the efficiency of the detector as a function of the energy of γ -ray, distinguished between full energy peak efficiency and total efficiency.
- Analysed the mud, rock samples and identified, qualitatively and quantitatively, the radioactive components.

Hornet(Halls of Residence Network Team) | *Hornet Rep* | Manchester, UK

Oct 2020 – Dec 2020

- Provided computer/IT support to the residents in the hall with the infrastructure of the university.

RoboVigor Robotic Team | *Team member* | Shanghai, China

Sep 2018 – May 2019

- Designed the mechanical parts of the robots with the assistance of Solidworks.

Qualifications

TOEFL | *Score: 94*

January 2020

SAT Physics | *Score: 790/800*

Dec 2019

SAT Maths Level 2 | *Score: 800/800*

Dec 2019

Skills

Programming: Fluent—MATLAB, Python, Mathematica, C#, Markdown, L^AT_EX | Basic—HTML, CSS

Tools: AutoCAD, Solidworks, Adobe Illustrator, CorelDRAW, Office, etc.

Electronic Repairs: Repairing TV, Computer, Smartphone, Mouse, etc. via hardware and software.

Languages: Mandarin(Native), English(Fluent)

Something else...

Taken Online Courses (MIT OpenCourseWare)

- 18.01 Single Variable Calculus 
- 18.02 Multivariable Calculus 
- 18.03 Differential Equations 
- 8.03 Vibrations and Waves 
- 8.04 Quantum Physics I 
- 8.05 Quantum Physics II 

Studied/Studying Books

- Introduction to Classical Mechanics [David Morin]
- Introduction to Special Relativity [Robert Resnick]
- Vibrations and Waves [A.P. French]
- Electricity and Magnetism [E.M. Purcell]
- The Principles of Quantum Mechanics [Paul A.M. Dirac]
- Classical Electrodynamics [Julian Schwinger]
- Principles of Quantum Mechanics [R. Shankar]
- Modern Quantum Mechanics [J. J. Sakurai]
- Algebra [Michael Artin]
- Nonlinear Dynamics and Chaos [Steven H. Strogatz]
- Calculus with Analytic Geometry [G. Simmons]
- Introduction to Linear Algebra [Gilbert Strang]