
## I Kit Cheng (Matthew)

UK Tel: +44 7926 555391
Email: i.cheng.19@ucl.ac.uk


Space Physics PhD student. Passionate for science, technology, engineering and mathematics with strong technical and interpersonal skills gained from effective team-work and working under pressure to complete challenging projects.

### Skills

**Software**

Python, Matlab, Fortran, Linux shell, Perl, Solidworks, Autodesk, Latex, MS office, Camtasia, Adobe Premiere Pro

**Language**

Cantonese (native)
Mandarin (fluent)
English (fluent)
Spanish (Intermediate)

**Driving**

Full car and motorcycle licenses

### Publications

- Cheng et al., (2021). "Electron bulk heating at Saturn's magnetopause." *Journal of Geophysical Research: Space Physics*, 126.
- Cheng et al., (2022). "Automated bow shock and magnetopause boundary detection with Cassini using threshold and deep learning methods." *Frontiers in Astronomy and Space Sciences, 9.*
- Other industry-related publications can be found here.

## EDUCATION

**PhD – Centre for Doctoral Training in Data-Intensive Science**
*University College London* 2019 - present
**Project**: AI-Assisted Detection and Plasma Processes of Saturn's Magnetospheric Boundaries.
**Major**: Machine learning with Big Data, Research software engineering, Statistical data analysis, Numerical Optimisation

**Master in Science (MSci) in Physics** **1st Class honours**
*Imperial College London* 2015-2019
**Project**: Magnetic Reconnection in the Solar Wind using MMS.
**Major:** Computational Physics, Information Theory, Complexity and Network, Advanced Hydrodynamics, Plasma and Space Physics

**Diploma in Engineering** **Distinction**
*Boston College (UK)* 2014-2015
**Coursework**: Computer-aided design of flood barrier, 3D printing, tools making with lathes and mills.

## RESEARCH EXPERIENCE

**Analysis of Twitter Data for Covid-19 in the UK**
*UCL-ONS collaboration* Dec 2019 – Jul 2020
Developed machine learning framework and leveraged BERT NLP model for Twitter user classification based on profile description. Evaluated prevalence of mask wearing in public.

**International Research Opportunities Programme** Jul – Aug 2018
*Seoul National University, Center for THz-driven Biomedical System*
Students selected were based on academic excellence and research experience. Investigated effects of ions on liquid water using molecular dynamic simulations. Wrote data analysis code in Python, Fortran and Perl. Made animations using VMD and FFmpeg.

**Gravity-Related Research Summer School** Jun 2018
*European Space Agency (ESTEC)*
Worked in an interdisciplinary team to propose a gravity-related research project on non-Newtonian fluids in micro-gravity.

**Undergraduate Research Opportunities Programme** Jul 2017
*Imperial College London, Space and Atmospheric Physics Group*
Simulated and animated particle dynamics in Earth's radiation belts using Fortran and Python code. Implemented a new mathematical model to calculate the electron motion more effectively. Used Linux shell to access Imperial's high-performance computing cluster.

## WORK EXPERIENCE

**R&D Intern** Jan 2022 – Jul 2022
*Wynn Macau*
Reducing Lifecycle GHG for Food Loss and Waste in the Hospitality and Food Service sector. We take a holistic and data-driven approach to tackle food waste in the consumption stage with plate waste recognition using deep learning. We also develop an interactive platform to raise awareness about our climate and the health impacts of our food choices.

**Teaching Assistant** Oct 2020 – present
*University College London*
Teaching assistant and coursework marker for graduate/undergraduate courses including: 'Research Software Engineering with Python', 'Electromagnetic Theory'. 'Physics of Stars'.