I Kit Cheng (Matthew)

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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, I., Achilleos, N., Masters, A., Lewis, G., Kane, M., & Guio, P. (2021). "Electron bulk heating at Saturn's magnetopause." *Journal of Geophysical Research: Space Physics*, 126.
- Cheng, I.K., Heyl, J., Lad, N., Facini G., & Grout Z. (2021). "Evaluation of Twitter data for an emerging crisis: an application to the first wave of COVID-19 in the UK." Sci Rep 11, 19009.

EDUCATION

PhD – Centre for Doctoral Training in Data-Intensive Science
University College London 2019 - present
Project: Statistics and automatic classification of Saturn's magnetospheric boundaries using Cassini.
Major: Machine learning with Big Data, Research software engineering, Statistical data analysis

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'.