Guy UONG

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EDUCATION

Sept 2018 – Jul 2022
University of Cambridge, Selwyn College
MSci and BA (Hons) in Natural Sciences (Astrophysics) [2.1]
- Topics studied include: Astrophysical Fluid Dynamics, Statistical Physics, Vector Calculus, Linear Algebra, ODEs, PDEs, Calculus of Variations.

Sept 2011 – Jul 2018
Dartford Grammar School
International Baccalaureate Diploma [44 points]
- Higher Level: Mathematics (7), Physics (7) and Chemistry (7)
- Standard Level: English Literature (7), Economics (6), Mandarin Chinese (7)

GCSEs [11 A*]
- Subjects include Mathematics, Physics, Chemistry, Biology, English, Mandarin Chinese and others.

Sept 2014 – Jul 2017
Trinity Laban Conservatoire of Music and Dance
- Scholarship to study violin and piano.
- Participated in various groups, leading Sinfonia Orchestra and Mezcla ensemble.

RELEVANT PROJECTS (see GitHub for further details)

Mar 2023 – Apr 2022
Binomial Options Pricing Model
- Developed a program to price European and American options in C++ using the Binomial Model.
- Additional features include displaying prices per timestep and identifying early exercise opportunities.

Sept 2021 – Jun 2022
Dynamical Friction on Supermassive Black Holes in Galaxy Formation Simulations
- Researched how simulation behaviour changed with the number of particles simulated.
- Learned to use Linux-based HPC facilities, developing Python scripts to analyse over 100 million observations per data set and using metrics to categorise thresholds for simulation accuracy.

Sept 2020 – Jun 2021
Particle and Photon orbits near a Black Hole
- Implemented a 4-th order Runge-Kutta method in MATLAB to solve differential equations and trace particle trajectories near black holes.

Sept 2020 – Jun 2021
Monte Carlo simulation of the Ising Model
- Devised a Monte Carlo simulation of the 1D Ising model in MATLAB to determine the effectiveness of computational methods in modelling thermodynamic systems.

WORK EXPERIENCE

Oct 2015 – Oct 2015
Kent County Council, Dartford Library – Volunteer Helper
- Helped staff prepare weekly public events and resolve daily inquiries from members of the public.
- Accessed and reconciled cash from self-service machines.

Sept 2014 – Jul 2015	**The Mick Jagger Centre, The Red Rooster Project – Volunteer Helper** • Assisted various teams in teaching young children musical instruments, creating engaging learning environments and arranging classroom escorts. • Worked effectively with staff to manage instrument reserves as well as organise and deliver successful termly concerts.

ADDITIONAL SKILLS

Analytical thinking	• Frequently used Excel to perform regression analysis on experimental data, combining statistics with context to come to logical conclusions explaining observations. • Reviewed academic literature, identifying inefficiencies and presenting on specific areas that bottleneck current galaxy formation simulations.
Programming languages	**Confident in:** • C++ (since Nov 22): OOP (classes, inheritance), functions, loops, if/else logic, arrays, vectors, references and pointers, templates, structs. • Python (since 2021): NumPy, SciPy, Matplotlib, H5py libraries. • Microsoft Office: Word, Excel (regression statistics) and PowerPoint. **Experience with:** • MATLAB (2020-21): functions, loops, if/else logic, arrays, curve fitting, graph plotting.
Communication	• Worked with various lab partners to collect data and write weekly reports aimed at non-specialists detailing aims, methods and conclusions. • As Course Representative, acted as a key point of contact during the coronavirus pandemic and proposed improvements to remote learning.
Teamworking	• Designed and conducted experiments to determine laser wavelength as part of a four-person team, co-ordinating schedules and providing input on approaches to data collection. • Cultivated strong relationships with various musicians, focusing on understanding the roles and responsibilities of each section to deliver high-quality performances.
Time management	• Regular participant in extra-curricular activities, organising and prioritising tasks to enable involvement in termly concerts and weekly swimming. • Worked under pressure simultaneously preparing for academic and music exams without compromising standards in either.
Languages	• Limited Mandarin Chinese (International Baccalaureate level 7 ab initio) • Conversational Cantonese