PhD opportunity in quantum computing

If you are interested in how quantum computers can be used for Computational Fluid Dynamics (CFD) then we have a PhD opportunity. This project will be funded by the Centre for Quantum Engineering, Science and Technology -QuEST, see https://www.imperial.ac.uk/academic-strategy/academic-strategy-projects/centre-for-quantum-engineering-science-and-technology--quest/

Research topic:
Quantum Computing (QC) is a transformative new paradigm which takes advantage of the quantum phenomena seen at the microscopic physical scale. While significantly more challenging to design, quantum computers can run specialised algorithms which scale better than their classical counterparts, sometimes exponentially faster. Quantum computers are made of quantum bits or qubits that, unlike bits in conventional digital computers, store and process data based on two key principles of quantum physics: quantum superposition and quantum entanglement. They characteristically suffer from specific errors, namely quantum errors, which are related to the quantum nature of their qubits. Even if quantum computers of sufficient complexity are not yet available, there is a clear need to understand what tasks we can hope to perform on a quantum computer and to provide methods to mitigate the effects of quantum errors. In particular, the potential of QC for CFD needs to be investigated.

The successful candidates will be enthusiastic, self-motivated and will meet the academic requirements for enrolment for the PhD degree at Imperial College London. They will have a background in Computer Science, Engineering, Mathematics or a related discipline together with a strong intellect and an enthusiastic approach to research. Excellent team-working, analytical and communication skills are also essential. Applicants should have a keen interest and solid background in CFD and QC. Experience in High Performance Computing would be a great asset.

Eligibility:
Candidates must be incoming PhD students for the 2024-25 academic year, with home-fee status and registered in the faculty of engineering.

The QuEST studentship will provide up to 3.5 years of support (42 months) including:
-Full funding for home or Ireland tuition fees.
-A UKRI level stipend including London weighting.
-A consumables fund of £1,000 per annum for the first three years.
Please note that for funding reasons only students that qualify for home fees are eligible.

This opportunity is not guaranteed. The successful applicant will be put through for further consideration at both the level of the Department of Aeronautics and ultimately at the he Centre for Quantum Engineering, Science and Technology -QuEST. In total, 2 PhD studentships are available for a start in October 2024.

The final deadline to apply is 5th January 2024, however we will be conducting interviews in mid December to select our preferred candidate so we would advise those interested to approach us sooner rather than later.

Good luck!

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