

Coding Competition to build the Quantum Tetris Game

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The Center for Quantum Networks (CQN) is a center funded by the National Science Foundation (NSF) whose goal is to develop the Quantum Internet—the internet that has been upgraded to transmit quantum bits—which will revolutionize communications, computing and sensing technologies.

As a part of CQN's Engineering Workforce Development (EWD) and outreach initiative, this project aims to develop a Tangram like tiling puzzle with new rules to teach students and professionals Quantum Computing. In addition, this game may even end up solving an open research problem in quantum computing!

We seek a motivated student to design and build this new tiling puzzle. The student will be selected through a 10-day-long take-home coding competition, in which student participants will compete to build preliminary building blocks.

This position is open to both undergraduate and graduate students of CQN-affiliated institutions. The ideal candidate would be a fast learner with strong software development skills. No quantum mechanics or quantum information is needed as a prerequisite. The student will work closely with graduate students and faculty members from CQN partner universities to develop the software framework required to code up the puzzle. Upon successful completion, the candidate will be able to publish their work at reputed conferences and journals in the field of quantum information.

Minimum requirements

- demonstrated experience with software and/or app development
- strong analytical thinking and verbal communication skills

Preferred requirements

- coursework or projects related to data structures and algorithms, quantum computing

This project will be mentored by 4th-year graduate student Ms. Ashlesha Patil of University of Arizona's College of Optical Sciences, with guidance of faculty mentors Prof. Saikat Guha, University of Arizona and Prof. Don Towsley, University of Massachusetts, Amherst. Interested students should send an email to Ashlesha Patil (ashlesha@email.arizona.edu) and copy Brianna Moreno (bmoreno@optics.arizona.edu), with the subject line "CQN EWD Student Position", alongwith their CV, a brief paragraph describing their coding background, and a link to the candidate's GitHub profile or other similar web-pages, if available.

Important dates

Jan 27, 2022 – Application deadline to email expression of interest as described above.

Jan 28, 2022 – Coding competition problem statement distributed among competing students.

Feb 6, 2022 – Codes and results due from competing students.

Feb 11, 2022 – Winning candidate will be announced.

The selected student will be funded for their contribution through a funding arrangement executed with their university and PI, details of which will be discussed during the interview.