

Dear Sir/Madam,

I am so excited to apply for the PsiQuantum Quantum Architecture internship position! I am in a second year of my Master's degree in mathematics and I am researching fusion-based quantum computational models. This opportunity is perfect for me, as I will be able to apply all the experience I've gained during my studies as well as gain new, important knowledge about the field.

My research can support the fact that I am driven by quantum computations. I researched use cases for quantum algorithms; I researched the effect of noise on quantum algorithms; I researched quantum entangling transformations with the KLM protocol. I believe in the advantage that quantum computers will bring. That is why I am sure that I will be a great fit for PsiQuantum and why this is a crucial step in my career.

I have an undergraduate degree in computer science and want to incorporate my programming skills into my work as much as possible. My recent project, "Strawberry Fields Composer" showed me the intricacies of encoding quantum light with nonlinear elements. I used several engines to simulate quantum systems and analyzed differences in these approaches. This experience will be useful for my work on simulating optical architecture.

My usual approach to solving a hard scientific problem is to first have a smaller-scale problem and solve this toy problem. After, if the answer is still not clear, I try to simulate the task and see the range of numbers on the output. After that, I make hypotheses and test them. This way, I can immediately cut off unnecessary ideas and see practical value.

To sum up, this internship is the greatest opportunity of my life, and I hope to be helpful in our future work!

Yours faithfully,

Ivan Ogloblin