

Dear Sir or Madam,

I was thrilled when my supervisor, Sergey Tikhomirov, suggested I apply for the Master's degree in Mathematics at IMPA through "Support of mathematicians affected by war". During our joint work on a project to study the effect of noise on quantum algorithms, I gained the necessary knowledge and research experience to be sure that I would be an excellent addition to your research group.

During my 5th semester, I worked with a team from one of Russia's major oil companies - 'GazpromNeft', gaining my first research experience and developing intuition in the field of quantum computing. As our task had application to the real case problem, I had a chance to work in a team, writing a system for solving the problem with quantum algorithm simulation. This experience significantly improved my communication skills, as I often had to interact with the code of my teammates. Later on I took the initiative to gain more experience by working additionally with the 'GazpromNeft' team, where we studied using the book "[Quantum Computation and Quantum Information](#)".

This spring I worked on a project under the supervision of Sergey Borisovich, during which I had to write improved quantum search algorithms and closely inspect one particular article. As a part of this project, I had successfully disproved my supervisor's hypothesis about the possibility of accelerating quantum computations with the 'reset' gate. It taught me the importance of researching existing ideas and gave me a deeper feeling of how the concept of matrix invertibility and the impossibility of spying on the quantum-entangled state of the system are related. I am still working on this project and hope to base my thesis on it.

Currently, I have one last year left before receiving a bachelor's degree from St. Petersburg State University. I am hoping that I could apply for Master's degree this year and finish my bachelor studies online. Or I could complete my last year of Bachelor's degree in Brazil, if you know the right program. I am forced to resort to such measures because of the situation that I am in. Due to the political conditions, my supervisor Sergey Borisovich Tikhomirov moved to IMPA for the next year, so there is no one else left to guide me through my dissertation. There are practically no quantum computing initiatives in Russia as it is, and now I am completely lost. The sanctions factor is also now in effect, so that it has become more difficult to go abroad due to the cancellation of IELTS and TOEFL exams in Russia. I cannot pretend that the political situation does not concern me, but I am not able to change it. I am not ready and do not want to be responsible for this. I want to live in a country where I have the opportunity to study mathematics and communicate with colleagues from around the globe.

I am confident that my research experience, my educational background and interests will be very useful for your Institute. I would appreciate any opportunity to discuss my qualifications in more detail at an interview and I look forward to hearing from you.

Yours faithfully,

Ivan Ogloblin

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