CUHS PS Example
Computer Science 2026 (1)

Q1. Why do you want to study this course or subject?
This is your opportunity to showcase your passion and knowledge of your chosen subject area and to demonstrate to universities and colleges why they are a good fit for you and your future ambitions.

For me, Computer Science is the lens I look through to see the world of Mathematics. From this perspective, I developed a persistent curiosity for all there is to problem solving. I attempt to build models from all aspects of my academic life, which I can subsequently solve using algorithmic thinking. As a huge fan of board games, I often tie these models to game theory, which holds a special place in my heart. During my university studies, I aspire to improve the tools I use to both construct and solve these models.

Q2. How have your qualifications and studies helped you to prepare for this course or subject?
This is your chance to shout about the relevant or transferable skills you've gained from your education and highlight your understanding of how they will help you succeed in this subject area.

Currently, I am studying in one of Hungary's leading high schools. Rather than focusing solely on Mathematics, we are taught about a wide range of subjects from the humanities to the natural sciences. This enabled me to develop academic interests outside of a narrow scope, allowing me to make connections between areas such as Physics and mathematical modelling.

Outside of school, my main passion has been competitive programming, where I have participated in various competitions and training opportunities. These occasions built a solid foundation in my understanding of algorithms and data structures. Moreover, I was able to maintain intensive practice over an extended period with activities like attending weekly online lectures for two years held by Hungarian university students. I was also invited to the ACTS International Camp twice, where I further deepened my knowledge of advanced techniques such as Link/Cut Trees.

I was selected to represent Hungary in a variety of international Olympiads. Firstly, I earned bronze medals in 2023 at the European Junior Olympiad in Informatics and the International Informatics Olympiad in Teams. Next year, I received a spot in the Romanian Masters of Informatics team (2024) where I got a bronze medal. In 2024, I also represented my country at the Central-European Olympiad in Informatics, winning bronze. After two years of almost qualifying, I made the team for the International Olympiad in Informatics in 2025 and achieved a bronze medal, alongside improving my CEOI result to silver that year.

On the online competitive programming platform Codeforces, I was the main organizer of a well-received Division 2 contest with 17,000+ participants. I worked on the problemset for 1.5 years, during which I received feedback from 36 testers to further improve the tasks. It was a valuable lesson in how to listen to constructive feedback and deliver work in a context requiring high precision.

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Q3. What else have you done to prepare outside of education, and why are these experiences useful?

This is your chance to reflect on any other activities you have undertaken outside of your education, or personal experiences which further demonstrate your suitability for the course. This section is likely to be deeply personal to you, so anything you include should be meaningful and relevant to you.

One of my most significant projects was independently developing a chess engine from scratch, which at its peak ranked among the world's top 30 with an estimated Elo of 3400, competing in renowned chess engine tournaments like TCEC and CCC. It introduced me to game theory search algorithms and optimisations. I spent weeks researching state-of-the-art static evaluation methods, eventually settling on a special type of neural network. For this architecture, I implemented a manually vectorized, high-performance machine learning inference and training pipeline based solely on the C++ standard library. With this entry, I won the Neumann János Innovation Competition.

Through the experience from this project, I qualified for both International Olympiads in Artificial Intelligence and earned silver medals in each in 2024. Furthermore, I was invited to the machine-learning research camp organised by Prof. Ferenc Huszár, where we tackled the unknotting problem in the field of knot theory. Together with István Molnár, we applied concepts from competitive programming to beat the previously best unknotting algorithm.

I participated in the "2023 Post World Finals Online ICPC Challenge," where the task was to design an accuracy-preserving summation algorithm. This improved my understanding of floating-point representations, and I ultimately secured third prize. In the ACTS game theory optimisation challenge, a competition of similar style, I ranked 1st both times I participated.

My Cambridge Application

- *highlight what interested you in the course you're applying to*
- *explain why you want to study a particular Cambridge course if you're applying to a course that is only offered at Cambridge*
- *tell us about the ways you're exploring your subject interests (if you haven't been able to cover this fully in your UCAS personal statement)*

At its core, Computer Science is trying to find efficient solutions to problems often without a best solution. Seeking a good solution requires a kind of creativity, combining experiences from other problems to form a new result. This is my favourite thing about the subject and intuition is a crucial part of it. For me, this intuition usually comes from seemingly unrelated topics making it essential to have a wide view of the subject. This is one of the main reasons I want to study a Computer Science course covering many aspects of the field.

Throughout my academic life, it was always during teamwork that we could come up with the most novel ideas. It is a rewarding experience when discussion leads to solving a difficult problem none of us could have managed alone. Winning the ACTS ICPC competition and placing 2nd in the Hungarian ICPC qualification contest among university teams was the result of such teamwork. Implementing insights learned through teamwork proved especially valuable in an individual context as well. I believe Cambridge's unique teaching style could provide this kind of discussion to help me improve.