

2020, Mathematics, Peterhouse College

I am committed to learning Mathematics at the highest level in order to immerse in my favorite fields and acquire a deep understanding of them. An international environment is highly motivating for me, and I have noticed that I have delivered my best results so far in such atmosphere. Cambridge has long been the place I imagined as the institute for my higher education. Not only its excellence, unique supervision system, and international atmosphere, but also the mindset I see from friends and family who attended the university makes me convinced that Cambridge would help me unleash my potential.

My deep interest in Mathematics started at secondary school with a specialized programme, where I had the chance to gain extensive knowledge in various fields of Mathematics. At the end of my first year I realised that problem solving gives me a unique satisfaction, so I worked hard to regularly experience this feeling. I started solving B-level problems from KoMaL which cover a wide range of topics and engaged me on a monthly basis. My first places at the Hungarian National Competition in grades 9 and 10 gave me extra inspiration to continue working with enthusiasm. The classes during these years were active and covered many of my favourite topics, such as graph theory, vectors in inequalities, inversion and homothety. I found the nine point circle quite astonishing, and therefore tried to find out whether an orthocentric tetrahedron can have a Feuerbach-sphere. Later, I learned that two of them exists. With lots of geometry questions I tend to investigate how a given structure or lemma would behave in space. I find it amazing that linear algebra is useful to navigate in higher dimensions, either by calculating or intuition. These topics amuse, entertain and deeply interest me.

The camps of Lajos Posa played a key role in my progress, where the aim was to develop logical thinking via pure problems, and take a unique approach to new topics such as infinite sums, convergence and cardinality. It happened quite often that a new connection between different topics emerged as a desired solution of a problem. These occasions provided a wonderful atmosphere to socialise and built up a community of other students with similar interests. To share this approach with younger students, I am supporting the camp as a volunteer this year.

In May 2018 I was selected to participate in the Singapore International Mathematics Challenge. I experienced how effective it is to work in an inspiring team. The challenge desired abstract solutions and our own creative ideas. The task was to investigate realistic models and give a presentation on our progress to the jury. In the end, we received a Distinction Award.

My greatest achievement so far in Mathematics is the IMO Bronze medal I won at the 60th Olympiad. Before the competition itself I took part in many forms of preparation. That covered winter camps where selected Hungarian and UK students prepared together. It was a unique

opportunity to solve exciting problems and take various lectures in English. I enjoyed Random Walks approached by resistance and energy the most. I also made lots of friends, and it was a pleasure to show UK students around Budapest. The preparation also included summer camps, highly focused on solving IMO problems, 12 national sessions yearly, 4 qualification tests, and of course, plenty of individual problem solving.

Besides Mathematics, I also enjoy competitive programming and participating in international contests, such as the CEOI and IOI. This year I was awarded with Bronze medals at both. I keep up to date with the economics of aviation and innovations in aircraft manufacturing. I enjoy travelling, sightseeing and hiking. I also took up gardening as a hobby, I find it very relaxing after intense intellectual activity. I also enjoy sports, volleyball, skiing, kayaking and cycling are my favourite means to release tension.