

It all started when I was little. My memories of this conversation are blurred as I could have been around six or seven years old, but I remember my dad saying that if he circles his arm fast enough, holding a glass full of water, the water won't spill out. Of course, first grader me did not believe him, so he filled a glass with water and showed the trick to me. When I asked how this is possible, he just said: "You'll learn it from physics". From this point I was waiting to get introduced to Physics, as I knew, it will be my favourite subject.

I got into ELTE Radnoti Miklos School, which is currently the best high school in Hungary. It is always among the top three in rankings. When I had to choose subjects that I want to learn at an advanced level, I chose maths and physics. For maths, my school not just offered an advanced course, but also an advanced plus course, where we learn beyond the requirements. We go much deeper into the proofs and learn additional material, for example we spent two months with complex numbers. During high school I also got admitted to the Milestone Institute, an institute for advanced studies, where everything is taught in English. At Milestone Institute I had the chance to engage in more focused topics, for example we derived Kepler's laws with differential equations in the mechanics module. I also joined Milestone's Astrophysics and Astronomy society, which has an exoplanet hunting team, where we review the data from public databases, using Python with the hope of finding an exoplanet. We are transforming the data set into a graph, which shows the flux of a star in an arbitrary period. If there is a relatively big drop in the flux, it could indicate a planet passing in front of the star. In the Natural Sciences society, we are building a Mars rover, which will be able to recognise and pick up stones from the ground. I mostly worked on the wheel suspension, and the way the motor will drive the wheels from the body.

I can use my previously acquired knowledge on mechanics or circuits to get a bigger torque with gears or to make a DC motor able to spin both directions. I like how everything comes together in a project like this: I need to create the circuits, solder the wires, upload the program, and attach the mechanical parts together. A wonderful feeling is when I create something that works and can be used in everyday life or somewhere else. I always try to get as much hands-on experience as possible. I learned two programming languages, first I learned Python to get myself closer to programming, then I learned C++ as it was useful for building devices. I made myself familiar with MAG welding and tin soldering. I built several electronic devices on my own. My favourite is an ultrasound-based room mapping device. It consists of two motors turning the ultrasonic sensor, which measures the distance of some points of the room, then the

program calculates the exact coordinates and sends them to the computer to draw a 3D image. I also implemented a temperature and humidity sensor to get more precise measurements with the ultrasound.

On top of this, I launched the Mathematics Society in Milestone with a friend, in the hopes of creating a community, where everyone can be themselves and can find the area that interests them most, as mathematics is the base of many things around us. For me, this society teaches how to organise and advertise the events or to work with others.

I would like to be a part of the program that teaches the principles of engineering, so I can do what I really like. I like the tasks that require patience and problem-solving abilities, because I am good at figuring out the simplest, yet most innovative solution to a complicated problem. I want to study engineering, to be able to translate the laws of nature into something that will work, let it be or a satellite sent to orbit or just a spinning glass of water.