

„People are mistaken when they think that technology just automatically improves [...] it only improves if a lot of people work hard to make it better”. This sentence of Elon Musk inspired me to get engaged in Engineering and set my goal of becoming one of these people.

I have a strong passion for solving complex and thought-provoking Mathematics and Physics related problems. Since 2019, I have sent a solution to all 5 problems of the monthly Mathematics Competition at KoMaL, the prestigious Hungarian Mathematical and Physical Journal for High Schools and I came 8th nationally in a category in 2020. I achieved the 7th place nationally last year in the Physics Measurements Competition of KoMaL where my favourite task was measuring the coefficient of restitution of a jar lid by colliding two of them. Designing and constructing a collider for this project made me eager to engineer more complex machines at university. Besides KoMaL, the achievements I am most proud of are getting into the final round of the Hungarian National Olympiad for Secondary Schools in Mathematics last year, coming 10th on the Mikola Sándor National Physics Competition in 2021 and coming 4th on the National Bolyai Mathematics Group Competition in 2022. Apart from attending Maths and Physics clubs at school, I did a preparation course for the IPhO at the University of Szeged last year. Out of the several measurement sessions, the most interesting one was estimating the groove density of a CD and a DVD (functioning as diffraction gratings in this experiment) by letting monochromatic light pass them. The wavelength of the light was set and I measured the distance between the diffraction peaks and put these values in the diffraction equation to calculate the groove density. It was fascinating to see how constants which are generally given in a theoretical Physics problem can be measured in practice through experiments which require high precision and concentration.

Last summer I volunteered for a week at a robotics camp for 8-10-year-old students. I helped them design, build and program cars from a LEGO set containing bricks, a smart hub, an engine and a sensor. It taught me organizational skills and leadership. Although explaining them why it is better to use a cogwheel rather than a rubber band to connect the axle with the engine in lay terms was a challenge, I was delighted to see how these children understood and benefited from my explanation.

My strong interest in Engineering increased when I watched the first Formula One race on TV in 2018 and travelled to Abu Dhabi and Monaco to watch live races. To broaden my race-related experience, I volunteered as an interpreter for the foreign guests at Hungaroring this year. I also love watching professional videos and reading articles, particularly on the Racecar engineering website. In 2022 a completely new set of regulations was introduced which shifts

the generation of downforce from the wings to the underside, making it easier to overtake by reducing the amount of turbulent air behind the car without any speed loss. Consequently, the issue of the so-called porpoising emerged, caused by the extreme swings in the downforce generated by the ground effect aerodynamics. It was especially Mercedes who struggled with this phenomenon, thus I attempted to find possible solutions to it. I found that if active suspension was brought back to F1, it could easily solve the problem of bouncing, however, it would be highly expensive and it has been banned since 1994.

Qualifying to the U16 Hungarian National Handball Team and my school's basketball team as well as being the organizer and presenter of several school events have boosted my team spirit and leadership skills.

The United Kingdom is leading in Engineering education and considered to be the hub of Formula One. Hence, pursuing an engineering degree would help me excel in the field, enhance my competitiveness and expand my knowledge in the Formula Student UK competition.