Seeing how SpaceX managed to overcome the challenges of controlled re-entry and master the hover slam made me marvel at what engineering can achieve, using the tools of mathematics and the insight of natural sciences. My fascination with the profession, however, started much earlier. I remember being captivated by the hidden complexity of everyday objects when I was little. Disassembling a clock or a toy gun, for instance, would keep me occupied for hours. As I grew older this curiosity steadily developed into a mature interest in engineering.

I attend a special mathematics class in one of the best schools in the country and take elective courses in Maths and Physics. Via continually participating in my school's annual group project scheme, I discovered my affinity for working on creative team projects and learned how to apply my mathematical knowledge to real-life problems. Studying a broader curriculum than the national standard has helped me perform well in numerous national competitions. Among these, I am proudest of qualifying 2nd place for the finals of the National Olympiad in Physics (OKTV) last year. To broaden my education in physics, the last two summers I attended competitive summer schools at the Hungarian Academy of Sciences (MTA) and at Eotvos Lorand University. I studied photonic crystals and explored their possible applications in engineering as optical gas detectors. I especially enjoyed applying my newfound knowledge during hands-on lectures, where I familiarised myself with lab equipment, such as spectrometers and high-tech optical microscopes, and during lab sessions made measurements of magnetic permeability. At MTA I also gave a presentation in front of the leading members of the Academy which, besides being an exciting experience, greatly improved my public speaking skills. Additionally, this summer I managed to secure an internship at the fusion research department of Budapest University of Technology and Economics (BME) and over the past 4 months, I have got an insight into the engineering challenges of achieving stable fusion in tokamaks. While reading John Wesson's 'The science of JET', the chapter on the challenges of designing a tokamak far bigger than any of its predecessors caught my attention. For instance, how Radio-Frequency heating had to be introduced to compensate for the loss of ohmic heating at higher temperatures, I found particularly interesting. Learning from discussions with my mentors at BME and taking on self-study in the form of reading papers and researching online, I went on to study basic plasma physics and the physics of containment. I also started familiarizing myself with multivariable calculus, a study widely used in engineering as well, to better grasp plasma behaviours. For a more hands-on introduction, I read 'Div Grad Curl and all that' by H. M. Schey. The book's style of simple reasoning in introducing the basic concepts and the practice problems at the end of each chapter, helped me get a hold of the core ideas. Currently, I am studying plasma diagnostic methods in more detail, and reading papers on Beam Emission Spectroscopy and the role of CTMC simulations in tracking the evolution of electron orbital populations along neutral beams. Parallel to this, I am also learning python in hopes of doing simulations of my own.

In my free time, I work as a volunteer in the ”Gondola” programme, whose main aim is to help talented children with disadvantaged family backgrounds. I tutor three 6th-graders in maths and help out at ”Gondola”-organised events. I also enjoy running, as it helps improve my persistence and concentration. After my matura exams, I plan to complete my first marathon.

Pursuing higher education in the UK would give me an opportunity to experience a new, more pragmatic education system. To study for an internationally accredited degree in a diverse student community is an aim I am intent on working hard for.