I became passionate about Computer Science when I created an algorithm for an advanced multiplayer version of Pac-Man that no human player could beat and achieved second place in the 2018 Ericsson Open Programming Championship. The success resided in considering only the worst-case scenarios, which reduced the branching factor, and thus enabled the duplication of the minimax search depth. I genuinely enjoyed the process of testing the efficiency of different heuristics and gained a lot of experience through implementing and debugging the AI. Although I attained numerous top places at mathematics, physics, and robotics competitions, this was the defining moment when I dedicated myself to Computer Science.

Since then, Machine Learning has become my main focus of interest. After learning the basics online, I completed the AI Technology Training at KURT Academy. Meanwhile, I started personal projects as a pastime, such as training a neural network on the MNIST dataset using scholastic gradient descent implemented in JAVA without using ML libraries. I am hosting it on GitHub under the username Cence2020, along with my favourite personal projects (such as physical simulations and interactive algorithm visualisations). At university, I would like to gain a profound understanding of Machine Learning as I am fascinated by its incredible capabilities and practical applications.

Thanks to being the student of the advanced mathematics class at Fazekas Mihaly High School and my commitment to self-learning, I won several mathematics competitions, like the Arany Daniel National Olympiad and KoMaL contest in 2017, the 2019 Medve and the 2020 Bolyai Team Competitions, and my favourite one: MaTech2 in 2019, where the goal was to use different IT tools to solve math problems. I am also proud of simultaneously qualifying for the Physics, Computer Science, and advanced Mathematics finals in the 2020 National Olympiad, achieving 1st, 14th, and 31st places respectively, and winning a bronze medal at the Computer Science section of the 2019 International Olympiad of Metropolises in Moscow.

I enjoyed being a leading member of the Fazekas RoboTeam, qualifying for the semi-final of the 2017 FIRST Lego League and the grand final of the 2018 World Robot Olympiad. The most unforgettable experience with the team was winning the 2017 First Global Challenge in Washington DC, where we were the youngest competitors out of 157 national teams. During the 4 months of full-time preparation, I was in charge of designing vital parts (such as the internal transport system and the climbing arm) and structuring the control algorithms of the robot. Due to winning the Gold Medal, we even got invited to The White House and received a congratulatory letter from the President of Hungary. Last year I assisted the national team's preparation as an experienced mentor.

I am also interested in physics, especially related applications of computer science. It was an exceptional experience to take part in building a multi-wire proportional chamber to examine the lifespan and angle of incidence of muons at the Wigner Physics Research Centre and to design an experiment for a particle accelerator. In the National Scientific Student Conference, we received a special award for our research presentation on the synchronization of attached oscillators; my task was to make computer simulations and statistical predictions.

Apart from my studies, I volunteered at the Hungarian Center of Scientific Wonders (CSOPA). After years of attending, I am now a mentor in the exceptional Posa and MaMuT math camps, which work on a performance-based, invitation-only participation. As a competitive speedcuber, I initiated a charity double-sided Rubik's Mosaic record attempt and gave a Templeton Talk about the Rubik's Cube at the Central European University. I am happy to devote my time to such projects as I am committed to taking part in talent management activities and spread the beauty of science.