During this summer, I overtook an 8-week internship, that comprised of full-time laboratory work in the Neuronal Network and Behaviour Group of the Hungarian Academy of Sciences in Budapest. The focus of the group is on the structure and working of the neural networks underlying emotional behavior. I worked on an independent project together with another undergraduate intern, using neural tracing and immunocytochemistry to uncover the connections between the colliculi and the amygdala of mice. The focus of this project was how fear and anxiety are produced in the amygdala and the specific hypothesis I worked on examined if associative fear learning could happen before the amygdala too.

In order to test my hypothesis, I conducted operations on the mice where I injected them with the anterograde neural tracer BDA in their superior and inferior colliculi. I then made preparations of those brain slices and treated them with blockers, primer and fluorescent secunder antibodies. I then made preparations of those slices for microscopy, organizing them in an anatomically correct order (in order to follow fluorescent axons throughout the slices). I examined the slices using epifluorescent microscopes and confocal laser scanning microscope. I then used computer programs to trace the neural connections in the microscope images from the colliculi towards innervating the lateral thalamus and the amygdala. During the internship, I produced some preliminary findings, confirming the hypothesis, however, it should be repeated with a larger number of subjects to provide evidence for the hypothesis.

The research group trained me in all laboratory testing methods I needed and allowed me to conduct these independently. I was always offered help, supervision and advice, whenever I needed and overall I feel like I learned a lot and got a good overview of Neuroscience research. I managed to settle in quite well, as the other lab members were very welcoming. In the lab it is customary to have 1-3 undergraduate interns over the academic year and over the summer so there were people in a similar situation as me and we worked together many times to help each other with performing the experiments. The other members of the lab were mostly graduate students and some PhD students, who were very helpful, friendly and welcoming. As a lab group we often went to outings in Budapest too, which I really enjoyed and I think it also added to the team spirit a lot.

My internship was an in-person one, however, I had to adhere to strict rules of masks and distancing due to the pandemic. The lab in which I worked in was large enough to fit everyone at a sufficient distance and we had a supply of single-use masks too. Gloves, lab coats and handwashig were part of the routine even before the pandemic. This system meant that the lab provided a safe environment to work in, even during the pandemic, which added a lot to my internship experience.
During my internship I got a glimpse at the wider field of Neuroscience too. The lab hosted a journal reading session every week, in which we covered, discussed and criticised a new article on the field. It provided me with a lot of knowledge towards the current issues, topics and considerations in the field. On top of that, we also participated at the FENS 2020 conference in July (which was moved to online) and discussed the talks given there by leading neuroscientists in the field. I found these immensely interesting and a great opportunity to get introduced to the forefront of Neuroscience research.

Overall, I feel like I gained a lot of useful knowledge during the internship. During my Psychology degree I encountered Neuroscience topics and modules but never got a hands-on experience of what research in that area looks like. I am aiming to apply for a graduate course in Neuroscience and for that, this lab experience provided even more confirmation. The methods used in the lab are cutting edge and it was great to get a glimpse of how the findings of the papers I read during my degree are produced. Moreover, as I am considering working in research, conducting an independent, full project provided me with the experience and skills that are needed to start taking steps in that direction. It felt great to be trusted with lab equipment and to be allowed to work independently on the set hypothesis, but with constant help and advice from my supervisor. I feel like the helpful lab environment (both from the other interns and the people working there) and the supportive atmosphere added a lot to my internship experience.