Through my educational process and research work I have discovered that every connection you make, every scientist you meet, every conference you attend and every place you visit adds some quality to you as a researcher and as a person as well. International experience helps you to broaden your research horizon and think outside the box, acquire new ideas, get some fresh and new energy and look at your research problems from a new perspective. This could be very beneficial especially in a PhD stage, where we young scientists develop our creative thinking, shape our exploratory mind and learn how to solve problems on our own. I also believe that every place we visit improves our ability to adapt which is a much required trait in every career. I expect that the proposed visit will elevate my research and my research personality and help me to make progress in the work I still have to do for my PhD. One of the hosting professors, dr. Gregor Gorjanc, is my PhD supervisor – we work together online and meet occasionally during his visits in Slovenia. Since we do not physically work together the proposed visit would be a great opportunity for us to more actively exchange opinions and discuss our work and science. Also, working on distance is often slow and cumbersome, many ideas or comments are misinterpreted or take long time to explain through writing in online chat rooms. Dr. Gorjanc's colleagues at The Roslin Institute are world leading scientists in the field of genomics and breeding. I believe that by working with them I could improve my skills and knowledge in data science, programming and genomics.

My research work began in the second year of my BSc study. I had a strong wish to engage in research and by approaching one of the professors I joined the genetics team at the Department of Animal Science of Biotechnical Faculty, University of Ljubljana. The aim of my research was to prepare my BSc Diploma as well as to produce publishable results. First I wrote my BSc thesis titled "MicroRNA biogenesis", which was extended into a research work that won a Faculty Prešeren award of University of Ljubljana. During this collaboration we also wrote and published three research papers for which I was involved at all the stages of the process. I actively participated in forming the research question, doing the actual research, writing up in form of a paper and going through the process of paper submission and revision. My supervisor at the time gave me enough encouragement and support as well as freedom so I could experience how it is like to create and present scientific work and further on how to adjust and defend it the revision part. During this time I gained a lot of laboratory experience and skills regarding data analysis, learned to accept criticism and constructive opinions and work in a team. Through my BSc I also worked as a demonstrator at the practical course for genetics, which gave another dimension to my research profile. Here, I got very familiar with a range of topics in genetics and also got insight on how to communicate information in a comprehensive way.

This all encouraged me to enrol into MSc Quantitative Genetics and Genome Analysis at the University of Edinburgh (2015 / 2016). In its final stage I did research work at the Department of Psychology for three months for the purpose of my MSc thesis. This was a very productive working environment that encouraged scientific discussion and exchange of opinions with other young researches in the department. I gained a lot also interacting with senior scientists who were willing to weekly review and comment on our work. After completing my MSc, the results of my thesis were also published as a research paper. Through the MSc I gained a lot of skills regarding data analysis and genomics that later on were of great use to me, especially when starting a new job and a more independent research path. In 2016 I started working at the Agricultural Institute of

Slovenia, Department of Animal Science and later enrolled in PhD in Biosciences at the Biotechnical Faculty. At the Institute I work in a small group of geneticists in which each of us is responsible for our own areas of research and its application. This represents a soft transition from supervised to independent research, since the work I do for the institute is at the same time my independent research, but also my PhD, where I have a great support from my supervisor. Due to this I have gained more experience in planning research and organising time as well as how to approach a research question and how to solve problems on my own.

In my PhD I am researching the use of genomic information for cattle breeding. The primary aim is to develop breeding programs that utilize the phenotypic and genomic data in a way that maximizes return on investment. That is, we want to maximise genetic gain for a minimal amount of investment. This is of particular importance for small and conservative settings such as the one in Slovenia and many other countries - in particular in the developing world, where investments in the genomic data are severely limited, but genetic improvement is badly needed to feed the ever increasing number of people with dwindling resources. Up to now I have developed a simulator of a cattle breeding scheme and used it to compare different scenarios of conventional and genomic selection. I have shown that with a specific genomic selection program we can double the rate of genetic improvement for the same amount of investment as in the conventional selection program, with a similar efficiency of converting genetic variation into genetic gain.

To truly understand the improvement of the schemes, we would have to identify not only the schemes with the largest gain, but also the sources of this gain. In other words, we would like to partitioning the genetic trend by breeding actions to identify and properly resource the most contributing actions. Therefore, I would like to expand my initial research by developing genomic "tracking" methods, which would enable managers, breeders and farmers to track the flow of genes and information in a breeding program. The aim of this idea is to empower different subjects in a breeding program to track their efforts in data collection and breeding activities so that they could be rewarded for proliferating good genes in a population and/or enabling this by gathering the required phenotypic and genomic data for the inference of individuals' genetic values and values of different genome regions. I will achieve this in collaboration with the host professor. Specifically, we will combine the fields of breeding, genomics, statistics and blockchain-like databases to generate an Uber-like system for breeding programs. This is a completely unique approach in our domain. The approach holds a significant promise for the new generation of distributed breeding programs that could be deployed in developed as well as developing countries with a significant impact on their economies and development.

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