

**Matthew D'Costa**

**Studentship Report**

I completed the Rani Rawji Studentship in August 2021. My project was funded by the Pathological Society and the Jean Shanks Foundation.

My project involved the use of machine learning to risk stratify solitary fibrous tumours. During this time I learnt vast amounts about what formal research entails, the challenges and difficulties that it presents, as well as the benefits that it can create.

I applied to the studentship in January 2020 but due to the COVID-19 pandemic the studentship start date was postponed to the following year. The internship involved a 5 week project lasting from the 5<sup>th</sup> July 2021 to 9<sup>th</sup> August 2021.

The studentship changed my perspective on research greatly. I had not found my previous exposures to pathology to be that interesting. However, the studentship demonstrated to me how exciting research can be and all of the different skills that one could develop in such a field. For instance, my contribution to the project was not actually lab based but rather involved a lot of coding in Python. Not only did I get to experience how enjoyable coding can be but I had a chance to see how pathological research was increasingly becoming digitalised. I think I was extremely fortunate as my team remained patient and supportive despite any mistakes I made.

I received some brilliant mentorship during my time on the studentship. In addition to my supervisor, I had a project leader who was extremely helpful in teaching me the ropes and getting me involved. He initially, gave me some very useful tutorials on what pathology involved and introduced me to what I would be doing in the project. He taught me how to annotate tumour slides using QuPath, in order to create a training set for our machine learning algorithm. After a few weeks these daily tutorials became less frequent as he allowed me to do my work independently and focus on solving certain coding challenges and annotating my own slides. However, I really appreciated the fact that I always felt safe to contact members of the team if I need help or to arrange a quick Teams call to discuss something that I was finding particularly challenging.

In a similar way, my supervisor was very helpful. She showed genuine interest in my professional development and was continuously looking for opportunities to get me involved in other aspects of research, even helping me to write another paper about an interesting case of malignant melanoma she had seen in her clinic. Her keen interest in my development and sincere effort to show to me the exciting side of research has been a major influence in my decision to potentially apply for the MBPhD programme this year.

My work culminated in the creation of a programme that could allow histopathologists to annotate areas of interest on a digital whole slide image and the creation of two posters that have been accepted for the 2022 Pathological Society Winter Meeting. The first poster was entitled Melanoma of the Uterus: A case Report and the second: Tumour Area Identification Using Deep Learning to Facilitate Whole Slide Image Clustering.