Personal Statement - UCAS

From the laparoscopic appendectomy surgery to the blood tests that uncover my family’s thalassemia genes, I could not help but imagine the situation decades back, when surgeries and technologies we deem 'standard’ today had not existed. Sooner or later, technologies like AI in surgeries or stem cell transplants would be available as new options for patients, even deeming today’s “incurable” diseases curable. These examples make me realize how biomedicine, engineering and technology combined can create such a major, widespread impact.

The Frequent exposure of medical issues bloomed my motivation to contribute to the health industry. After my grandfather’s transvenous implantation in eighth grade, I found enthusiasm in Youtube channels like *Gebrüder Betz Medical Animation* and *fuseschool*, watching carefully this intricate procedure my grandfather went through. After he was diagnosed with lung cancer, reading ‘Emperor of the Maladies’ by Siddhartha Mukherjee gave me hope, as I learnt how advanced our current understanding of treating cancer really is. And when my family was diagnosed with minor-thalassemia, I was inspired to write a review paper on newly FDA-approved drugs for sickle-cell disease, finding out options like voxelotor and crizanlizumab which can ameliorate the disease earlier compared to the widely used hydroxyurea. This drove me to apply to this challenging course, as contributing to the health field, supported by my math and science skills, is my biggest goal in mind.

I first tried to grow my analytical skills and determination to create solutions especially in mathematics and physics. Joining SEAMO in 7th grade introduced me to theorems I had not studied before, such as the telescoping series and Heron’s formula; while the recent University of Waterloo’s Cayley Competition presented me with in-depth graphical and probability problems. I also began to explore physics, observing how derivatives and integration became the foundation of so many principles like simple harmonic motion and thermodynamics. This newfound interest led me to teach IGCSE physics in school clubs, as well as competing in the 2021 ASEAN Physics Olympiad where I obtained a bronze medal.

I also wanted to touch upon the medical world, which I got to taste through the National Medical and General Biology Competition held by the University of Indonesia. There, I learnt how to solve a variety of cases, such as how shortness of breath, coughing, and spirometer results can predict the stage of COPD. A webinar held by lung specialist Dr Erlina Burhan allowed me to learn the newest findings in COVID-19 viruses, as well as vaccine developments. It led me to go even deeper, being more involved in chemistry practicals and competitions where I’ve ranked 5th in a chemistry competition held by the University of Yogyakarta.

Above all, good communication and leadership are essential to biomedical engineering, which I honed through Worlds Scholars’ cup. I also grew to value teamwork and management skills by co-founding an organization named Life Online, which aims to educate Indonesian youths on life-science related topics.

Going to the UK, a country renowned for world-leading research for biomedical engineering, turned from a dream into a goal after I joined an international research competition by Iowa State University, where we proposed gene silencing of mosquitoes’ Cactus protein to eradicate lymphatic filariasis in Indonesia. Despite winning the most voted award, without the degree of comprehension and collaborative research environment UK offers, ideas like this will stay on the paper.

Determination to learn, curiosity, as well as skills in maths, sciences and leadership, supported with all my experiences and achievements, makes me certain to take the biomedical engineering major. After what my family has gone through, I hope to give back to the health industry and assist to improve the lives of other families in the future.