Personal Statement

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I am currently a third-year master's student majoring in Biomedical Engineering. My research interest lies in artificial intelligence and medical image computing. During my undergraduate and postgraduate study, I have always been actively engaged in research projects. Below are accounts of my research experiences.

As an undergraduate student, I joined the lab led by Prof. Bingsheng Huang in 2017 and engaged in interdisciplinary research between computer science, medical imaging, and neuroscience. As a group, we applied for funding to support our project on exploring how changes in MRI images relate to the treatment response of patients with a type of viral disease and completed it with multiple research outputs, including one journal paper published in Frontiers in Neuroscience, two patents, and one computer application. This valuable initial experience developed my ability to independently undertake research projects, made me realize the importance of research, and motivated me to move on.

I started conducting research as a project lead in the third year of my bachelor's study. I first led the project, whose aim was to predict children's growth hormone levels based on medical imaging to circumvent the fearsome blood test. Working, with great dedication, on exchanging ideas with clinicians, creating new solutions, and designing software, we won the third prize in a national biomedical engineering competition. I led the second project when I was an intern radiologist in the hospital. Witnessing the laborious workload in the Radiology department firsthand, I developed a computer-based tool to assist clinicians with cancer diagnosis. The project was written in the undergraduate final year thesis and attained a high score.

Through the experiences above, I built up my research interest and more importantly ambition to produce top-tier publications in medical image computing. In the first year of my master's study, I authored and submitted a paper to MICCAI 2020, tackling misclassification in abdominal organ segmentation. However, research is not a straight line to me. My paper was rejected. As a person who does not give up, I meticulously improved my paper, which finally made it to CBMS 2022. Besides, an extended journal version was submitted to Expert Systems With Applications. Looking back on this adversity, I am sure that it is precious, which not only teaches me how bumpy the road of research is but also gives me the confidence to face uncertainty.

With writing skills and knowledge of the field learned during the first authorship, I challenge myself to address more complicated problems. I took up the problem of scribble-supervised segmentation in medical imaging. After a whole solid year of reading, arguing, prototyping, and writing, I proposed a novel and effective approach and submitted the research paper to Medical Image Analysis. In the paper, we argue against or for relevant studies, give a rationale for our design choices, and most importantly provide our understanding of experimental results. Upon completion of the project, I felt a sense of achievement, brought by contributing knowledge to the community. This feeling has greatly motivated me to continue my education.