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Professor Dan Stoyanov
University College London
Charles Bell House, Fitzrovia, London

Dear Prof. Dan,

Thank you so much for spending time reading this letter.

I am writing to express my genuine interest in the postdoctoral position on simultaneous localisation and mapping (SLAM) of the environment in endoscopy. I am a Ph.D. candidate in the Robotics Institute at the University of Technology Sydney expecting to graduate in February 2023. With more than three years of research experience in SLAM and medical image registration, I have built sound knowledge and skills of developing algorithms based on multi-view geometry to solve problems of 3D reconstruction from medical images. In the future, I am planning to continue my research in the fields of SLAM, surgical robotics, computer-assisted intervention, and medical image computing. Therefore, I believe this postdoctoral position perfectly fits my research interest and background. In my past three-year Ph.D. studies, I have published several works on medical image reconstruction in quality journals and at top conferences.

I have been training to be a researcher for around seven years since my master's stage. Although the research area of my doctoral stage is different from that of my master's, I have demonstrated my research capabilities through various research outcomes in both periods, such as patents and quality papers. Currently, I am doing research in a SLAM team that mainly uses multi-view geometry in computer vision to reconstruct maps/images and localise/track sensors. My research topic is 3D reconstruction for transesophageal echocardiography (TEE) images, which is collaborated with Prince of Wales Hospital and the Chinese University of Hong Kong. During the last three years of doctoral studies, I have developed several algorithms which have been validated to be clinically very useful for overcoming the limited field of view of 3D TEE by using multi-view registration and fusion. These works have been published in quality journals and at top conferences in the medical image computing or robotics areas, such as Medical Physics, MICCAI 2022, RSS 2021, IROS 2021, and CIBM. Through implementing my algorithms and competing algorithms, I have accumulated expertise in coding using tools such as MATLAB, Python, and C++. The writing, presenting, and collaborating experiences have equipped me with strong writing and speaking skills in English. In addition, I have worked as an academic tutor in the course Design Optimization for Manufacturing for three years with a major duty to teach students to use MATLAB for solving optimization problems, which also improves my interpersonal and communication skills.

I am a self-motivated and independent researcher with seven years of experience. As a detail-oriented, creative, and qualified candidate, I think my knowledge and experience surrounding SLAM and medical image registration could aid in your research. I would very much like to be a part of your team. I have attached my CV and would be very interested in setting up a time to further discuss my skills and qualifications with you. Please let me know if you have questions and I look forward to hearing from you.

Thank you very much again for your time and consideration.

Best regards,

Zhehua Mao