HEALTH SCIENCES
DEPARTMENT OF HUMAN BIOLOGY

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Reference Letter for Mr. Fabio Fehr for the PhD in Electrical Engineering at EPFL

It is my pleasure to write in support of Mr Fabio Fehr's application for his PhD studies in Electrical Engineering at EPFL. As an Associate Professor of Biomedical Engineering at the University of Cape Town, many students ask me to write in support of their applications. However, I only recommend students whom I feel are well-suited for the program of their choice. Fabio is one of those students and therefore, I highly recommend that he be given the opportunity to attend your university.

I first met Fabio in 2019 when he approached me to discuss the possibility of combining his growing graduate-level applied statistical expertise with biomedical engineering as part of his MSc Applied Statistics dissertation. He struck me as someone who is genuinely determined to use the knowledge he was/is gaining as a graduate student to a discipline that is more proximate to the end user than in traditional applied statistics. I immediately saw the potential in such a cross-disciplinary project and Mr Fehr certainly had the right qualities as a student to carve out an interesting intersection between applied statistics and medical image analysis (my area of expertise). I committed to helping him develop a dissertation research topic and co-supervising the project. We settled on a project entitled, "Modelling non-linearity in 3D shapes: A comparative study of Gaussian process morphable models and variational autoencoders for 3D shape data", where we sought to leverage foundational theory in statistical modelling of biological shape and machine learning to identify the complexities of modelling non-linear shape variability of the human form. This was of interest to me as we currently use linear ordination methods for compressing shape data when developing statistical shape models for medical image analysis tasks such as segmentation. Understanding the limitations of our linear shape variation assumption would help us to develop more robust shape modelling tools for our medical applications.

Mr Fabio took on the project with great enthusiasm and was an exceptional student to work with. During 2020, despite disruptions to the academic enterprise due to the COVID pandemic, Mr Fehr worked closely with my research group and contributed invaluably to the group's academic activities including, participating in our online discussions, providing feedback to other students on their presentations, and helping other students develop their own research methods. In one-to-one meetings he was always prepared, knew which areas he needed assistance, and provided good rationale for his decision-making. His exceptional academic writing, and scientific coding, and reasoning, certainly made a great impression on me and it was a pleasure to work with him. Finally, his incredible ability for self-directed learning, and genuine scientific curiosity indicated to me that he has the potential to be future research leader in whatever scientific discipline he decided to pursue.

Fabio continues to impress me with his knowledge, skill, and dedication to his work. I have no reservations in recommending his admission your PhD programme. I believe that his technical grounding and academic prowess will make him a strong candidate. It is my sincerest hope that his application is considered favourably. Feel free to contact me if you require further information.

Sincerely,

Tinashe Mutsvangwa, PhD