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To Whom it may Concern,

Re: "Senior Ultrasound Engineer"

I would like to have applied for the position of "Senior Ultrasound Engineer", having seen the position advertised in LinkedIn.

I am an applied mathematician by training, but have worked at the interface between academic research and industry for over ten years, in the United Kingdom and Germany, primarily in therapy and imaging with medical ultrasound but also in other clinical areas, such as ultra-low field MRI. I have used the mathematical skills to write performant, well-documented, tested, deployable code in both python and C++, compliant with both ISO 13485 and IEC 62304. Within the job specification, a expertise in ultrasound physics and metrology is mentioned: I am a member of the IEC technical committee 87 on ultrasound and contribute to standard development, specifically on measured-based simulations.

I have been working on a project which seeks to perform functional ultrasound using an array of transducers. Image reconstruction from a signal which travels though the skull twice is a challenge. An aim is to provide a prior to EEG source localisation. However, a signal is detectable in adults. There are many ideas regarding

I am a maintainer of the open-source library k-wave-python which is widely used by many neuromodulation researchers. I have extended the package to include elastic wave propagation which is necessary for transcranial applications. Basic focusing capabilities have been implemented. This expertise can immediately be applied.

I have deep knowledge of classical ultrasound beamforming and image reconstruction, and have a good theoretical knowledge of deep learning: I was a key figure in a team which was joint first place in the "Challenge on Ultrasound Beamforming with Deep Learning" competition in 2020. I gave a invited lecture on the use of AI in therapeutic ultrasound at the most prestigious therapeutic ultrasound conference, ISTU, in 2023 and lecture graduate students, at Constructor University in Bremen, on the mathematical foundations necessary to understand deep learning models.

I am applying as there are structural changes at my current role which may reduce opportunities for development. I am enthusiastic about this role as it combines cutting-edge technology with enduring, wide spread impact.

Additionally, I am open to collaborating via ZIM, or directly through sub-contracting work.

Please find enclosed my resume, and let me know if you require any additional information, please do not hesitate to contact me.

Yours faithfully,

David Sinden

Attached: Resume