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Dear Dr. Simone Ludwig,

This is a letter to certify that Jessica Bo has followed through with her proposed research work from her application to the IEEE CIS Graduate Student Research Grants. In working towards her research objective at our lab at MIT and Brigham and Women's Hospital, she explored various technical methods from literature, constructed a deep learning training framework, and conducted many experiments to prove the validity of her approach.

To address the issue of domain shifts in healthcare data, Jessica devised a data augmentation technique for pretraining robust and generalizable deep learning models, using an adversarial training technique that generates occlusive masks for each data sample. She validates the method for electrocardiogram (ECG) data on real-world medical tasks of predicting disease diagnoses and patient traits, finding that adversarial masking outperforms random data augmentations and contributes orthogonal benefits to state-of-art ECG augmentations. While the project plan had proposed to transfer the style of the datasets to bridge the data distribution gap, she was able to pivot to a new technique and reach successful results when the original idea did not work out.

We support the efforts she has put into the project and commend her for the outcomes she has achieved in her time at the lab.

Sincerely,
Hen-Wei Huang