

Cross-Modality Cardiac Insight Transfer: A Contrastive Learning Approach to Enrich ECG with CMR Features (Supplementary)

Zhengyao Ding¹, Yujian Hu², Ziyu Li¹, Hongkun Zhang², Fei Wu¹, Yilang Xiang², Tian Li³, Ziyi Liu⁴, Xuesen Chu⁵(✉), and Zhengxing Huang¹

¹ Zhejiang University, China

{zhengyao.ding,liziyu,wufei,zhengxinghuang}@zju.edu.cn

² The First Affiliated Hospital of Zhejiang University School of Medicine, China
{3170103999,1198050,21618130}@zju.edu.cn

³ The Hong Kong Polytechnic University tianli@polyu.edu.hk

⁴ Guangdong Transtek Medical Electronics Co., Ltd., Zhongshan, 528437, China
11313008@zju.edu.cn

⁵ China ship scientific research center chuxs@cssrc.com.cn

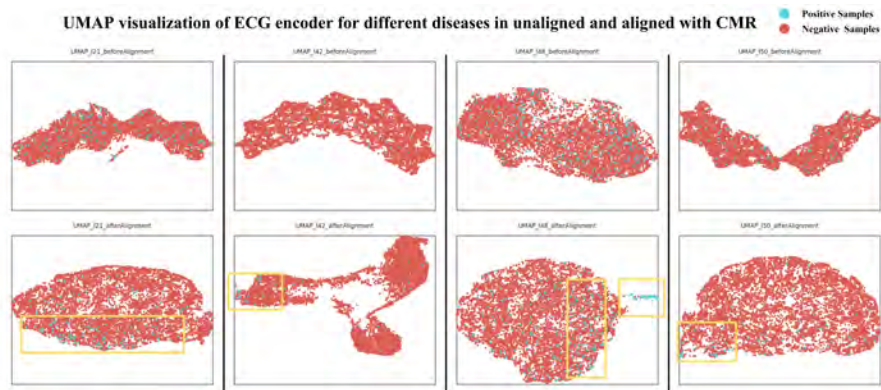


Fig. 1. UMAP visualization of ECG encoder for different diseases in unaligned and aligned with CMR.

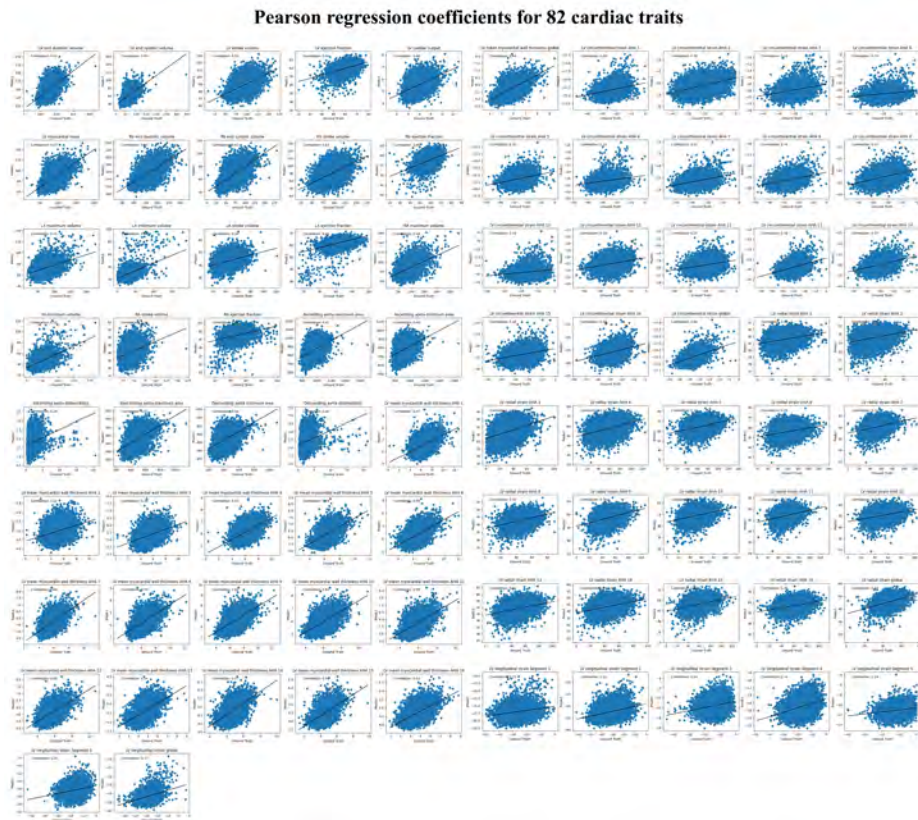


Fig. 2. Results of Pearson's correlation coefficients for all of the cardiac traits metrics in the regression task

Table 1. 82 cardiac phenotype indicators.

Index 1-40	Index 40-82
LV end diastolic volume	LV mean myocardial wall thickness global
LV end systolic volume	LV circumferential strain AHA 1
LV stroke volume	LV circumferential strain AHA 2
LV ejection fraction	LV circumferential strain AHA 3
LV cardiac output	LV circumferential strain AHA 4
LV myocardial mass	LV circumferential strain AHA 5
RV end diastolic volume	LV circumferential strain AHA 6
RV end systolic volume	LV circumferential strain AHA 7
RV stroke volume	LV circumferential strain AHA 8
RV ejection fraction	LV circumferential strain AHA 9
LA maximum volume	LV circumferential strain AHA 10
LA minimum volume	LV circumferential strain AHA 11
LA stroke volume	LV circumferential strain AHA 12
LA ejection fraction	LV circumferential strain AHA 13
RA maximum volume	LV circumferential strain AHA 14
RA minimum volume	LV circumferential strain AHA 15
RA stroke volume	LV circumferential strain AHA 16
RA ejection fraction	LV circumferential strain global
Ascending aorta maximum area	LV radial strain AHA 1
Ascending aorta minimum area	LV radial strain AHA 2
Ascending aorta distensibility	LV radial strain AHA 3
Descending aorta maximum area	LV radial strain AHA 4
Descending aorta minimum area	LV radial strain AHA 5
Descending aorta distensibility	LV radial strain AHA 6
LV mean myocardial wall thickness AHA 1	LV radial strain AHA 7
LV mean myocardial wall thickness AHA 2	LV radial strain AHA 8
LV mean myocardial wall thickness AHA 3	LV radial strain AHA 9
LV mean myocardial wall thickness AHA 4	LV radial strain AHA 10
LV mean myocardial wall thickness AHA 5	LV radial strain AHA 11
LV mean myocardial wall thickness AHA 6	LV radial strain AHA 12
LV mean myocardial wall thickness AHA 7	LV radial strain AHA 13
LV mean myocardial wall thickness AHA 8	LV radial strain AHA 14
LV mean myocardial wall thickness AHA 9	LV radial strain AHA 15
LV mean myocardial wall thickness AHA 10	LV radial strain AHA 16
LV mean myocardial wall thickness AHA 11	LV radial strain global
LV mean myocardial wall thickness AHA 12	LV longitudinal strain Segment 1
LV mean myocardial wall thickness AHA 13	LV longitudinal strain Segment 2
LV mean myocardial wall thickness AHA 14	LV longitudinal strain Segment 3
LV mean myocardial wall thickness AHA 15	LV longitudinal strain Segment 4
LV mean myocardial wall thickness AHA 16	LV longitudinal strain Segment 5
	LV longitudinal strain Segment 6
	LV longitudinal strain global