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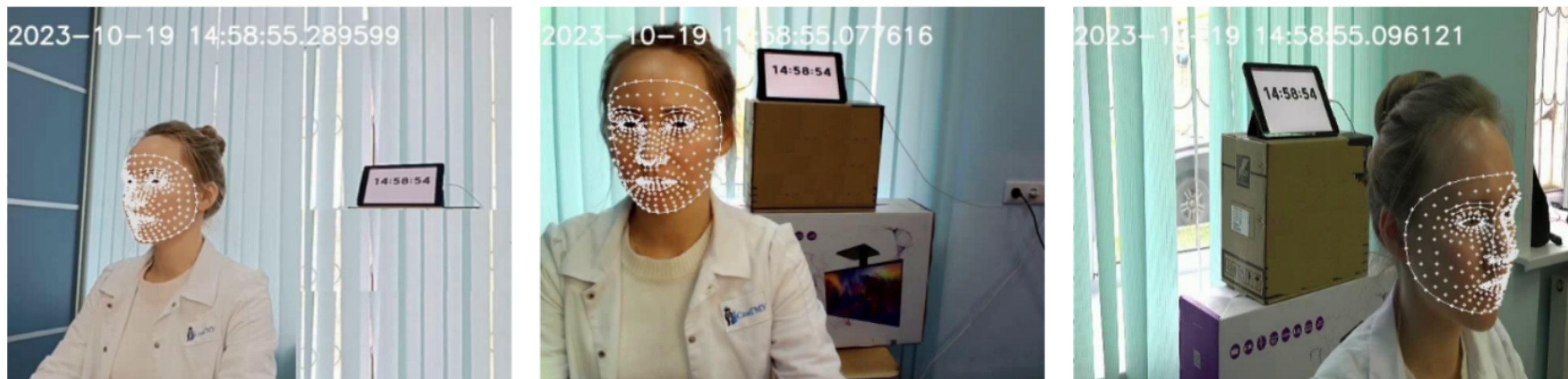
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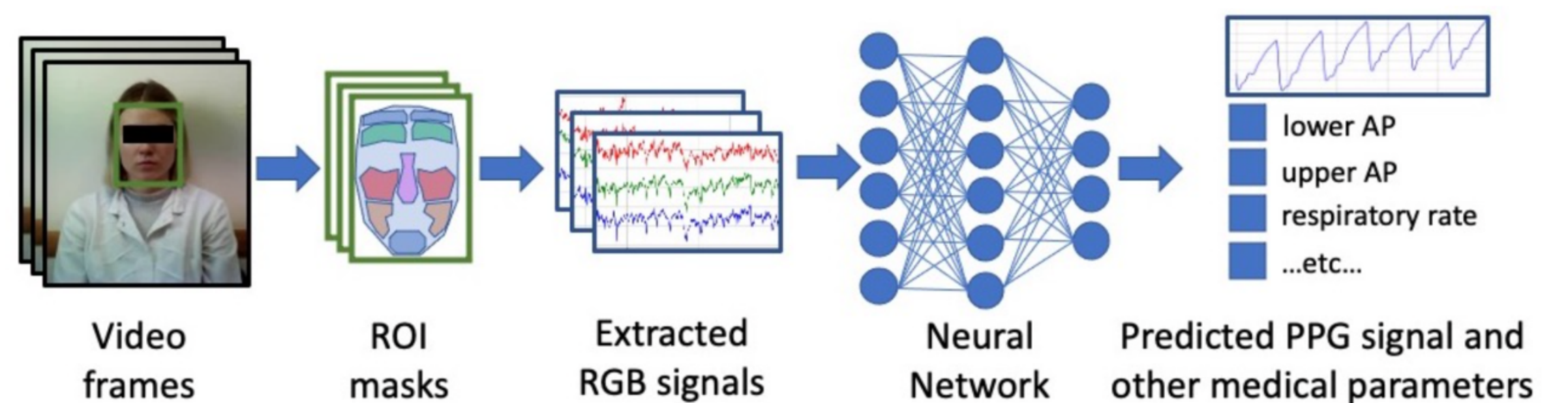
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Data: 600 subjects of varying age and gender, 3,600 synchronized videos from three consumer-grade cameras at different angles, Recordings in two states: at rest and after physical activity, paired with a 100 Hz PPG signal and 15 parameters: age, weight, height, BMI, blood pressure, ECG, heart rate, arterial stiffness, temperature, saturation, respiratory rate, stress levels, cholesterol hemoglobin, glycated hemoglobin.

	mean	std	min	max
Weight, kg	65.92	15.79	43.00	168.00
Height, cm	169.75	8.87	147.00	201.00
BMI, kg/m ²	22.73	4.34	15.39	47.03
Age, years	23.08	10.90	18.00	83.00
Systolic pressure, mm Hg	122.45	17.43	80.00	202.00
Diastolic pressure, mm Hg	73.79	9.25	50.00	108.00
Saturation, %	98.01	1.29	86.00	99.00
Temperature, °	36.56	0.13	36.00	37.50
Hemoglobin, g/dL	13.59	1.66	8.10	17.30
Glycated hemoglobin, %	5.52	0.69	3.40	13.02
Cholesterol, mmol/L	4.16	0.83	0.90	8.00
Respiratory rate, rpm	18.05	1.71	15.00	24.00
Heart rate, bpm	91.93	18.37	49.00	153.00
Arterial stiffness	8.99	3.04	1.75	34.02
Stress (PSM-25)	3.04	1.46	1.00	7.52

Model: Fast and efficient model with a hybrid approach: domain-specific pre-processing to select facial regions of interest, followed by a lightweight 1D convolutional network. Multi-task model, predicting both the PPG signal and other biomarkers directly from video.



Results:

Model	Train dataset	MCD-rPPG PPG (Ours)	MCD-rPPG HR (Ours)	MMPD PPG	MMPD HR	SCAMPS PPG	SCAMPS HR	UBFC-rPPG PPG	UBFC-rPPG HR
PBV[8]	-	0.85	15.37	0.80	37.11	0.88	35.93	0.86	30.27
OMIT[5]	-	0.80	4.78	0.77	15.33	0.86	16.27	0.84	1.95
POS[26]	-	0.87	3.80	1.08	15.36	1.41	16.02	1.52	1.17
PhysFormer[28]	MMPD	0.89±0.02	13.57±1.40	0.82±0.02	22.67±1.21	0.90±0.02	28.45±0.75	0.79±0.04	8.79±5.96
	SCAMPS	1.10±0.00	46.38±0.00	0.97±0.00	30.01±0.00	0.13±0.00	0.40±0.00	0.67±0.00	1.17±0.00
	UBFC-rPPG	<u>0.81±0.01</u>	43.65±3.71	<u>0.76±0.01</u>	42.09±7.21	<u>0.84±0.02</u>	49.77±4.70	0.77±0.01	37.40±0.98
	MCD-rPPG	0.46±0.01	4.08±0.12	0.98±0.03	22.61±0.51	1.08±0.03	23.33±1.29	1.30±0.06	1.27±1.51
iBVPNet[10]	MMPD	0.99±0.02	36.28±6.10	0.87±0.01	21.02±0.20	0.96±0.01	34.60±2.04	0.93±0.01	21.63±5.16
	SCAMPS	1.07±0.01	59.48±1.93	1.01±0.00	24.19±0.67	0.54±0.00	1.63±0.08	0.84±0.03	7.91±2.62
	UBFC-rPPG	0.96±0.03	35.31±7.24	0.86±0.01	23.53±3.92	0.90±0.02	31.36±2.17	0.85±0.01	7.47±2.21
	MCD-rPPG	0.68±0.01	4.83±0.44	1.01±0.01	17.12±0.51	1.05±0.00	25.74±0.23	1.21±0.01	4.69±0.71
RhythmFormer[30]	MMPD	0.94±0.02	17.54±4.30	0.77±0.00	17.28±2.21	0.91±0.01	30.34±1.00	0.85±0.01	11.52±2.80
	SCAMPS	1.05±0.01	58.58±8.14	1.00±0.01	26.08±0.44	0.08±0.00	0.20±0.10	0.75±0.03	10.25±2.68
	UBFC-rPPG	0.87±0.01	19.14±1.93	0.82±0.01	24.81±0.69	0.99±0.01	28.53±0.43	0.86±0.02	21.53±3.29
	MCD-rPPG	0.43±0.00	2.82±0.13	0.98±0.01	16.63±0.96	1.06±0.02	21.45±1.65	1.46±0.02	2.39±0.35
Ours (Fig. 6)	MMPD	1.32±0.02	7.58±1.3	0.94±0.01	15.26±0.49	1.16±0.02	27.77±1.75	0.96±0.12	2.39±0.46
	SCAMPS	1.20±0.01	41.17±4.30	1.06±0.03	34.44±3.81	0.50±0.04	10.60±0.77	0.87±0.03	13.62±3.57
	UBFC-rPPG	1.17±0.05	23.09±6.67	1.01±0.02	27.93±3.41	0.92±0.08	37.46±0.62	0.77±0.02	6.84±5.27
	MCD-rPPG	0.68±0.03	4.86±0.36	1.20±0.02	17.53±0.68	1.27±0.05	20.20±1.39	1.42±0.08	4.13±0.92



https://huggingface.co/datasets/kyegorov/mcd_rppg

Target	Baseline	Model
Systolic pressure, mm Hg	13.78	12.82
Diastolic pressure, mm Hg	7.50	8.39
Glycated hemoglobin, %	0.43	0.41
Cholesterol, mmol/L	0.66	0.60
Respiratory rate, rpm	1.36	1.20
Arterial stiffness	2.19	2.04
Age, years	5.71	3.91
BMI	3.18	3.37
Stress (PSM-25)	1.20	1.07
Saturation, %	0.98	0.98
Sex (Accuracy)	0.61	0.64



https://github.com/ksyegorov/mcd_rppg