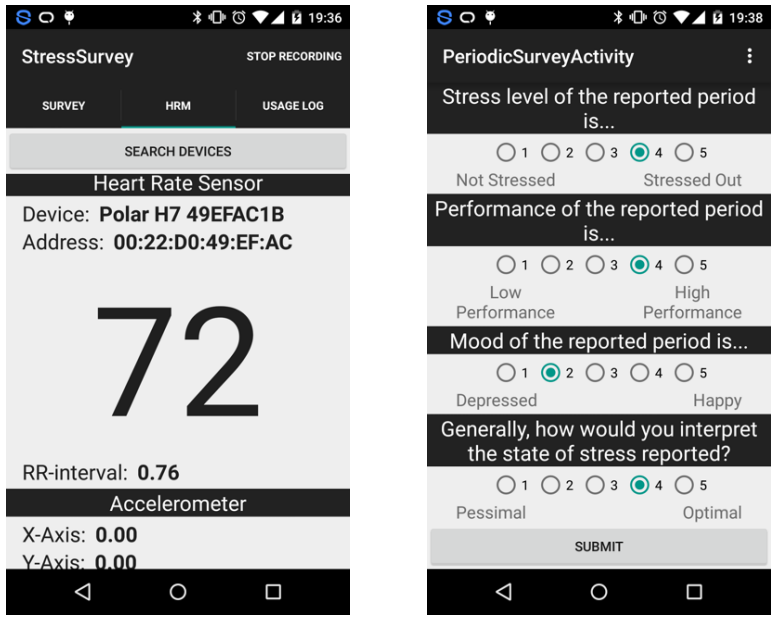
EUSTRESS: Positive Stress Recognition

- A field study investigating the feasibility of recognizing stress using data collected from mobile devices
  - heart rate, accelerometer, and mobile devices usage log

(a) Wearable heart rate sensor



(b) Data collection application

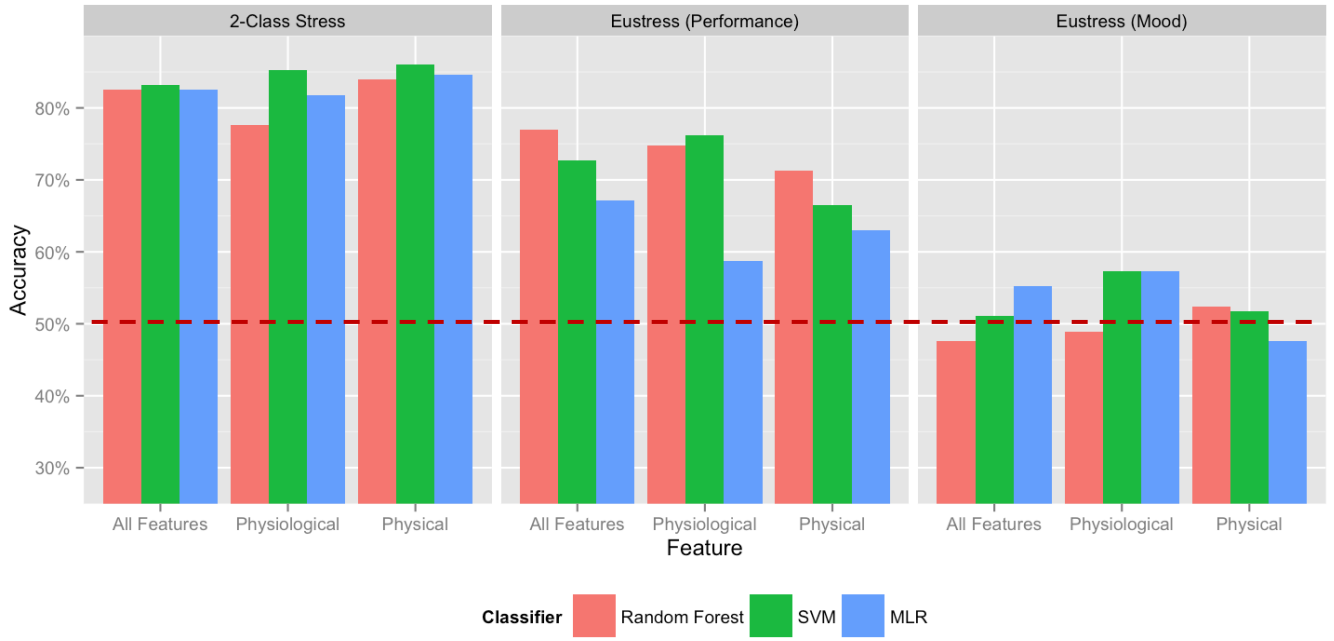
Experiment Setup

- 7 participants (student; M:5, F:2)
- 5 days data for waking hours

Data Collected	
Sensory Data	5,058,233 accelerometer records 1,410,109 heart rate records 10,851 screen activity records 878 call activity records
Usage Data	14,746 smartphone and computer usage records
Survey Data	252 self-reported survey records

Modality	**Features**
Heart rate measure	AVHR, SDHR, AVNN, SDNN, RMSSD, PNN50, VLF, LF, HF, LF/HF
Motion	AVMI (Motion intensity), SDMI
Screen	Duration of screen on time (secs), frequency of screen on event
Call	Number of call, answered call; Duration of off-hook
Application	Duration of each category: social, entertainment, internet, communication, study, email

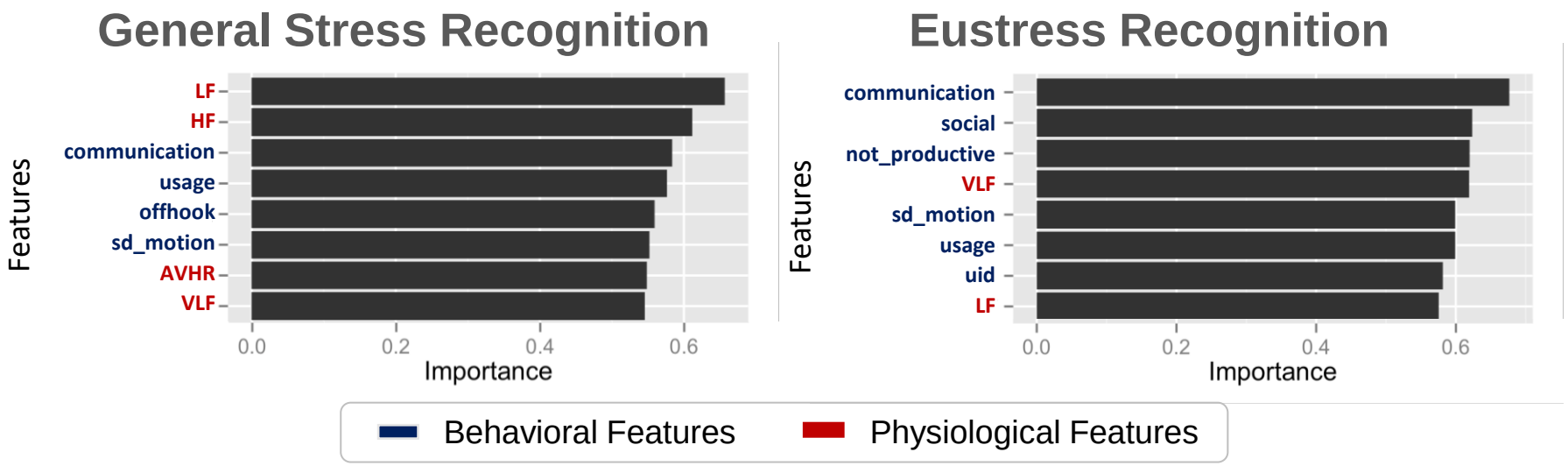
Can We Recognize the Positive Stress?



random guess

- **POSSIBLE**: recognize **stress** and **eustress** with mobile devices
- **Eustress** defined as **booster to performance** is distinguishable

Feature Importance for Stress Recognition



- **Behavioral** features are **important** for **eustress recognition**.