**System Identification and Human Heart**

System identification is a method to obtain mathematical model of dynamic systems. It is useful to predict the behavior of the system and it provides us to opportunity to calculate or control the desired behavior.

In this experiment, we will use system identification to model a person’s heart rate response to different conditions. Since human neural system consists of billions of neurons, it is impossible to obtain a precise model of the heart rate response. Also due to its complexity, the response won’t be linear (i.e. if we double the input, heart rate won’t get doubled). However, we can determine some operating points and for each of them we can obtain different models and controllers. We don’t want to use a single operating point and controller since the accuracy of the model decreases when output deviates from the determined operating point due to heart’s nonlinearity.

**Polar FT-7 Heart Rate Monitor Watch/Chestband**

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**Polar Treadmill (Model bilinmiyor)**