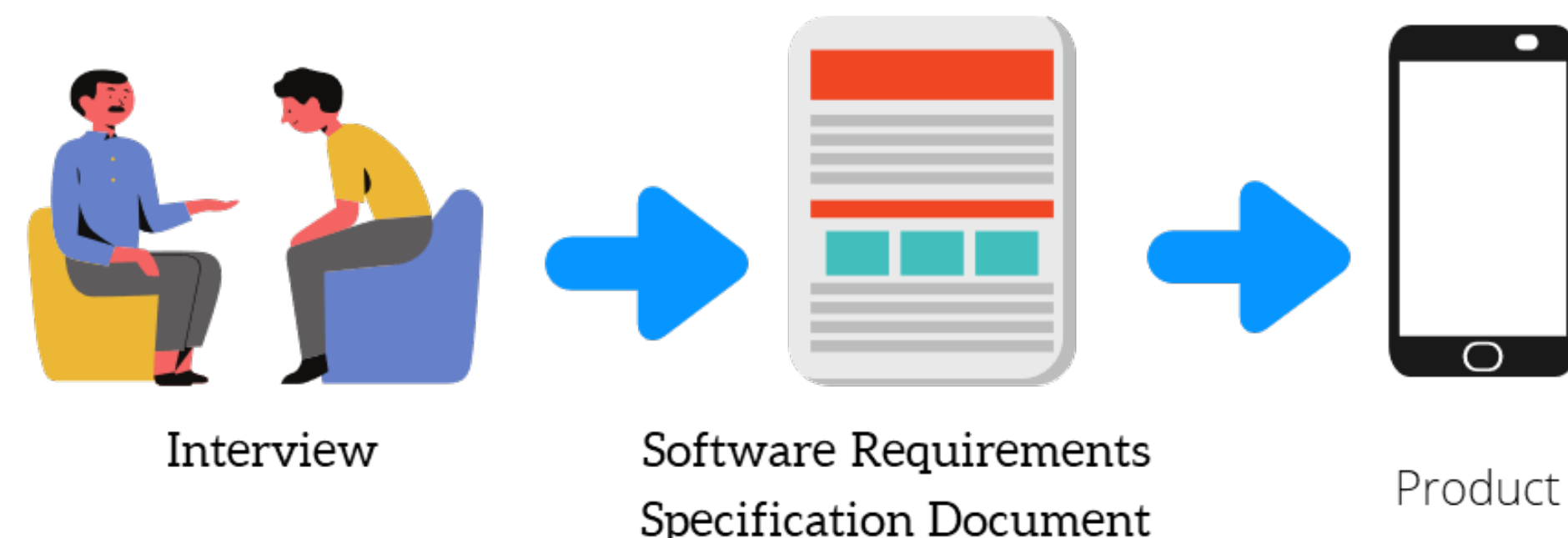


Abstract

Studies show that the quality of the information collected during an elicitation interview, and consequently the quality of the software product that needs to be developed, highly depends on the interviewee's engagement. Because of social expectations, interviewees tend to hide if they are bored or not engaged. To overcome this problem and support the analyst during the interviews, this research uses biometric data and voice features, together with supervised machine learning algorithms, to predict the interviewee's engagement.

Introduction

Good requirements are necessary to develop high-quality software. Software requirements are usually gathered through the use of interviews.

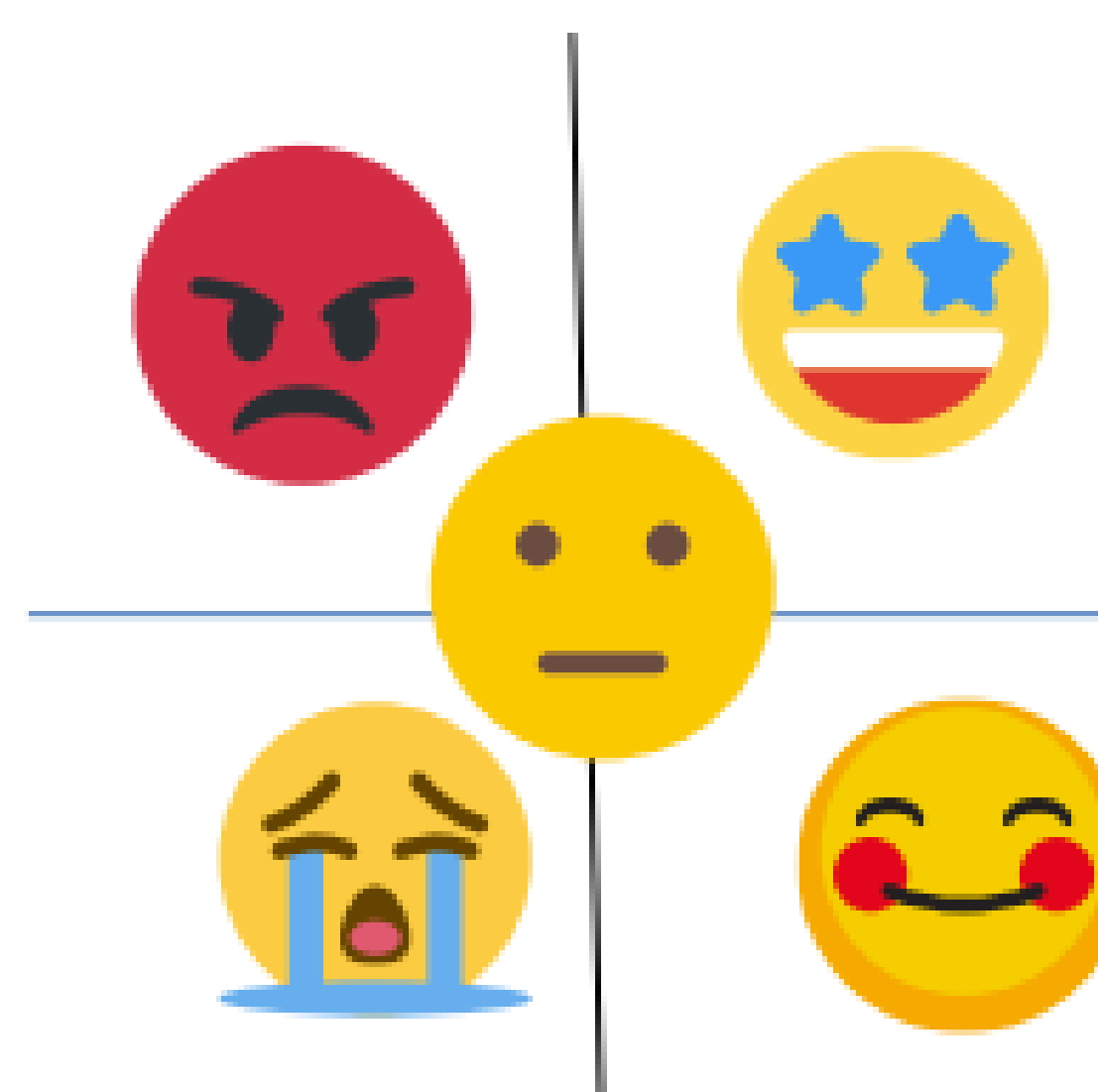


Studies show that the quality of the information collected during an interview highly depends on the interviewee's engagement.



Emotions

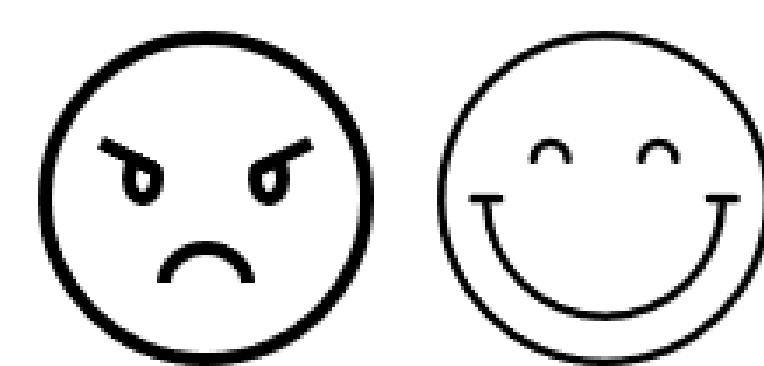
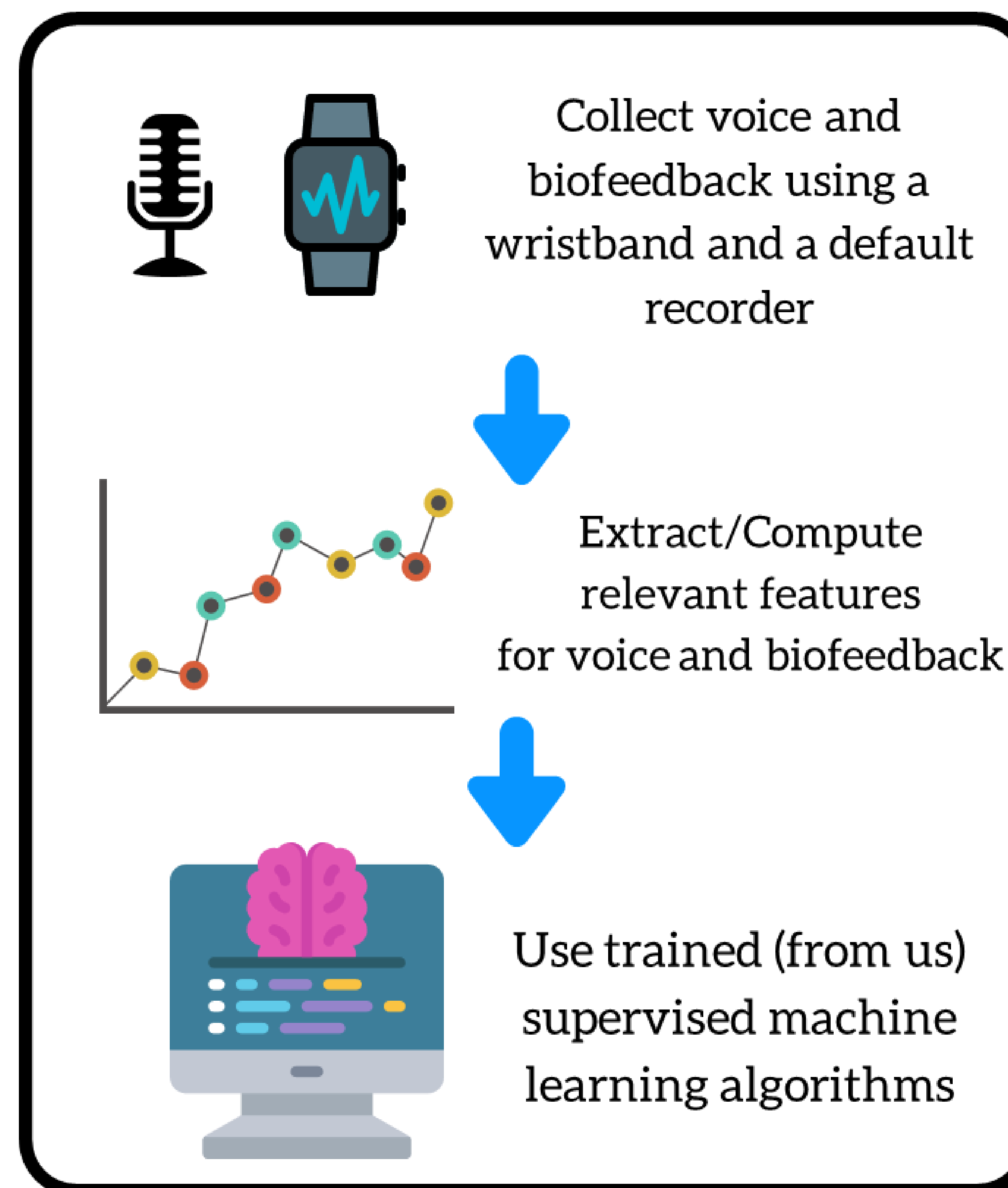
- Russel's model
- Measures emotion in terms of valance and arousal.
- Valence- unpleasant to pleasant.
- Auroral-activation to deactivation



Solution



Conduct interview



Predicted users' engagement

Results

Alg.	Feature	Valence				Arousal			
		Prec	Rec	F1	Acc	Prec	Rec	F1	Acc
SVM	biofeedback	0.902	0.954	0.923	0.946	0.889	0.895	0.890	0.891
	voice	1.000	1.000	1.000	1.000	0.979	0.975	0.977	0.977
	combined	0.991	0.998	0.994	0.996	1.000	1.000	1.000	1.000
MLP	biofeedback	0.977	0.990	0.983	0.989	0.965	0.963	0.963	0.964
	voice	1.000	1.000	1.000	1.000	0.980	0.979	0.979	0.979
	combined	1.000	1.000	1.000	1.000	0.998	0.998	0.998	0.998
D'Tree	biofeedback	0.954	0.984	0.966	0.976	0.938	0.939	0.934	0.934
	voice	0.992	0.994	0.993	0.996	0.948	0.949	0.948	0.949
	combined	0.996	0.997	0.997	0.998	0.988	0.989	0.988	0.989
NB	biofeedback	0.520	0.529	0.428	0.444	0.539	0.537	0.536	0.552
	voice	0.596	0.635	0.598	0.688	0.667	0.669	0.663	0.664
	combined	0.673	0.707	0.684	0.781	0.622	0.623	0.620	0.622
RF	biofeedback	0.959	0.962	0.960	0.974	0.969	0.969	0.969	0.969
	voice	0.964	0.957	0.960	0.975	0.967	0.966	0.966	0.967
	combined	0.984	0.979	0.981	0.988	0.970	0.973	0.971	0.972



Future Work

- Replication of experiment with a larger sample of participants
- Facial recognition
- Develop a tool for requirement analyst

