A Review on Depression Detection

Yuyan Bu
yuyanbu@bjtu.edu.cn

北京交通大学 BEIJING JIAOTONG UNIVERSITY

UTRGV & Google Research

Motivation

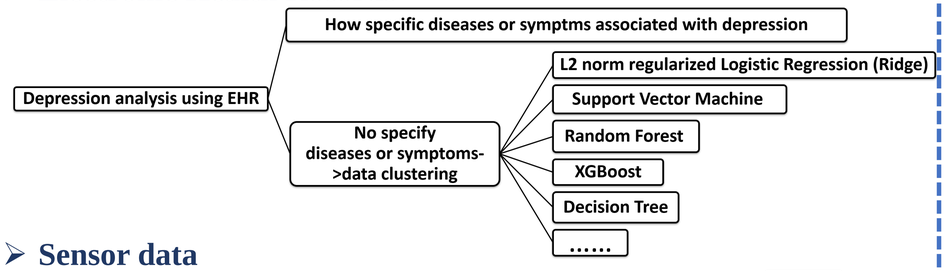
Given advancements in hardware and software, along with the explosion of smartphone use, the forms of potential health care solutions have begun to change. Among them, automatic detection of depression has attracted increasing attention from researchers in psychology, computer science, linguistics, and related disciplines. Promising depression detection systems based on different data sources have been reported recent years. We survey these efforts by presenting the review of representative researches and discusses the most promising approaches.

Objective

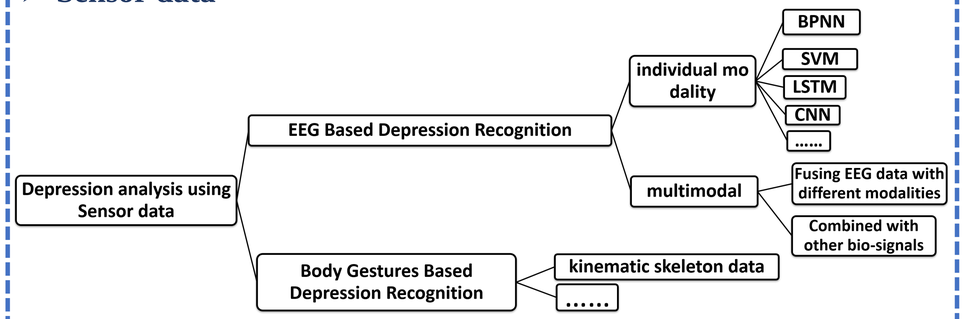
We reviewed over fifty studies of detection of depression that used electronic health records (EHRs), sensor data (e.g. EEG, kinematic skeletal data), text information(extracted from clinical interview or collected from social media platform), image data (brain image or facial expression) and audio to predict or classify depression. Depression detection systems across modalities are also included. Collectively, these studies provided excellent examples of using machine learning algorithms to address mental health questions. We hope such efforts may give an inspiration for further research.

Methods Overview

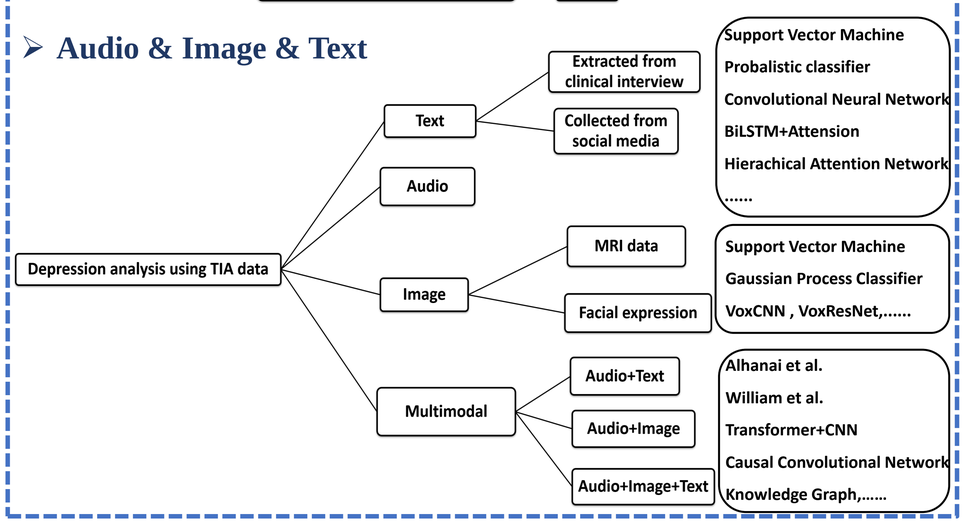
➢ Electronic Health Records



➢ Sensor data



➢ Audio & Image & Text



Datasets

Many research data are collected by the research teams themselves. Here we only list a few of them for example. Among them, DAIC-WOZ provided by AVEC is a widely used dataset.

Type	Dataset	Reference
EHR	INSIGHT CRN	Kaushal R et al.
	LHID2005	Tai L K et al.
	MYNAH cohort	Krishna M et al.
Text	General Psychotherapy Corpus	——
	ReachOut Triage Shared Task	Milne et al.
Multimodal	DAIC-WOZ	J. Gratch et al.
	DAIC	M. Valstar et al.

Future Directions

Depression detection is inherently a multimodal problem. This review only overviews the tools and a few representative methods which help to detect depression. More work such as comparing advantages and disadvantages of each model can be done for improvement. We hope our work can give a reference for further research.

Acknowledgement

The work is funded by Google Research. I would like to thank the University of Texas at Rio Grande Valley for organizing and Beiyu Lin for her help during my research.

RESEARCH POSTER PRESENTATION DESIGN © 2015
www.PosterPresentations.com