

Utilizing Passive Data Collection to Detect Anxiety and Depression
(Technical Report)

How Consumers and the Healthcare Industry Respond to Data from Personal
Devices
(STS Research Paper)

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Preface

Smartphones or other personal digital devices can collect health data, offering greater patient self-efficacy, early detection of symptoms, and augmented public health analytics, but with such advantages come risks to privacy and to the physician-patient relationship.

Early detection of depression can improve treatment success. However, many depressed persons are diagnosed long after onset, in part because physical examination, evaluation, or lab testing are generally necessary. These methods can be time consuming and expensive. Machine learning methods such as K-Means clustering, feature extraction, and convolutional neural networks can be used on data from smartphones to detect behavioral patterns as well as predict depression and anxiety.

Smartphones can collect health data such as heartrate, blood-oxygen level, and activity level, offering possibilities of medical value such to device owners and others. Yet such advantages introduce new hazards, and patients, physicians, hospitals, insurers, tech companies, and other social groups are therefore competing to determine the standards that will govern the collection and use of such data.

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