**LITERATURE SURVEY**

**1) Stress level detection using heart rate, blood pressure, and GSR and stress therapy by utilizing infrared**

**AUTHORS:**  Widant i, N., Sumanto, B., Rosa, P., Miftahudin, M.F.

Stress is a form of physical and psychological tension. This tension affects an individual's daily performance. Stress can lead to negative feelings or any feeling that goes against what is truly desired. It can even threaten emotional well-being. Stress is capable of corrupting the way an individual absorbs reality, solves problems, and thinks logically.

**2) Mental Stress Detection in University Students using Machine Learning Algorithms**

**AUTHORS:** Ravinder Ahujaa, Alisha Bangab

Mental stress is a major issue nowadays, especially among youngsters. The age that was considered once most carefree is now under a large amount of stress. Stress increases nowadays leading to many problems like depression, suicide, heart attack, and stroke. In this paper, we are calculating the mental stress of students one week before the exam and during the usage of the internet. Our objective is to analyze stress in college students at different points in their lives.

**3) Stress detection and reduction using EEG signals**

**AUTHORS:** Mamta S. Kalas; B.F. Momin

According to the World Health Organization, stress is a significant problem of our times and affects both the physical as well as the mental health of people. There are various traditional stress detection methods are available. Research in the area of stress detection has developed many techniques for monitoring the human brain that can be used to study human behavior. However, there is research on stress detection methods and not on stress reduction methods in terms of technology. This research proposes a novel method that detects stress using EEG signals and reduces the stress by introducing the interventions into the system.

**4.) Stress and anxiety detection using facial cues from videos**

**AUTHORS:** G. Giannakakis, D. Manousos, F. Chiarugi

This study develops a framework for the detection and analysis of stress/anxiety emotional states through video-recorded facial cues. A thorough experimental protocol was established to induce systematic variability in affective states (neutral, relaxed, and stressed/anxious) through a variety of external and internal stressors. The analysis was focused mainly on non-voluntary and semi-voluntary facial cues to estimate the emotion representation more objectively.

**Literature Survey (Maximum 7 Research Papers)**



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| --- | --- | --- | --- | --- | --- |
| **Year and Citation** | **Article** | **Author** | **Tools/Software** | **Technique** | **Source** |
| **2024** | **A Study on Stress Management Among IT Employees** | **Dr. Usman Mohideen KS and Sabharish A** | **Surveys and Interviews** | **Time Management**  **Techniques, Mindfulness practices, and fostering supportive workplace cultures** | **ResearchGate** |
| **2014** | **Effects of Computer-Based Stress Management Training on Psychological Well-Being and Work Performance in Japanese Employees: A Cluster Randomized Controlled Trial** | **Rino Umanodan,**  **Akihito Shimazu, Masahide Minami, and Norito Kawakami** | **Computer-Based Stress Management Training Program** | **Problem-Solving and Avoidance**  **/Suppression coping strategies** | **Industrial Health Journal** |
| **2024** | **Qualifying and Quantifying the Benefits of Mindfulness Practices for IT Workers** | **Cristina Martinez Montes, Fredrik Sjogren, Adam Klevfors, and Birgit Penzenstadler** | **Mindfulness Training Sessions** | **Breathing practices and Mindfulness exercises** | **arXiv** |
| **2022** | **A Study on Stress Management Practices and Its Influence on Organizational Behavior Among Information Technology Employees** | **Dr. S. Dili, Dr.**  **Venkatarathnam**  **And Reddeppa Naidu** | **Open and closed-ended questionnaires** | **Stress Management Practices and their impact on organizational Behavior** | **Journal of Positive School Psychology** |
| **2018** | **Efficacy of Stress Management Program on the Level of Perceived Stress and Coping Strategies Among Baccalaureate Nursing Students** | **Samar Mabrook El-Nehrawaya and Souzan Abd El-Menen** | **Stress Management Program** | **Coping Strategies assessment and stress level evaluation** | **Tanta Scientific Nursing** |
| **2023** | **Exposing Software Engineering Students to Stressful Projects: Does Diversity Matter** | **Isabella GraBl, Gordon Fraser, Stefan Trieflinger, and Marco Kuhrmann** | **Controlled Experiments involving self-organizing project teams** | **Analysis of diversity dimensions (such as social background, age, and work experience) and their impact on team performance and stress perception** | **arXiv** |
| **2016** | **Web-Based and Mobile Stress Management Intervention for Employees: A Randomized Controlled Trial** | **David Ebert, Matthias Lehr, Heleen Heber, and Others** | **Guided web and mobile-based stress management training programs** | **Cognitive-behavioral and problem-solving strategies delivered through digital platforms** | **Journal of Medical Internet Research** |

**5) Detection of Stress Using Image Processing and Machine Learning Techniques**

**AUTHORS:** Nisha Raichur , Nidhi Lonakadi, Priyanka Mura

Stress is a part of life it is an unpleasant state of emotional arousal that people experience in situations like working for long hours in front of the computer. Computers have become a way of life; much life is spent on computers and hence we are therefore more affected by the ups and downs that they cause us. One cannot just completely avoid their work on computers but one can at least control his/her usage when being alarmed about being stressed at a certain point of time. Monitoring the emotional status of a person who is working in front of a computer for a longer duration is crucial for the safety of a person. In this work, real-time non-intrusive videos are captured, which detect the emotional status of a person by analyzing the facial expression. We detect an individual emotion in each video frame and the decision on the stress level is made in sequential hours of the video captured. We employ a technique that allows us to train a model and analyze differences in predicting the features. Theano is a Python framework that aims at improving both the execution time and development time of the linear regression model which is used here as a deep learning algorithm. The experimental results show that the developed system is well on data with the generic model of all ages.