

CHANGES IN SPEECH AS INDICATORS OF STRESS FOR OFFICE WORKERS

Zhemchuzhkina T.V., Al-Qadasi E.

Kharkiv National University of Radio Electronics, Kharkiv

Stress is a common problem among office workers and can lead to a variety of physical, emotional, and mental health issues. Some common problems of stress in office workers include: physical health issues (headaches, muscle tension, fatigue); emotional and mental health issues (anxiety, depression, burnout); reduced productivity and impair job performance; increased absenteeism; poor morale; conflict and tension; legal and financial issues, such as workers' compensation claims or lawsuits. So, it is important for employers to take steps to prevent and manage workplace stress to promote employee well-being and reduce the risk of these problems [1].

There are different approaches for stress detection in the office, including: self-reporting; wearable devices (smart watches, fitness trackers), which can measure physiological parameters (heart rate, breathing rate); biometric sensors (skin conductance); facial expression analysis; ambient sensors (noise and temperature sensors). Employers can use one or a combination of these approaches to detect stress in the workplace and implement strategies to reduce workplace stress and promote employee well-being.

Speech analysis is a promising approach for stress detection in the workplace. It is a non-invasive method of detecting stress and does not require any physical contact with employees. It can be used to detect stress in real-time. It is easy to implement in the workplace, as it only requires a microphone and software; it is a cost-effective method compared to other approaches; it can be used to detect stress in a variety of workplace settings, including remote and virtual work environments.

Pitch is the most frequently extracted feature from speech in stress detection. It has been found that mean value, standard deviation and range of pitch increase under stress while pitch jitter decreases. Spectral centroid goes up under stress and energy is concentrated in higher frequency bands. Speaking rate also increases, as well as voice intensity. Pitch and speaking rate features are the most suitable ones, because they can work well even in noisy environments [2].

By using speech analysis for stress detection, employers can identify potential stress-related issues in the workplace and implement strategies to reduce workplace stress and improve employee well-being.

References:

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