Artificial intelligence model for continuous, in-home, posture and health monitoring including user feedback and predictions of clinical assessment.

## Introduction

According to the (Gill et al., 2023) in 2020, musculoskeletal disorders (MSDs) was ranked 2nd as the leading non-fatal disability that has been affecting more than a billion people worldwide. In Finland alone, MSD has taken the spotlight as being the leading cause of temporal disability within the nation, through which a lot of resources allocated towards the health services (Martimo, 2010). It might be misconceived that only the elderly are the only ones that suffer from this condition. However, a report by (US Bone and Joint Initiative, 2014) has concluded that quite a few individuals across different age groups are currently suffering from it. **(Schmidt et al., 2021)** reported that musculoskeletal disorders (MSDs) can often originate during childhood due to abnormal postures, which can further lead to chronic pain, discomfort, and physical limitations. Traditional examination and treatment procedures most often consist of regular clinical visits and are currently viewed as being inconvenient and costly. According to **(Stephen Bevan, 2013**), MSDs have cost the EU over 2% of its gross domestic product (GDP) which is estimated to be over €240bn each year. There is no doubt that this is a steadily growing concern that needs to be properly addressed.

Furthermore, with the rapid advancement in data sensor technology and Artificial Intelligence, there should be new and creative solutions for continuous posture and health monitoring, allowing for personalized medicine and improved quality of life for individuals suffering from MSDs. With this in mind various studies have implemented smart sensing equipped with sensors with the goal of accurately classifying one’s postures based on different sitting positions. Furthermore, this literature review aims to evaluate related studies and identify research gaps that can pave the way for further investigation. By exploring existing studies, it is possible to gain a better understanding of the current state on the implementation of a smart sensing chair for posture classification.

## Literature Review

Similar studies:

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| Author | Title | Methods | Sensors | Gaps |