

Emotions and Activity Recognition. A computer vision approach for augmentation of psychosocial risk evaluation.*

Computer vision assistance in psychosocial risk factor evaluation via emotions and activities monitoring.

Abstract

Psychosocial risk evaluation has played a dominant role in ensuring the wellbeing and health of people. Nevertheless, mechanisms such as interviews and questionnaires are susceptible to inaccurate or skewed results due to the lack of data that cannot be acquired during assessments. This work proposes an initial approach to identify activities and emotions that are implicitly queried by current evaluations and have the potential of being detected by cameras. By extracting features from video frames using computer vision, machine learning oriented classifiers becomes feasible to conduct continuous and non-intrusive monitoring. Activities and emotions registering could provide additional data to support better-informed psychosocial risk evaluations.

1 Introduction

- In this paragraph there will be a description of psychosocial risk factors by citing some definitions.
- After this there will be a brief description about Psychosocial Risk Factor (PRIF) evaluations and its intentions.
- The paragraph will describe the main purpose of the project and how it is IA a crucial component to get augmented assessments or evaluations.
- This is going to establish the link between IA and Psychosocial risk factors.
- This paragraph is intended to describe the way this document is going to conduct the topic by listing main sections and its contents.

[1]

[2] [3]

2 Problem statement

- This paragraph is going to describe different types of psychosocial risk. Then it is mentioned that the aim of the present work is to focus in psychosocial risk factors.

2.1 Psychosocial risk factors evaluation methods (PRIF-EM)

- The first paragraph will list PRIFEM types and scopes.
- The second paragraph will describe main aspects covered by PRIFEM, such as relationships and demographic variables.
- The third paragraph will describe articles mentioning the usage of evaluation methods in work and academic environments.
- Good things about this
- The fourth paragraph will mention some caveats and limitations of PRIFEM.

*Grants or other notes about the article that should go on the front page should be placed here. General acknowledgments should be placed at the end of the article.

2.2 Technologic approaches supporting PRIF assessments

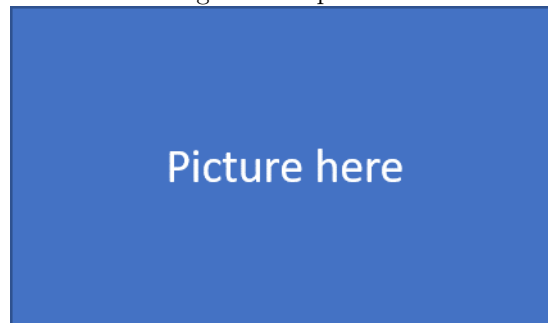
- The first paragraph will list technologic approaches for muscle eskeletal disorders.
- The second paragraph will list technologic approaches for stress and anxiety detection.
- Good things about this
- The fourh paragrah will mention some limitations and barries of thechnology adoption for PRIFEM.

Parrafo o sección orientada de parrafo de cierre mencionando la problematica

3 Related work

- This paragraph will explain the motivations of this project by showing the low quantity of works involving artificial intelligence in psychosocial risk factors, mentioning that there are articles orbitating the problem but just adressing specific matters whitout any intention to be a part of an integral solution for psychosocial risk

Figure 1: A picture



- This paragraph will expose the research question highlighting the fact that there are implicit activities in PRIFEM that could be reconized to achieve that goal.

3.1 Statitical analysis

3.2 Gap Analisis de pocos papers que se encuentran relacionados con la conjuncion de temas

4 Implicit Activities and emotions in PRIFEM

- This subsection introduces the work of extracting activities and emotions from the PRIFEM

4.1 Methodology of extraction

- The first paragraph will descibe the references sources used to get PRIFEM related work
- The second paragraph will describe the authors working in methods oriented to assess Psychosocial risk in academic environments
- The Third paragraph will describe the authors working in methods oriented to assess Psychosocial risk in work environments
- The Fourth paragraph introduces a table of identified PRIFEM (It shows a table)
- The Fifth paragraph list dimensions and scope identificacion of the items in main PRIFEM
- The sixth paragraph will introduce a table with the quantity of items which mentions any kind of activity,
- The Sevent paragraph will introduce a table with the quantity of items that can be linked to emotions.

4.2 Activities and emotions inventory

- This sections will introduce a table were is an inventory of activities and emotions that can be tracked by camera

5 Artificial intelligence in activites and emotion recognition

5.1 Activities Recognition

- This paragraph will mention articles related to detection of Functional Activities.
- This paragraph will mention articles related to Gait Analysis.
- This paragraph will mention articles for Drowsiness-related actions detection.

5.2 Emotion Recognition

- This paragraph will mention articles related to Emotions recognition via facial cues.
- This paragraph will mention articles related to Emotions recognition via body movements
- This paragraph will mention articles related to Emotions recognition via multi-modal approaches

This paragraph will introduce a table listig authors contributions and summary (It shows a table) Este es el cierre de la sección

6 Feature extraction via computer vision

- This introductory paragraph describes the experimentation that is goin to be carried out to determine if current motion caputre libraries are capable to extract quality data to build descriptors for activity and emotions clasifiers

6.1 Motion capture libraries

- Preselección de librerias
- This paragraph mention selected libraries and its main features
- The second paragrahp introduces a table which list the quantity of points detectect for each library
- The second paragrahp list additional features of interest of the selected libraries

6.2 Expermentation and benchmarking

- This paragraph introduces the experimentation goal and experiment methodology.
- This paragraph introduces the assesments criteria
- This paragraph lists features of the selected video frames

Parrafo para mencionar las actividades que se van a incluir en el experimento Activities * Eating and smoking habits * Aggresive conduct * Recurrent extensions of work shift or activities

Parrafo para mencionar las emociones que se van a incluir en el experimento * Stress-related emotions * Anxiety-related emotions * Depresion-related emotions

7 Results

- This paragraph summarizes the obtained results by showing charts

7.1 Activities results analysis

- Eating and smoking habits
- Aggresive conduct

- Recurrent extensions of work shift or activities

Parrafo de conclusiones de resultados

7.2 Emotions results analysis

- Stress-related emotions
- Anxiety-related emotions
- Depression-related emotions

Parrafo de conclusiones de resultados

8 Conclusions

- This paragraph will mention opportunities of the IA in the augmentation of PRIFEM
- Paragraph of the contribution summary of this article
- This paragrapsh will mention Implementation challenges
- this paragraph will mention Ethical Implications
- trabajo actual + trabajo futuro

References

- [1] Organización Mundial de la Salud, “Factores de riesgo,” 2020. [Online]. Available: https://www.who.int/topics/risk_factors/es/. [Accessed: 08-Mar-2020].
- [2] H. E. Landberg, H. Westberg, and H. Tinnerberg, “Evaluation of risk assessment approaches of occupational chemical exposures based on models in comparison with measurements,” *Safety Science*, vol. 109, pp. 412–420, 2018.
- [3] Corrao, et al, “Biological risk and occupational health,” *Industrial Health*, vol. 50, no. 4, pp. 326–337, 2012.