

2019 IEEE International Conference on Industrial Informatics (INDIN'19)

Special Session/ Organized Session on Workers' safety, health and well-being in Industry 4.0

organized by

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Call for Papers

Every day, just under 900 people die in the workplace as a consequence of an occupational accident. Non-fatal accidents yearly involve 317 million workers. But there is one more silent killer today: work-related stress. Stress affects almost 30% of workers, and can cause serious consequences, such as depression, panic, anxiety, and can increase up to 23% the risk of heart attack. The total number of working days lost due to work-related stress in 2017/18 was 15.4 million days.

Sensor networks and wearable devices, together with artificial intelligence (AI) technologies, are pervasive in Industry 4.0 to control and optimize many industrial processes. But in the next-generation industry, these technologies should also play a key role to monitor:

- i) the workers' *behavior*;
- ii) the workers' *psychological state*, and their *stress level*.

Continuously monitoring the workers' behavior can prevent the injuries and, what is more important, can save the workers' lives. The data collected by wearable sensors (e.g., accelerometers, gyroscopes) can be processed by AI techniques and systems to detect whether a worker performs a task safely or unsafely. Risk managers can thus identify the workers at risk—who need immediate safety training—and teachers can adapt the safety training to each worker's needs, and then measure the learning effectiveness in terms of the resulting increase in risk awareness.

On the other hand, wearable sensors can also measure various physiological signals (galvanic skin response, heart rate and so on) that AI-based systems can use to constantly monitor the workers' psychological state and stress level. This is crucial to detect the workers that are stressed or that probably will, thereby preventing stress-related ill states.

Topics under this track include (but not limited to):

- wearable sensors and smart technologies for work-related stress detection, prediction and prevention;
- wearable sensor data analytics for workers' risk and stress management;
- sensor network-based solutions to monitor the workers' stress and risk awareness;
- (multi-criteria) decision making and decision support systems for sensor-based risk management and stress management.

Submissions Procedure and Deadlines: All the instructions for paper submission are included in the con-ference website <https://www.indin2019.org/>