

Supervisor Expression of Interest

MSCA - Marie Sklodowska Curie Action - (PF)

Postdoctoral Fellowship 2025

Supervisor names:

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Department Name: Department of Management, Economics, and Industrial Engineering (DIG)

Research topic: Innovative measurement of quality of working life in Industry 5.0 settings

MSCA-PF Research Area Panels:

- ECO_Economic Sciences
- ENG_Information Science and Engineering
- ENV_Environmental and Geosciences
- LIF_Life Sciences
- MAT_Mathematics
- PHY_Physics
- SOC_Social Sciences and Humanities**
- CHE_Chemistry

Brief description of the Department and Research Group (including URL if applicable):

The Department of Management, Economics, and Industrial Engineering (DIG) of Politecnico di Milano was established in 1990. Its mission is to contribute to the common good and individual well-being through a critical understanding of the opportunities and challenges posed by technology to business and society. The Department pursues its mission with an international reach by creating and sharing knowledge through high-quality education, the quest for scientific excellence, and active community engagement.

We aim at:

- Educating responsible individuals who will shape the future of relevant corporations and institutions to serve society.
- Promoting original, rigorous, and relevant research at the intersection of engineering, management, and economics, focusing on a deep understanding of technology and its ecosystem.
- Contributing to a sustainable and inclusive society by inspiring virtuous business practices and transformational policy measures.

With approximately 160 professors, DIG is one of the largest departments of Politecnico di Milano.

More information can be found at: <https://www.dig.polimi.it/it>

DIG HumanTech project has been selected and funded by the Ministry of University and Research (MUR) for the period 2023-2027 within “Dipartimenti di Eccellenza” (Law 232/2016), the ministerial initiative aimed at rewarding the departments that stand out for the quality of their research and at financing specific development projects. In particular, the objective of HumanTech is to redefine the relationship between technology and human beings to enable a sustainable digital transition of industrial systems. The project aims to propose new models and processes for the development and adoption of technologies, capable of accelerating the transition towards sustainable, inclusive industrial systems that make individual and collective well-being a priority.

Within the Department, Professor Canterino and Professor Van Dun are part of the MOSaIC research group, specialized in people and organization management, innovation and supply chain management.

TITLE of the project

Towards Innovative Measurement of Quality of Working Life in Industry 5.0

Brief project description:

As organizations adopt smart technologies to innovate work processes and meet sustainability goals, they enter a phase of profound transformation. Industry 5.0, promoted by the European Commission, seeks to humanize this transformation by placing people—rather than machines—at the center of technological progress. Yet, while Industry 5.0 calls for greater well-being, inclusivity, and purpose at work, our current understanding and measurement of employees’ experiences remains largely subjective, reliant on traditional self-report surveys that are often biased or imprecise.

Quality of Working Life (QoWL) refers to the overall experience of employees in the workplace, encompassing their psychological, physical, and social well-being, as well as the meaningfulness, engagement, and satisfaction they derive from their job. It includes both subjective perceptions (e.g., how safe, valued, or motivated an individual feels) and objective conditions (e.g., workload, autonomy, work environment), and is closely linked to outcomes such as employee thriving, agility, retention, performance, and organizational sustainability. In the context of Industry 5.0, QoWL takes on new dimensions, as employees increasingly interact with intelligent systems, automation, and digital tools—raising critical questions about technostress, digital overload, skill obsolescence, and human-machine collaboration. Thus, developing objective, multimodal, and dynamic measures of employees' experiences becomes critical not only for monitoring well-being, but also for designing interventions that promote adaptive, inclusive, and human-centered workplaces.

This multidisciplinary research therefore explores novel ways of objective and real-time assessment of QoWL—including indicators such as well-being, engagement, job satisfaction, psychological safety, stress, and thriving—by leveraging neuroscience tools such as EEG, eye-tracking, and physiological monitoring. These methods will be applied in real and simulated work settings through collaboration with the Behavioral Research in Immersive Environments Lab (BRIEL) and the COgnitive and REflexive lab (CORE) at DIG Politecnico di Milano.

The research will begin with a systematic literature review to integrate insights from Organizational Behavior, Human-Computer Interaction, Neuroscience, and Change Management. Empirical work will combine qualitative and quantitative methods, including experimental designs, observational studies, and sensor-based assessments in collaboration with Industry 5.0-driven companies. Using immersive environments and advanced analytics, the project aims to provide evidence-based, actionable insights to guide the development of work systems that foster employee well-being and performance in tandem.

Example research questions are:

- How can neuroscience-based tools (e.g., EEG, eye-tracking, and physiological sensors) be used to develop real-time, objective indicators of employees' well-being and stress during interactions with advanced technologies such as AI-enabled systems or collaborative robots?
- To what extent do immersive, digital work environments (e.g., remote collaboration platforms, AR/VR tools) affect employees' sense of psychological safety and engagement, and how can these effects be reliably measured beyond self-reports?
- What are the neural and behavioral signatures of employee thriving in high-tech, data-rich environments, and how can organizations use these insights to design more adaptive, human-centered work systems?
- How can teams and their leaders co-create the change process to objectively improve QoWL contributing to their organization's Industry 5.0 transformation journey?

By contributing new methods and metrics for QoWL, this research aligns with the mission of the HumanTech project at DIG Polimi, supporting a more sustainable, inclusive, and human-centric digital transformation.