

## Supervisor's contact details

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## Title of the project

Climate Smart Health Technologies: Towards context aware inflammation detection using wearables

## MSCA-PF Research Panel

- Chemistry (CHE)
- Social Sciences and Humanities (SOC)
- Economic Sciences (ECO)
- Information Science and Engineering (ENG)
- Environment and Geosciences (ENV)
- Life Sciences (LIF)
- Mathematics (MAT)
- Physics (PHY)

## Description of the project

Climate change is projected to significantly impact human health, as it creates suitable conditions for the transmission of infectious diseases. Rising temperatures and increasing precipitation promote the spread and adverse impact of diseases such as malaria, dengue, cholera, vibriosis, and rotavirus. The COVID-19 pandemic has highlighted the role of changing climate and infectious diseases on global health burdens and distribution. Although much research has focused on the effects of climate on health and curbing greenhouse emissions, only a little has been dedicated to mitigating and adapting to the consequences of the changing climate.

At the same time, emerging technologies such as wearables, smartwatches, and fitness trackers provide a viable path to mitigation and prevention. These devices can unobtrusively monitor vital signs such as heart rate, variability, respiration, spo2, temperature, and other physiological parameters, enabling the analysis of activity, calories, sleep, and circadian rhythm with increasing capabilities for continuous monitoring. While these monitors are currently being used for fitness and arrhythmia detection, their full potential is yet to be unlocked.



In this project we develop a sensory system, collect longitudinal wearable activity and vital sign data and use advanced trajectory and event algorithms with deep learning to investigate patterns caused by inflammation.

### **Research objectives or research questions of the project**

Objective: Detect infectious disease using standard wearables for combating adverse effect of climate change and accelerating personalized health digitalization.