HORIZON 2020   HNN 2.0
HEALTH-NCP-NET

HEALTH, DEMOGRAPHIC CHANGE AND WELLBEING

4 July 2019, Brussels

HEALTH PARTNERING DAY 2019

#H2020PartnerHealth

Pulse Wave Analysis for Wellness and Health

John Dennis

Masih Nilchian

mypulses

Mypulses SA

Switzerland

<u>www.mypulses.com</u>

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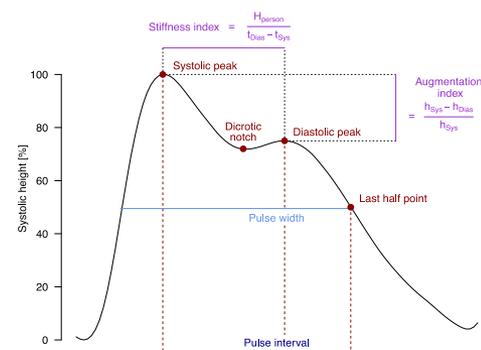
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Mypulses a Swiss start-up founded in 2015, will contribute the tools, algorithms and full platform for pulse wave analysis :

Data Collection → Data Management → Data Analysis

Mobile phone camera

Wristband

Database

Server and Cloud

Pulse Analysis Platform

Machine learning

Deep pattern recognition

Mathematical modelling

	Accuracy Level	Status
Mental Stress	93%	Completed, more subjects to finalize the model
Physical Stress	100%	Completed, UNIL study to help finalize in Sep. 2019
Discrimination of Physical/ Mental Stress	95%	Completed, UNIL study to help finalize in Sep. 2019
Sleep Staging	85-90%	Ongoing
Physical Fatigue	100%	Completed
Mental Fatigue	95%	Completed
Ventilatory thresholds	90%	Ongoing
Blood Glucose Level	85%	Feasibility completed, more clinical required

Stiffness index $= \dfrac{H_{person}}{t_{Dias} - t_{Sys}}$

Systolic peak

Dicrotic notch

Diastolic peak

Augmentation index $= \dfrac{h_{Sys} - h_{Dias}}{h_{Sys}}$

Last half point

Pulse width

Systolic height [%]

Pulse interval

Research grants obtained at the local and Federal level in Switzerland but no experience with EU-funded projects

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Non-invasive glucose monitoring based on pulse wave analysis collected by smart phones/wearable devices

SCI-BHC-06-2020: Digital diagnostics- developing tools for clinical decisions integrating in vitro and in vivo diagnostics

Or SC1-DTH-02-2020: Personalized early risk predicton, prevention, and intervention based on Artificial intelligence and Big Data Technologies

Mypulses will develop tools, platforms and hardware that identifies the pulse wave features to improve diagnosis and clinical decisions related to changes in blood glucose levels. This includes:

1. A mobile app connected to a cloud-based platform

2. Clinical data management on the server

3. A proprietary pulse wave analysis platform to implement machine-learning based modelling

Seek:

1. Partner to coordinate project

2. Partners with experience in diabetes field

3. Partners to help validate the project scientifically and clinically towards concrete patient and public sector needs

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Discriminating and quantifying different types of fatigue based on pulse wave analysis

SCI-DTH-13-2020: Implementation research for scaling up and transfer of innovative solutions involving digital tools for people-centered care

Or SC1-DTH-02-2020: Personalized early risk predicton, prevention, and intervention based on Artificial intelligence and Big Data Technologies

Fatigue is an important indicator of therapy effectiveness and compliance especially as it relates to personalized medicine.

Mypulses will develop tools, platforms and hardware that identifies the pulse wave features to determine levels of fatigue to help improve the diagnosis and clinical decisions related to people-centered care including:

1. A mobile app connected to the cloud
2. Clinical data management on the server
3. A proprietary pulse wave analysis platform to implement machine-learning modelling
4. For longer term collection, mypulses will provide its own developed wearable

   Seek:
    1. Partner to coordinate project
    2. Partners with access to healthcare providers in multiple fields
    3. Partners to help validate the project scientifically and clinically towards concrete patient and public sector needs

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Indications of stress and anxiety using pulse wave analysis

SCI-DTH-13-2020: Implementation research for scaling up and transfer of innovative solutions involving digital tools for people-centered care

Or SC1-DTH-02-2020: Personalized early risk predicton, prevention, and intervention based on Artificial intelligence and Big Data Technologies

Stress, health and wellbeing are interrelated.
Mypulses will develop tools, platforms and hardware that identifies the pulse wave features to improve diagnosis and clinical decisions related to stress and anxiety including:
1. A mobile app connected to a cloud-based platform
2. Clinical data management on the server
3. A proprietary pulse wave analysis platform to implement machine-learning based modelling

Seek:
 1. Partner to coordinate project
 2. Partners with access to healthcare providers related to stress and anxiety
 3. Partners to help validate the project scientifically and clinically towards concrete patient and public sector needs

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Masih Nilchian

M- +41 78 778 4627
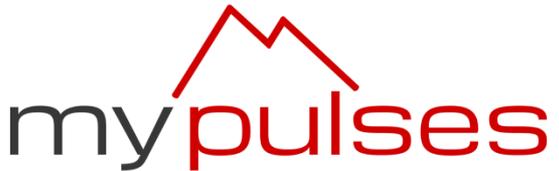
Masih.Nilchian@mypulses.com

John Dennis

M- +41 79 955 3821

John.Dennis@mypulses.com

Mypulses SA (www.mypulses.com)

Route de la Corniche 3A

1066 Epalinges, Switzerland

mypulses