

### Empowerment for Health & Wellbeing



2023 INFO MEETING

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## agenda

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- Introduction Victor
- Introduction YOU
- What is this track about?
- Potential projects
- Track setup
- Apply info

### **VICTOR DONKER**

- BSc, Msc, PDEng
- 33 year
- Married, 1 daughter
- Sport
- Music
- Innovation
- Health & Wellbeing
- Co-founder and CEO of Usono (2 days)
- Innovation Manager at PSV (1 day)
- Lecturer ID TU/e (2 days)





A Harrie der Kinderen en Mandy Lampe aan het werk met de nieuwe sliktherapie. Foto Kees Martens/fotomeulenhof

#### Nieuwe sliktherapie bij Vitalis Eindhoven helpt patiënten na beroerte weer normaal te eten

EINDHOVEN - Een nieuwe sliktherapie helpt patiënten van Vitalis Zorggroep na een beroerte om sneller weer gewoon te eten. Harrie der Kinderen (82) wilde het apparaat wel demonstreren.















Philips, start-up company Usono, and Eindhoven University of Technology use Lumify mobile ultrasound to investigate muscle response to prolonged physical exercise

Weighing no more than the average smartphone, Philips' Lumify mobile ultrasound is turning out to be a perfectly wearable device, and a powerful tool in sports science, helping researchers to investigate the effects of prolonged and intense physical exercise on the human body. In collaboration with Eindhoven-based start-up Usono, which designs and develops ergonomic solutions for attaching ultrasound probes, and the Eindhoven University of



Estimated reading time: 2-4 minutes

#### Share on social media





Tamia







Eindhoven ED2020-6801 "Victor Donker", marketingmanager van de campus, die mee een platform heeft ontwikkeld om medewerkers van brainportbedrijven vitaal te houden @ Kees Martens/DCI Media

#### Werk je fit met PSV: bedrijven dagen 55.000 werknemers uit

EINDHOVEN - 'Hoe blijf je fit in deze coronatijd?' Door doelen stellen zegt Boudewijn Zenden, of te ontspannen aldus Björn van der Doelen en 'nee' te leren zeggen vindt Toon Gerbrands. Vandaag lanceren Brainport Eindhoven en PSV een vitaliteitsplatform. Specialisten en (oud)PSV'ers vertellen er online over hun ervaringen. 55.000 werknemers moeten aan de bak.





## YOU

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- Name
- Study
- Why

# What is health and wellbeing?



WHO: Health is a state of complete physical, mental and social well-being and not merely the absence of disease



So, if you eat healthy, practice sports and don't smoke, drink alcohol?  What do you need design for,
 when you can just raise the taxes on sugar, alcohol and smoking?

### design for the user

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the user before designing



Design is not here to punish you. It should empower you.

How can technology assist people in managing their health and wellbeing?

How do we research behavior, routines and experiences to create effective, personalized and appropriate systems?

Health is complex, multi-faceted and situated in a socio-cultural context.

### Situation

- 1. People lack knowledge about how to live a healthy life.
- 2. People need educating about health.
- 3. People will act in their own best interests once educated.



The vitality model, Robert Jan Wissink & Nina de Rooij

https://brainporteindhoven.com/psv/en/vital

## Knowledge sharing and education

## Challenges

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- Adherence
- Retention
- Satisfaction
- Clinical relevance
- Business case

### Designing for healthy lifestyles

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A Healthy lifestyle is not a *state* of health or lack thereof. It is a *dynamic* reflection of well-being.

It, in a way, arises in the *interaction* between you and your environment.

What would a participatory, dynamic and adaptive design process towards healthy lifestyles look like?

## The most profound technologies are those that disappear.

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## They weave themselves in the fabric of everyday life until they are indistinguishable from it.

- Mark Weiser

## PROJECTS

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- Artificial heart
- Food choices
- Wearable ultrasound
- Interactive robots for rehabilitation
- Solutions for high-precision surgical robotics

### **Artificial Heart**

Prototype evaluation from a practical patient perspective

A-life student team (approximately 10 students) works on different projects regarding current and future Hybrid Heart prototypes.

- 1. Dimensions of the Hybrid Heart prototype.
- 2. Technical evaluation and characterization
- 3. User-device interaction
- 4. Societal awareness
- 5. Research and development (3D printing)
- 6. Experimental protocols
- 7. Patient studies (e.g. with Hartstichting)
- 8. Documentation





### **Food choices**

What determines our food choices and eating habits?

Project goals & deliverables

- 1. Literature research/aggregation for preliminary identification of some potentially significant factors
- 2. In depth user-research, stakeholder management and benchmarking to understanding the significant factors underlying food habits and food choices
- 3. Experiments to verify the potential factors and their intensity
- Extensive statistical analysis for significance and degree of importance of the identified factors
- Development of a model that could predict one's food 5. choices and possibly attempt to change them by providing an intervention in advance have a great potential and multiple possible applications
- Potential client: Jumbo Foodcoach

Rucolasalade met stoofpeen

zarella en parmaham

### Wearable ultrasound

Make muscles and tendons visible in any active situation to better understand and even prevent injuries

- 1. Research clinical applications in injuries
- 2. Research sports medicine markets
- 3. Develop hardware and software concepts to make ultrasound wearable considering available and future technologies (level of development to be determined)
- 4. Develop business case for elite and recreational sports
- 5. Stakeholder management with client and other involved companies

#### Client: Usono



### **Artificial Womb**

Perinatal Life Support – Development of an artificial preterm fetal blood circulation

Engineer the physical components of a neonatal blood circulation simulator.

- 1. Research existing systems and use literature to understand the project background.
- 2. Use Rapid Prototyping to develop ideas on both hardware and software development.
- 3. Setup experiments and evaluation methods.





### **Autonomous Walking**

Develop a concept for a holistic and wearable, nonstigmatizing solution which helps visually impaired people travel independently in unfamiliar environments

- 1. Research existing systems and use literature to understand the project background.
- 2. Develop a detailed customer journey for people with a visual impairment. Identify the painpoints.
- 3. Evaluate current technologies and work with stakeholders to develop integrated concepts.
- 4. Develop a Minimal Viable Product

This project is a collaboration with: Envision, Bartomeus, Ayes.ai, TU/e, 5G Hub Eindhoven



### **#040Beweegt**

Transform Eindhoven into a testbed for technologies that stimulate physical activity.

- 1. Research existing sports and physical activity promoting systems and initiatives.
- 2. Develop insights through sensor technologies and qualitative research approaches
- Design new probes that stimulate activity and sports

This project is a collaboration with: Gemeente Eindhoven, Fontys Sporthogeschool, Innosportlab, TU/e



### **WorkPlace Vitality**

Stimulate workers to stay active during a workday

- 1. Research behavior of employees in and around office buildings
- 2. Develop workplace interventions aim to help workers to implement healthy habits and opportunities in their work.
- 3. develop new ideas, research new applications, visualize results or work on developing existing concepts further

This project is a collaboration with: High Tech Campus, Workplace Vitality Hub, Fontys Sporthogeschool, TU/e



## Interactive robots for rehabilitation

Co-created social and autonomous care robots to provide support in long-term care

**Goal:** proposal for improved UX of the Sara Robot based on extensive research

#### Activities

- 1. Research wishes and needs for elderly
- 2. Benchmark of other applications and robots on the market
- 3. Develop software and UX concepts to create better interaction for elderly

#### Client: Sara Robotics



## Solutions for high-precision surgical robots

Better user experience and stabilization solutions for spine surgery with innovative robot

Eindhoven Medical Robotics develops several innovative robots for surgical purposes.

Challenges:

- 1. Better UX for surgeons:
- 2. Better stabilization of tools and robots for high-precision surgery



### Your own project

Do you have a project idea you want to share?



# Practical info

 PDP Coaching Project Coaching Planning Deadlines Deliverables Expectations

## Project Coaching

Share your expectations, goals, wishes, favorite football club and workstyle.

You'll be collaborating for a year. Set it up right.

## Last things

- Social Activities Committee
- Facilities
- Budget & Expenses
- Take responsibilities you like
- Track act like a startup

## Apply

Motivation letter: 12 May

Interview:22-26 May

Info admissionJune 12

## Apply

2324 Application Track Empowement for Health and Wellbeing



### Thanks



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