



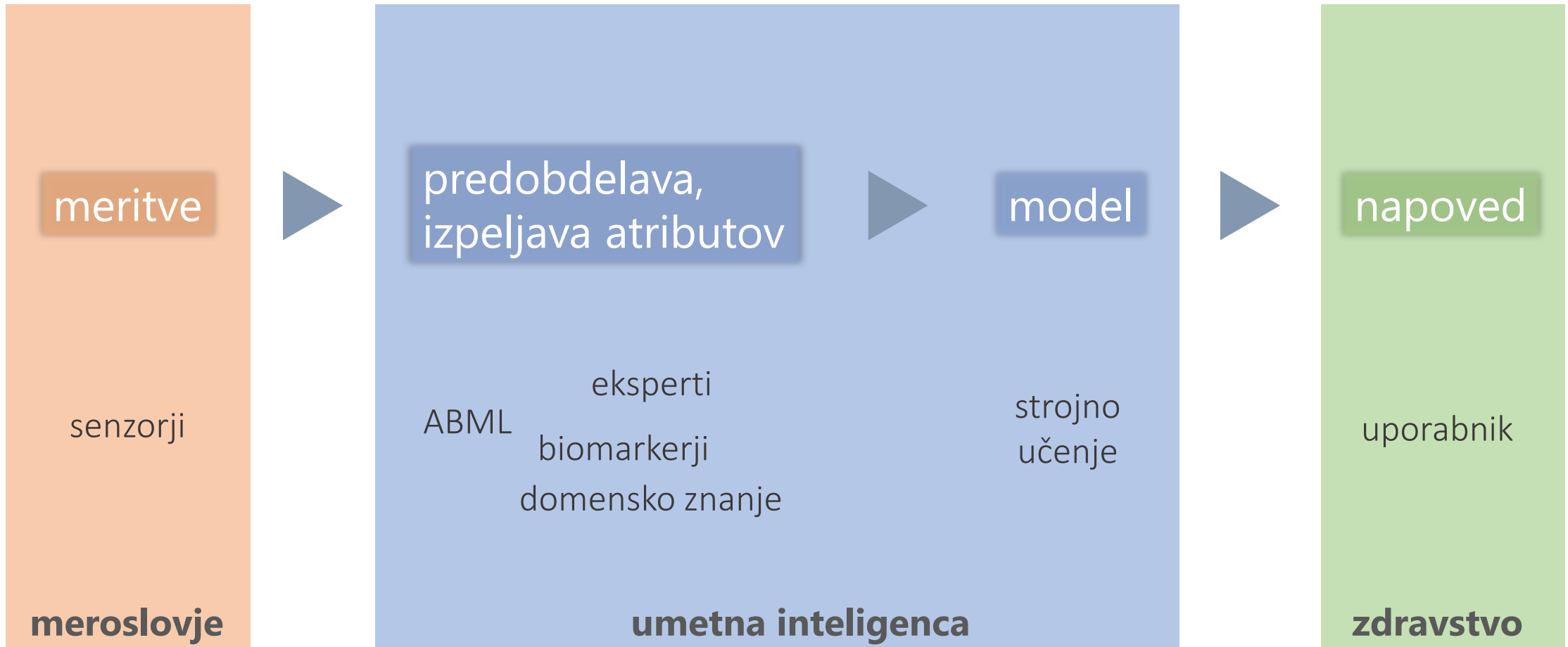
**A.I.LAB**  
*Ljubljana*

doc. dr. Aleksander Sadikov

Univerza v Ljubljani  
Fakulteta za računalništvo in informatiko

Meroslovje in umetna inteligenca  
z roko v roki v podporo zdravstvu

# Z roko v roki v podporo...





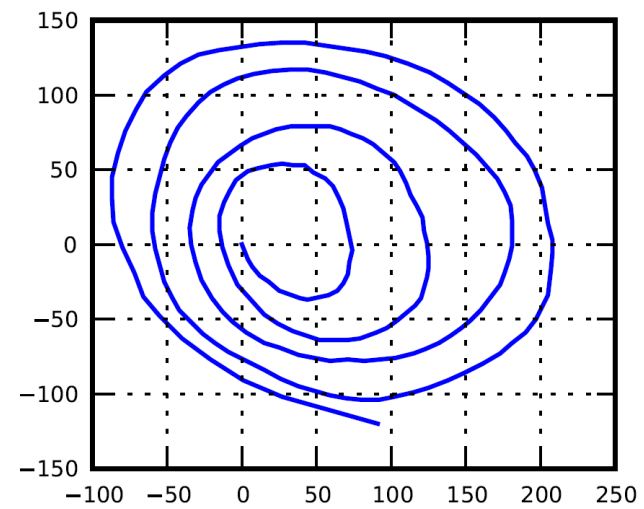
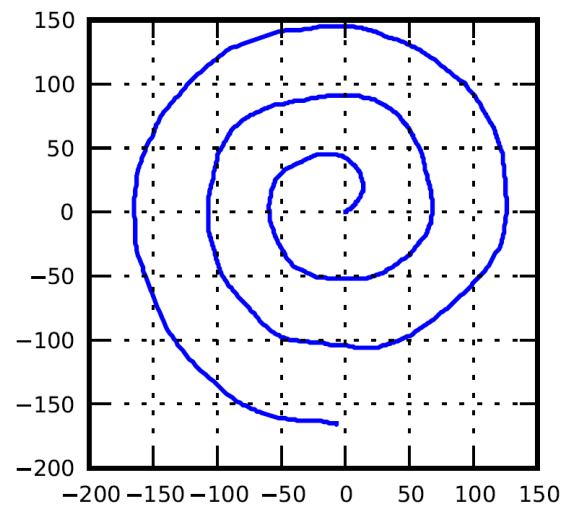
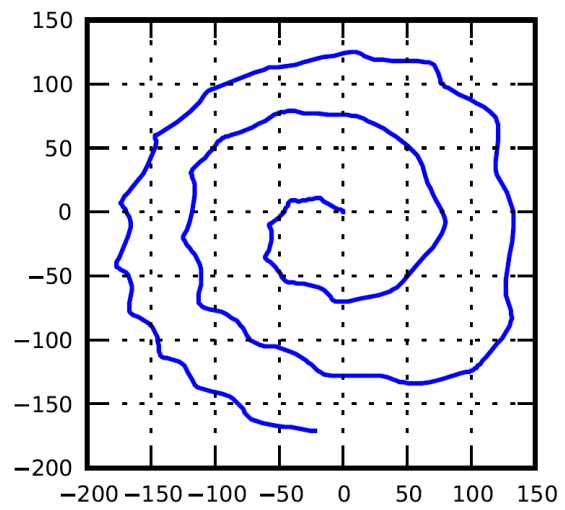
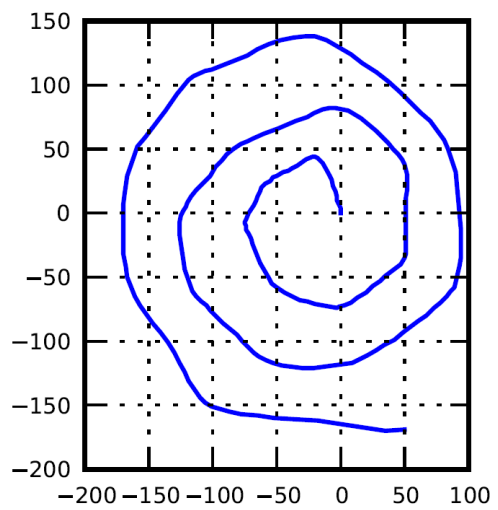
- App za zgodnje odkrivanje znakov parkinsonove bolezni oz. esencialnega tremorja
- Deluje na pametnih telefonih
- Prosto dostopen v Sloveniji
- Ima vgrajen ekspertni sistem, uporabnik se lahko testira v domačem okolju
- Vse poteka na telefonu, ni potrebe po komunikaciji s strežnikom
- Deluje na principu spirografije



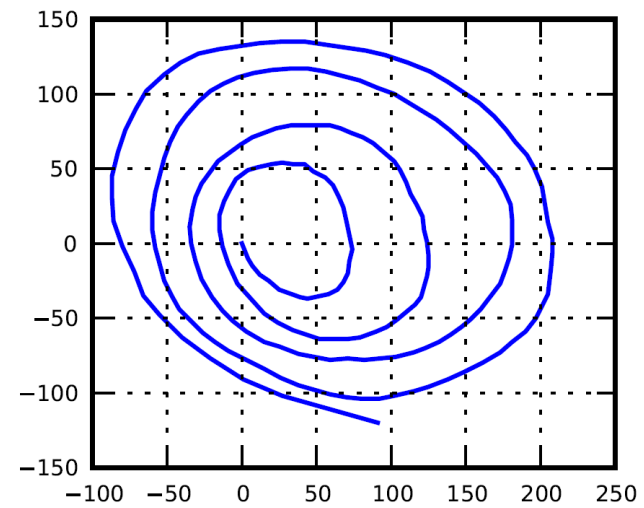
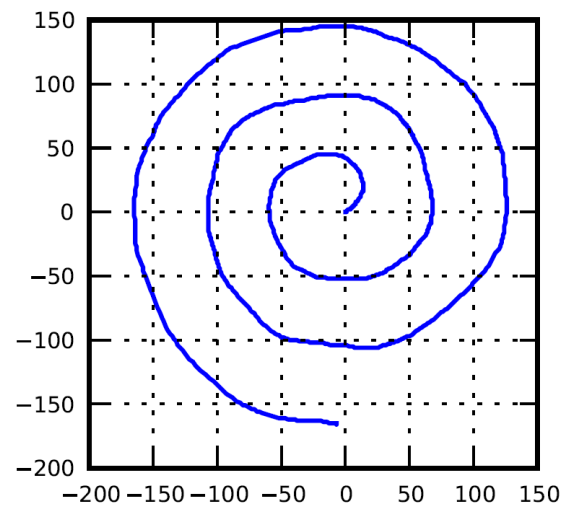
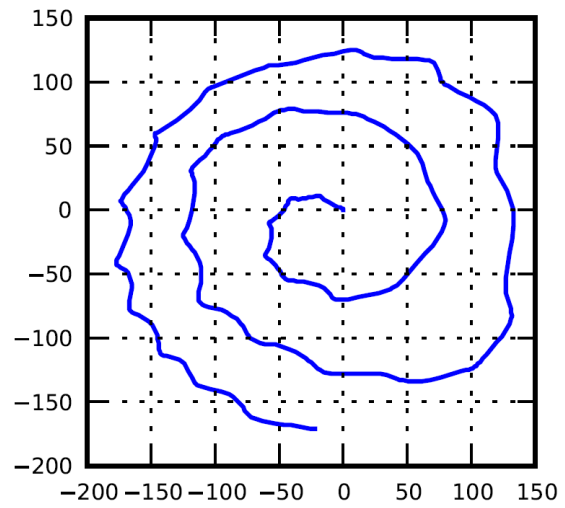
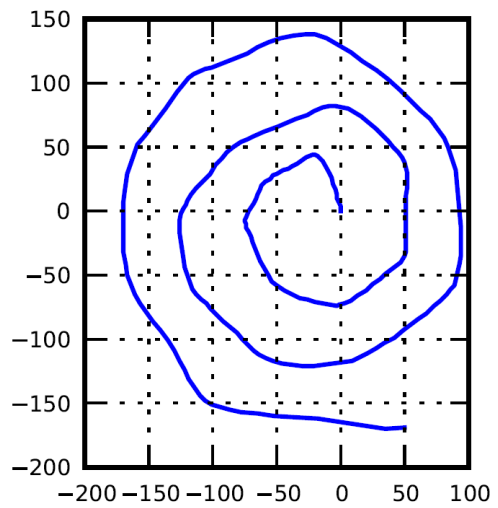


**ParkinsonCheck™**



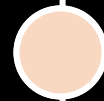
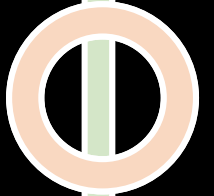


Katero je narisala zdrava oseba?



Kako pa računalnik to ve?

# Sledenje očesnim gibom







**neus**<sup>™</sup> | eye-tracking  
neurodiagnostics

Safe, accessible and reliable  
diagnostic method for  
neurodegenerative diseases using  
innovative technology.

By combining eye-tracking with built-in artificial intelligence models, we are developing a reliable, affordable, non-invasive and user-friendly diagnostic method.

This activity has received funding from the European Institute of Innovation and Technology (EIT). This body of the European Union receives support from the European Union's Horizon 2020 research and innovation programme.



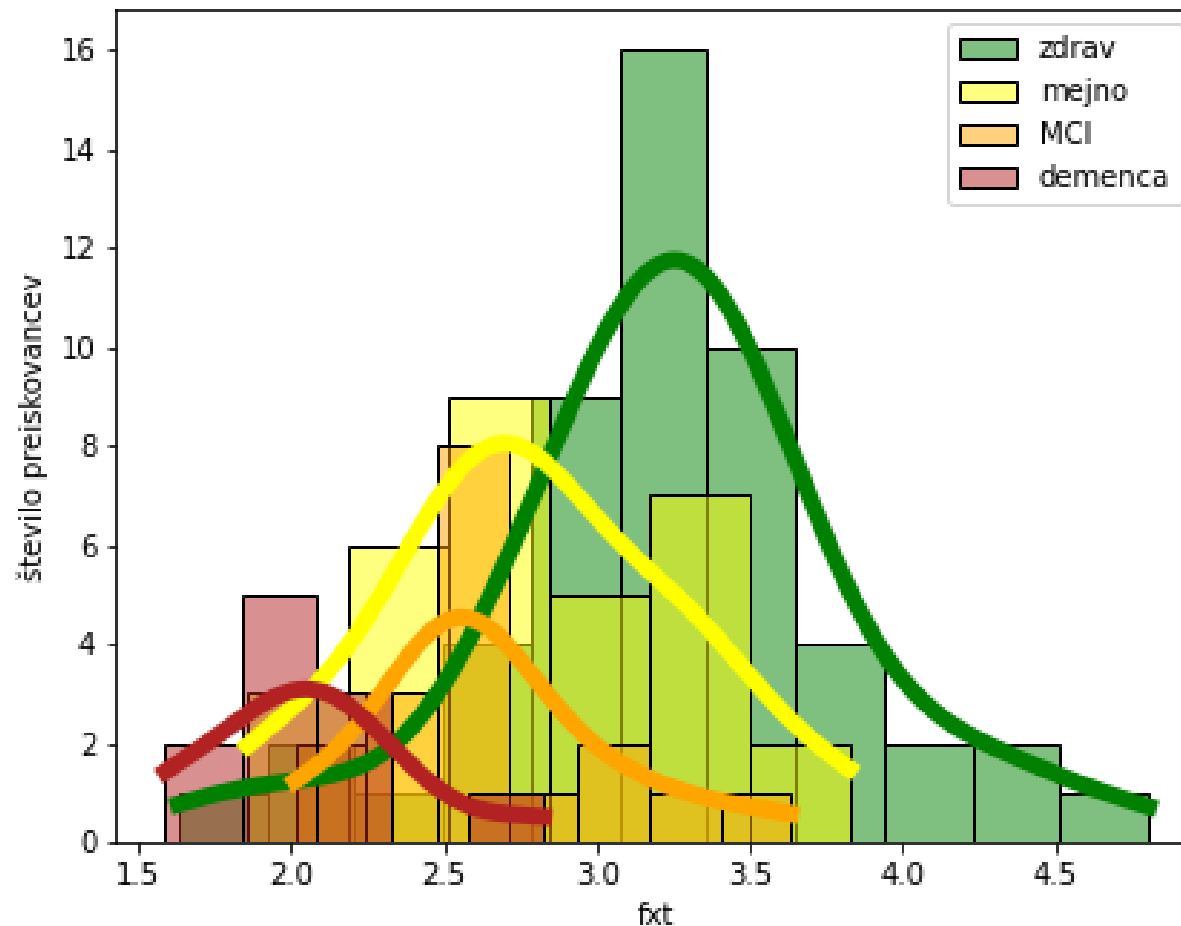
EIT Health is supported by the EIT,  
a body of the European Union





## EIT Health (2019) projekt v sodelovanju s podjetjem Neus Diagnostics, d.o.o.

- Zgodnje odkrivanje blagega kognitivnega upada (MCI), ki pogosto preide v demenco.
- Deluje na podlagi spremljanja pogleda med izvajanjem različnih digitaliziranih nevropsiholoških nalog.
- Primer naloge: branje.





PARENT

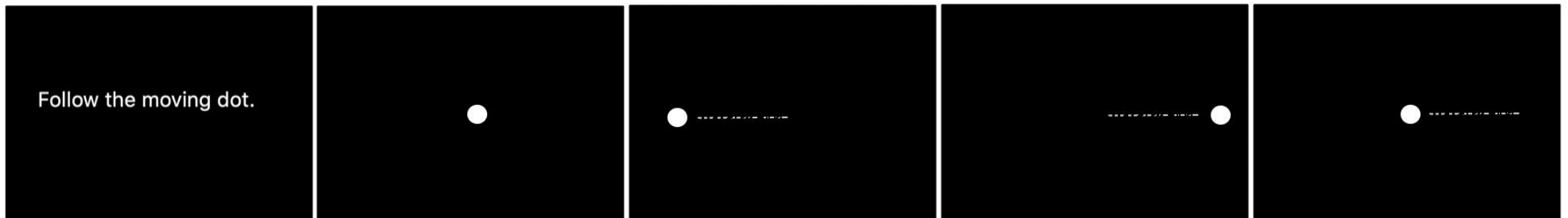
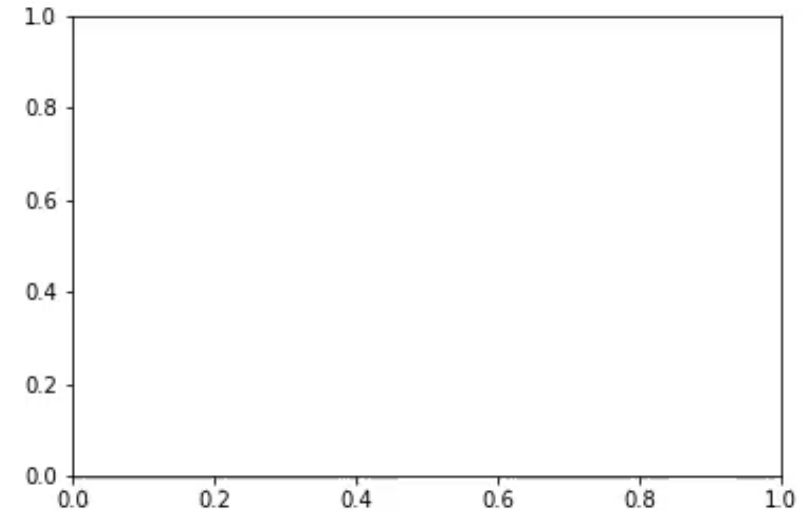


The PARENT project has received funding from the European Union's Horizon 2020 research and innovation programme under the Maria Skłodowska-Curie Innovative Training Network 2020, Grant Agreement N° 956394

# PARENT (2020 – 2024)

Premature newborn motor and cognitive impairments:  
Early diagnosis, H2020 MSCA-ITN

- Zgodnje odkrivanje kognitivnih in/ali motoričnih okvar pri nedonošenčkih.
- Različni pristopi: klinični pregled, krvni, slikovni, spremljanje pogleda, UZ, itd.
- Primer naloge: gladki očesni gibi.



# QUIERO



**EMPIR**



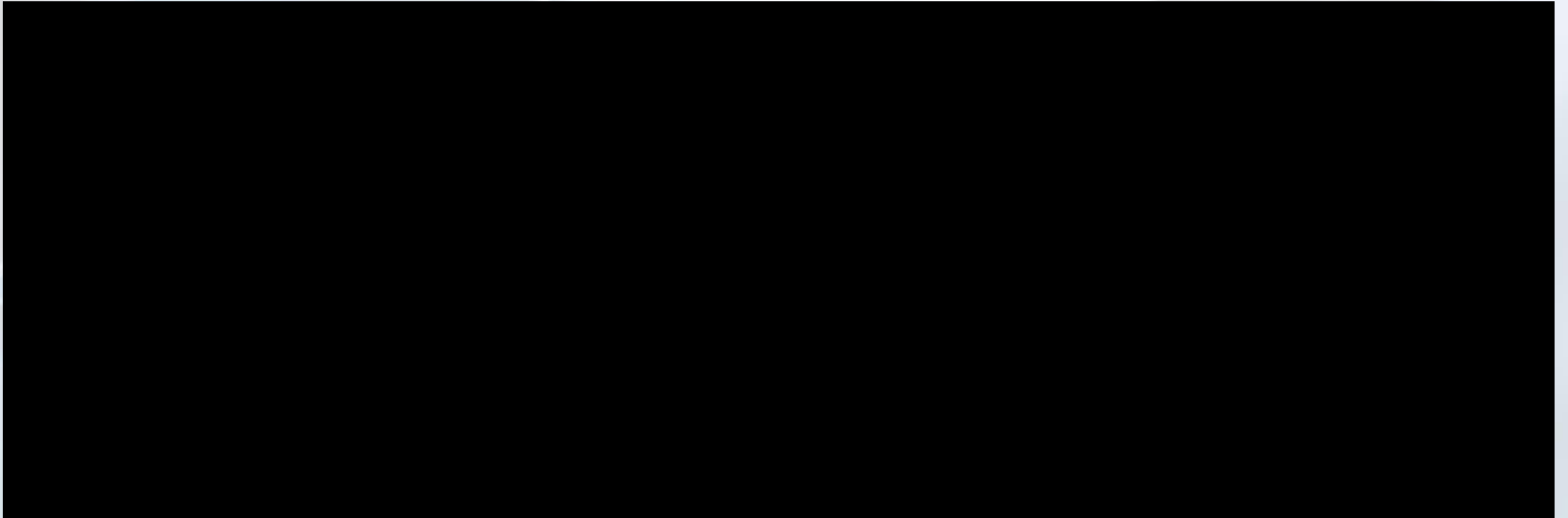
**EURAMET**

The EMPIR initiative is co-funded by the European Union's Horizon 2020 research and innovation programme and the EMPIR Participating States

This project has received funding from the EMPIR programme co-financed by the Participating States and from the European Union's Horizon 2020 research and innovation programme.

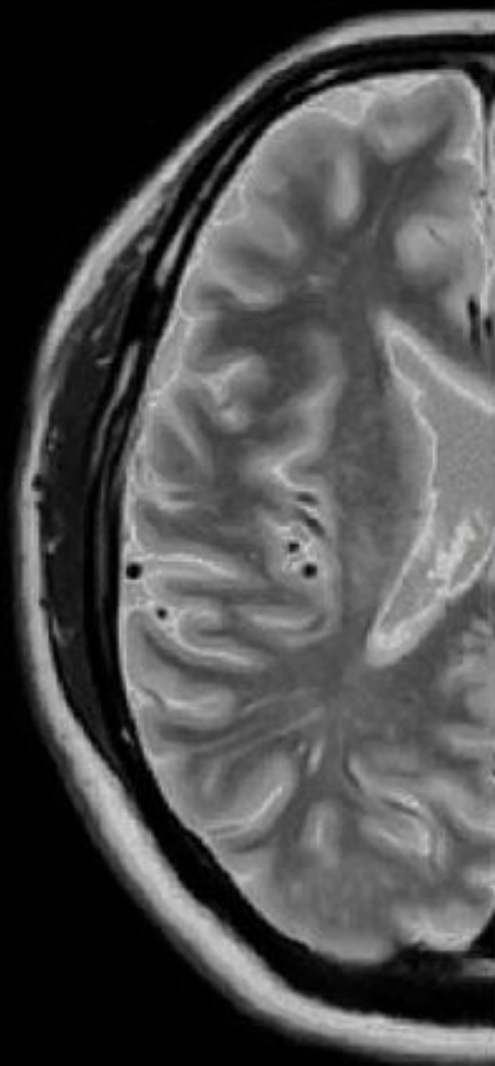
# **QUIERO 18HLT05 (2019 – 2022)**

Quantitative MR-based imaging of physical biomarkers

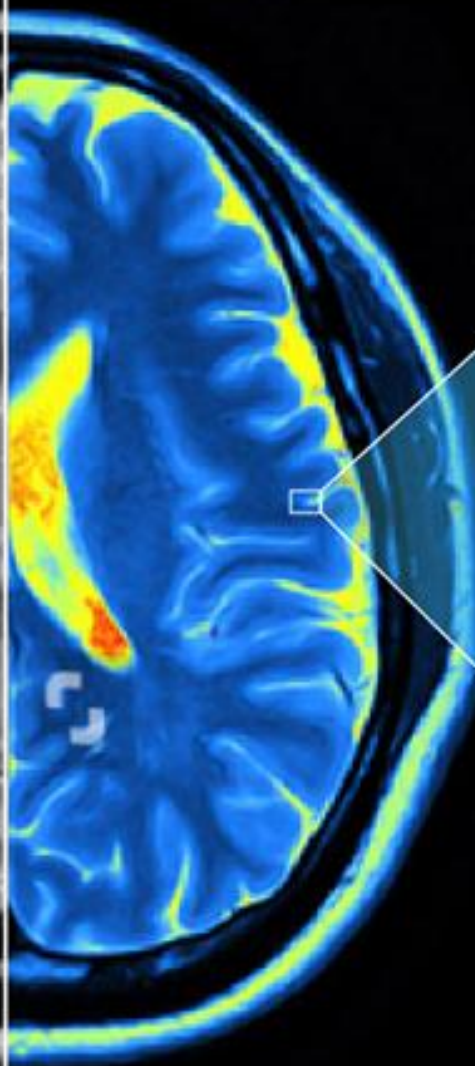




## Traditional Qualitative MRI



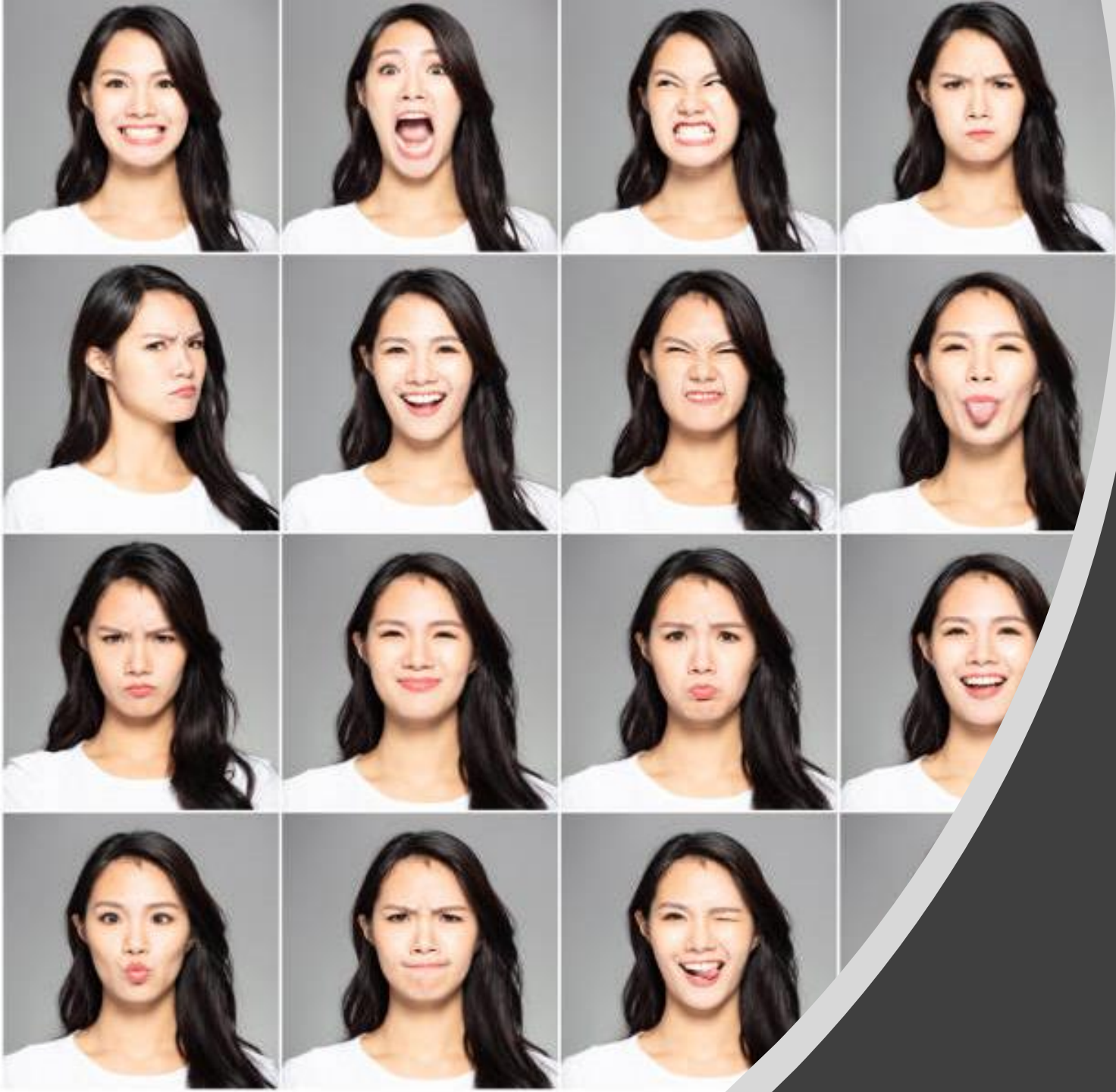
## Quantitative MRI



$(0.40 \pm 0.08)$ S/m	$(0.48 \pm 0.10)$ S/m	$(0.55 \pm 0.11)$ S/m	$(0.59 \pm 0.12)$ S/m	$(0.60 \pm 0.12)$ S/m	$(0.60 \pm 0.12)$ S/m	$(0.59 \pm 0.12)$ S/m
$(0.42 \pm 0.08)$ S/m	$(0.51 \pm 0.10)$ S/m	$(0.57 \pm 0.11)$ S/m	$(0.59 \pm 0.12)$ S/m	$(0.60 \pm 0.12)$ S/m	$(0.59 \pm 0.12)$ S/m	$(0.59 \pm 0.12)$ S/m
$(0.42 \pm 0.08)$ S/m	$(0.49 \pm 0.10)$ S/m	$(0.55 \pm 0.11)$ S/m	$(0.58 \pm 0.12)$ S/m	$(0.59 \pm 0.12)$ S/m	$(0.59 \pm 0.12)$ S/m	$(0.59 \pm 0.12)$ S/m
$(0.39 \pm 0.08)$ S/m	$(0.44 \pm 0.09)$ S/m	$(0.49 \pm 0.10)$ S/m	$(0.53 \pm 0.11)$ S/m	$(0.56 \pm 0.11)$ S/m	$(0.57 \pm 0.11)$ S/m	$(0.57 \pm 0.11)$ S/m
$(0.36 \pm 0.07)$ S/m	$(0.38 \pm 0.08)$ S/m	$(0.41 \pm 0.08)$ S/m	$(0.45 \pm 0.09)$ S/m	$(0.49 \pm 0.10)$ S/m	$(0.51 \pm 0.10)$ S/m	$(0.52 \pm 0.10)$ S/m
$(0.34 \pm 0.07)$ S/m	$(0.35 \pm 0.07)$ S/m	$(0.36 \pm 0.07)$ S/m	$(0.38 \pm 0.08)$ S/m	$(0.40 \pm 0.08)$ S/m	$(0.41 \pm 0.08)$ S/m	$(0.42 \pm 0.08)$ S/m

Example of electrical conductivity mapping





Objektivizacija ocene  
obraznih izrazov pri  
parkinsonovi bolezni  
in depresiji

(Teodora Matić, tema  
doktorske disertacije)



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as. dr. Vida Groznik



doc. dr. Martin Možina



as. Teodora Matić