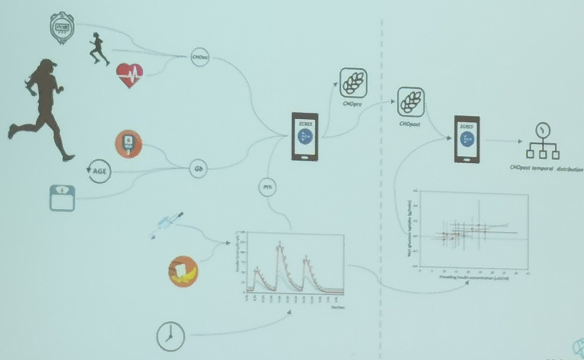
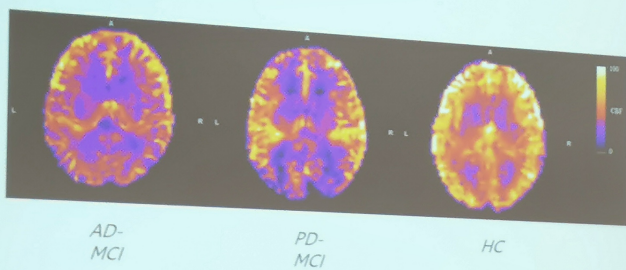


ECRES project– Personalized system for the prevention of hypoglycemia in T1D during physical activity



Hypoperfusion as biomarkers of neurodegeneration



Trieste
next /10

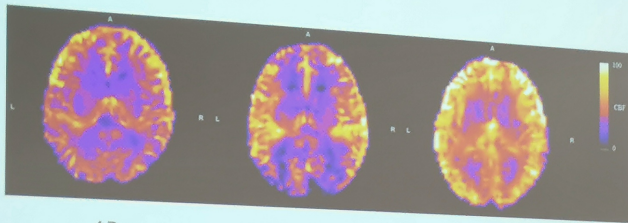
Festival
della ricerca
scientifica

BioingTS

UNIVERSITÀ
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DI TRIESTE



Hypoperfusion as biomarkers of neurodegeneration



AD-
MCI

PD-
MCI

HC

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festival
della ricerca
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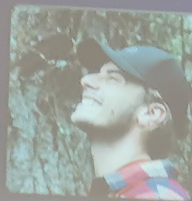
BioingTS

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DI TRIESTE



Simone Kresevic,
Ph.D. student at BioingTS



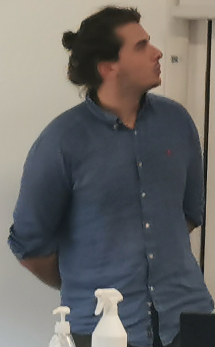
BioingTS

RESEARCH PROJECT:

Development of diagnostic and predictive models based on deep and machine learning algorithms in the field of chronic liver disease

RESEARCH INTEREST:

Biomedical Image Analysis and Deep Learning, Computer Aided Diagnosis, Ultrasound Liver Imaging and Magnetic Resonance Liver imaging Analysis, Biomedical Signal Analysis and Machine Learning, Development and Design of digital platforms for Database data collection and consulting analysis via Mobile App, Clinical Data Analysis, Decision Support Systems, Development of Predictive models, Eye-movement analysis and visual system development and Computer Vision





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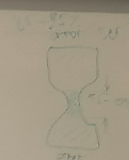
BioingTS

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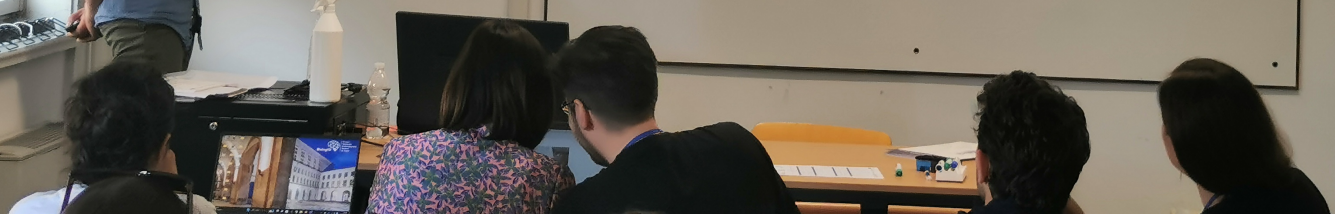
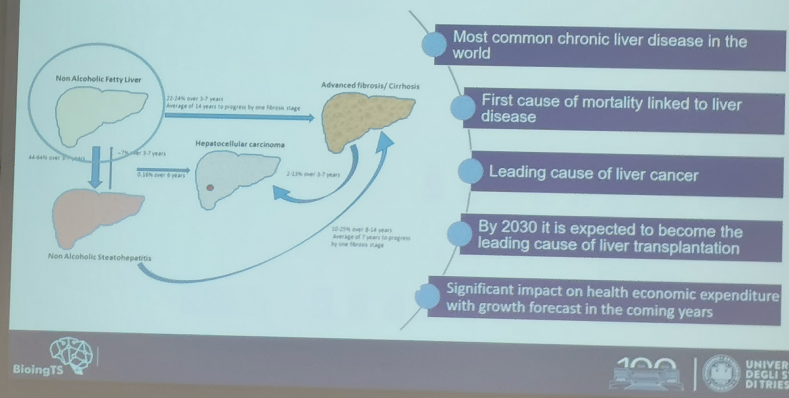
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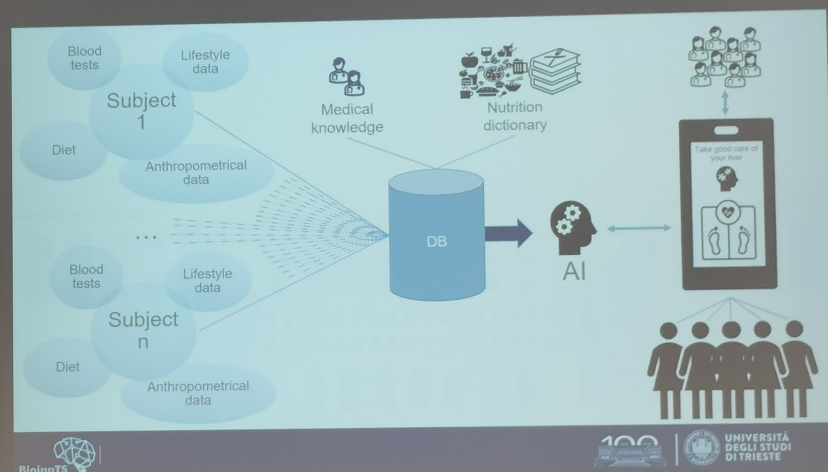
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NAFLD: NON-ALCOHOLIC FATTY LIVER DISEASE







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Ph.D. programme, a brief description

Research project and interests

Lorenzo Zucchini, Ph.D.
candidate

TRIESTE, 08/06/2023



MY RESEARCH PROJECT

Bilistick device hardware and software IoT-oriented redefinition, together with a bilirubin calculus and hematocrit estimation algorithms enhancement from a blood microcapsule.

Some research interests:

- Biomedical electronics
- Signal acquisition
- Embedded devices control software development and user interface development
- Bilirubin measurement methods

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2



bilirubin
microcapsule.

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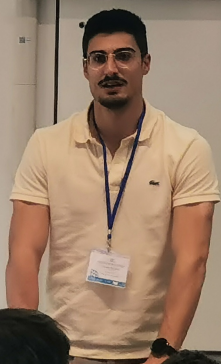


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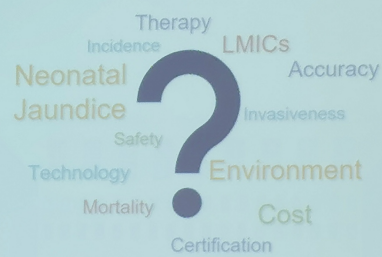
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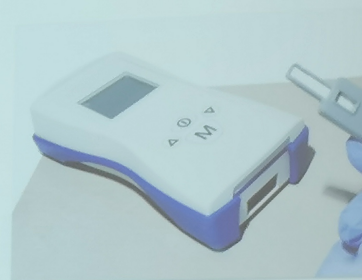
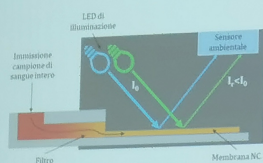
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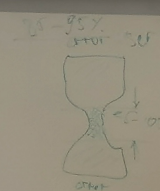
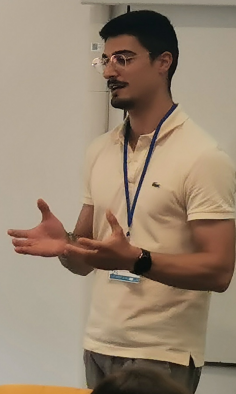
BILIRUBIN, TECHNOLOGIES, SCENARIOS



FROM REQUIREMENTS TO SOLUTION



- ✓ Measurement on 35 μ L of blood
- ✓ No sample treatment, no reagents
- ✓ Results in less than 3 minutes
- ✓ Good accuracy
- ✓ Battery-powered hand-held device
- ✓ Easy to use and interpret, automatic measurement
- ✓ Relatively low cost



RESEARCH THEMES

Hemoglobin influence
correction

Temperature and relative
humidity influence on the
system

Acquisition chain
optimization

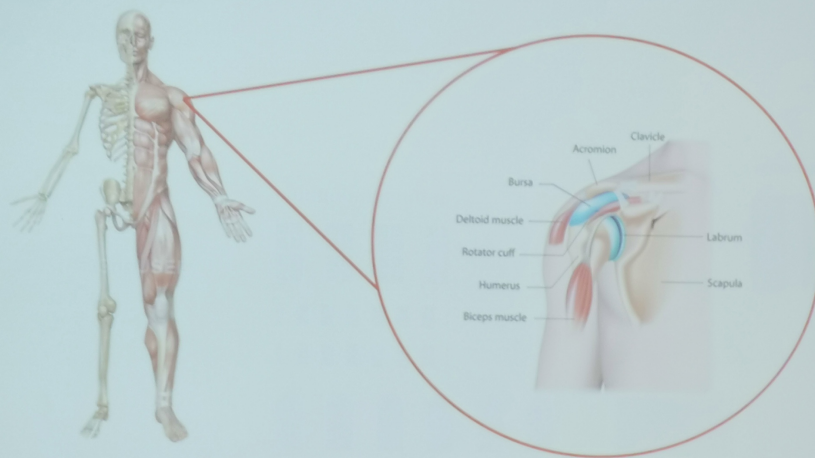
Integrating hematocrit
estimation



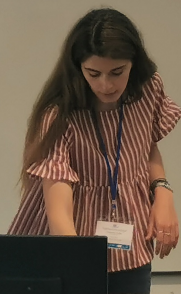
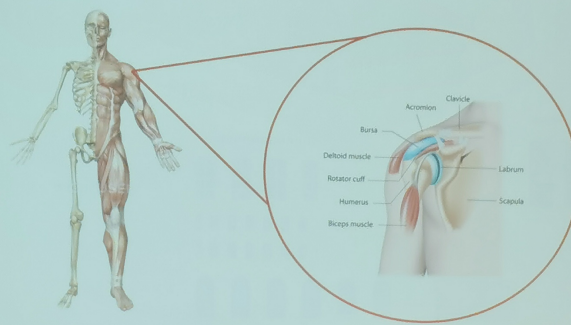
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DEGLI STUDI
DI TRIESTE



Shoulder's anatomy



Shoulder's anatomy



Materials and methods

INERTIAL SENSORS



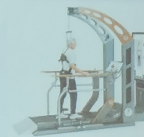
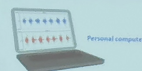
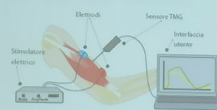
SEMG



D-WALL

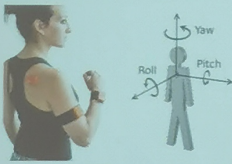


TENSIOMYOGRAPHY

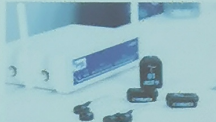


Materials and methods

INERTIAL SENSORS



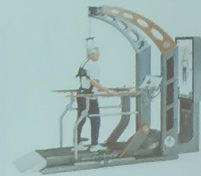
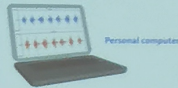
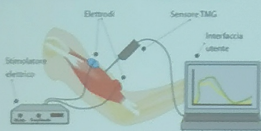
sEMG



D-WALL

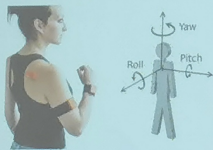


TENSIOMYOGRAPHY



Materials and methods

INERTIAL SENSORS



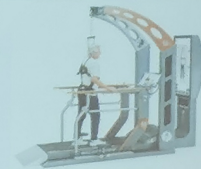
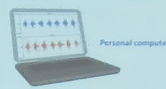
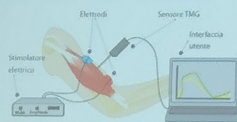
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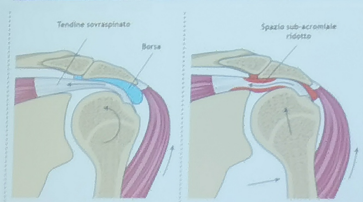
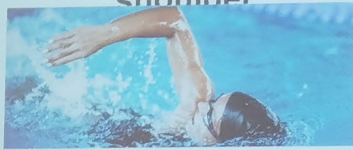
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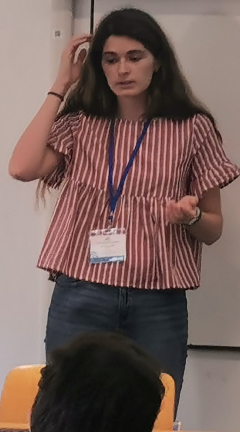
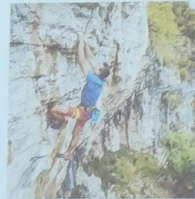
TENSIOMYOGRAPHY



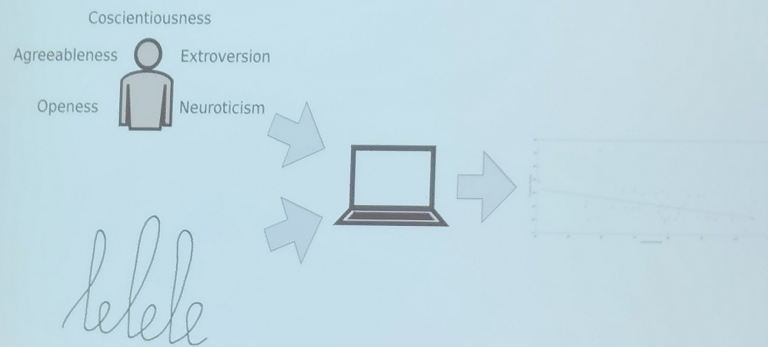
Swimmer's shoulder



Climber's shoulder



Are personality traits related to handwriting kinematic features?



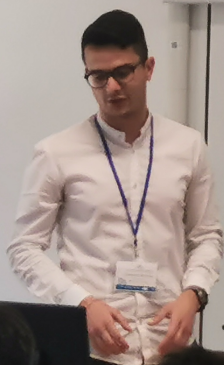


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Deep Learning methods to support oocytes evaluation used for IVF

Alessandro Biscontin,
Scholarship Beneficiary
IRCCS Burlo Garofolo

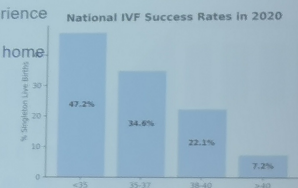
XI SPRING SCHOOL - TRIESTE, 08/06/2023





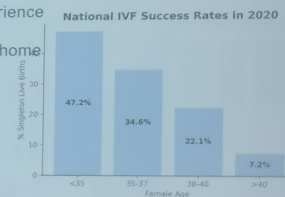
WHY

- Embryologists select oocytes based on their morphological features
- Quality of the results depends on their experience
- Only 30% of ART's singleton newborns reach home
- Prevent low rates of implants
- multiple pregnancies



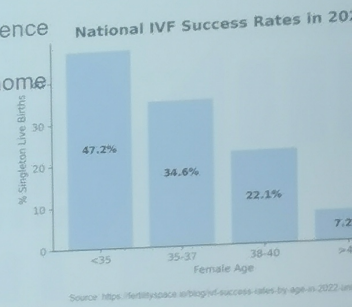
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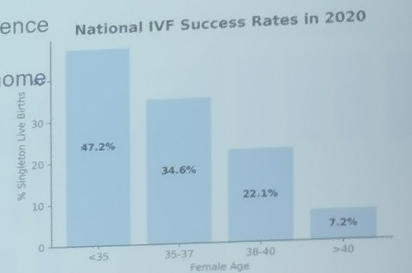
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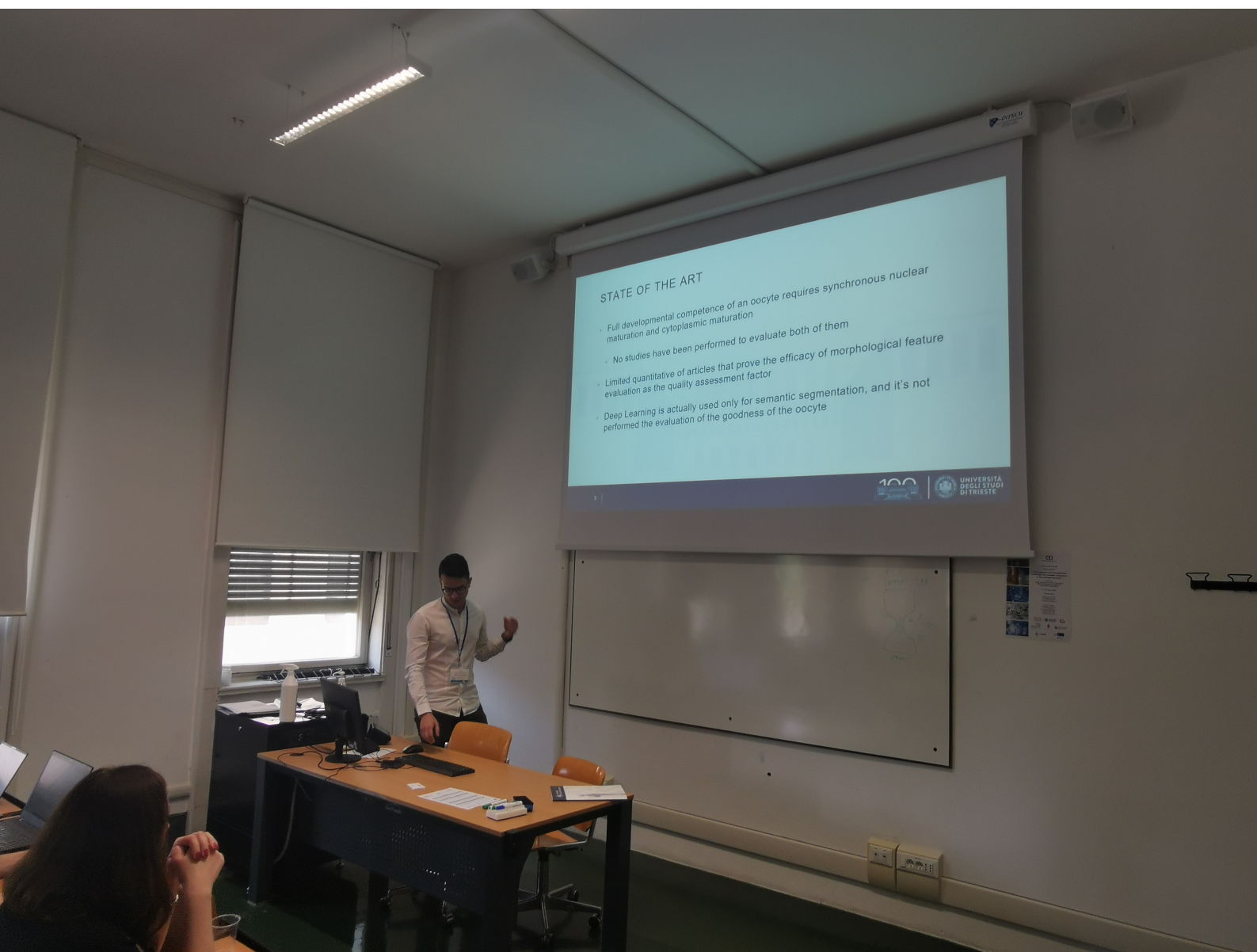


STATE OF THE ART

- Full developmental competence of an oocyte requires synchronous nuclear maturation and cytoplasmic maturation
- No studies have been performed to evaluate both of them
- Limited quantitative of articles that prove the efficacy of morphological feature evaluation as the quality assessment factor
- Deep Learning is actually used only for semantic segmentation, and it's not performed the evaluation of the goodness of the oocyte

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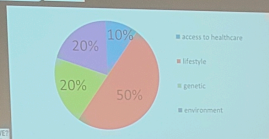




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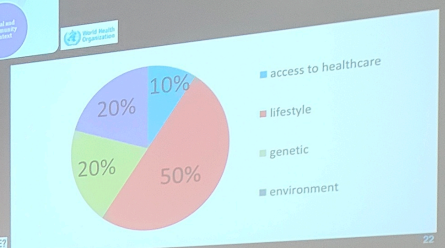








>> Social determinants of health



WHO SHALL LIVE?

22



AI-based Medical Devices

Top five companies, in the order of the number of FDA authorizations.



Source: Data from "Source: Food and Drug Administration" and the data provided by the companies.
<https://www.medicaldevice.com/news/FDA-AI-MD-medical-devices-g-takeaway-2020/>

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Chart: Elise Heller - Source: Food and Drug Administration - Get the data - Created with Datawrapper
<https://www.medtechdive.com/news/FDA-AI-ML-medical-devices-5-takeaways/635908/>