THE INTERNET OF BODIES & AI

REDEFINING THE TRACK:

AI'S TRANSFORMATIVE IMPACT ON THE FUTURE OF RUNNING

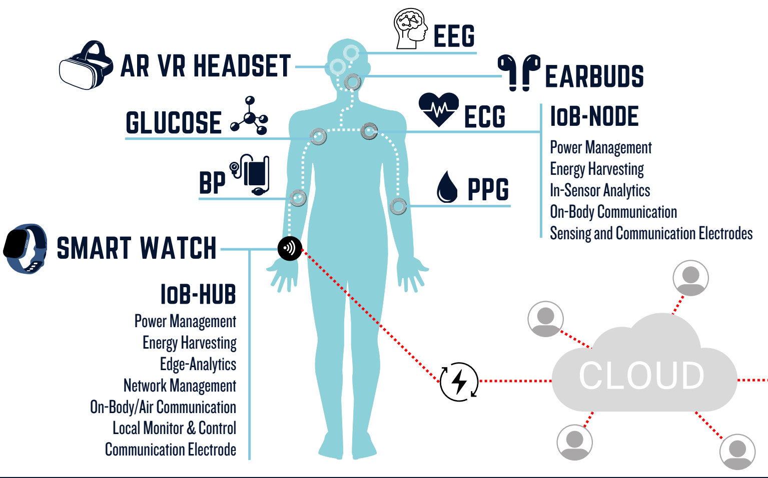
RESEARCH QUESTIONS

- How are IoB self-tracking devices reshaping social norms and personal values, and what impact does this have on our perception of the 'ideal' human being and of amateur athletes?
- How is AI transforming the assessment of running economy and biomechanics of proper running form, and in what ways is it pushing the boundaries of performance for elite athletes?
- What does the future hold for running coaches in the age of AI, and is it possible for artificial intelligence and algorithms to replace the human element in coaching?

METHODS

Research conducted through an extensive literature review:

- Sociology of Sports Journals
- Athletic Journals
- Sports Medicine Journals



- INTELLIGENCE
- STORAGE
- CONTROL
- ANALYTICS

IOB

"PLATFORMIZATION" of the body, representing a digital collection of bodily data.

- William & Mary Law Review

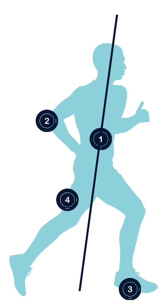
GENERATIONS OF IOB TECHNOLOGIES

1. Body-External
2. Body-Internal
3. Body-Melded

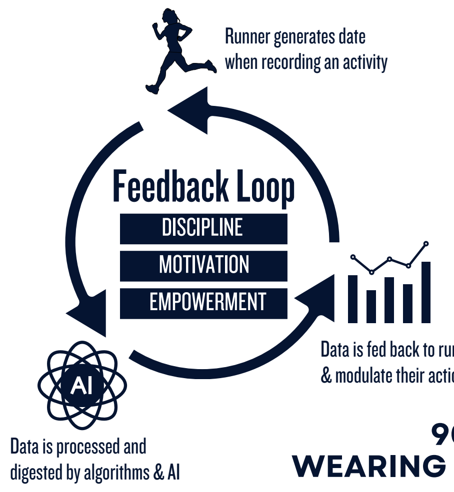
The Internet of Bodies (IoB) is an extension of the Internet of Things (IoT)

\$300.3 billion in 2021 → **\$650.5** billion by 2026

The Statista Market Forecast



FITNESS TRACKERS FOR AMATEURS



90% OF RUNNERS ARE WEARING A TRACKING DEVICE

Running USA 2020 Report

INERTIAL MOTION CAPTURE

SMART Insoles

Ground-truth for:

- Footstrike Location
- Pronation Information
- Gait Pattern
- Distance & Pace

Sensors acquire foot pressure distribution data via connection to "trackers" which are clipped to the outside edge of each running shoe + on-the-run guided coaching.

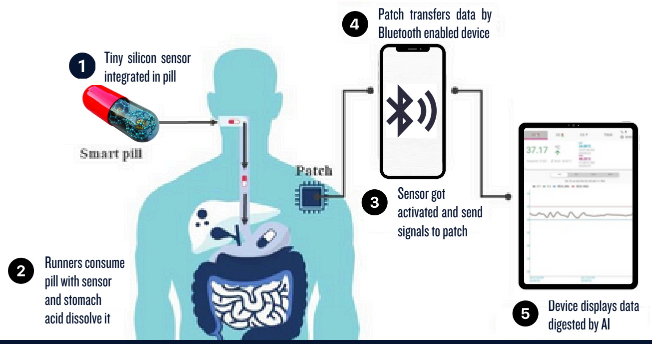
Ability to measure RUNNING POWER

NURVV Run, 2020

INGESTIBLE TELEMETRIC TEMPERATURE PILL

FDA APPROVED

- 3D-printed sensor circuit and a transmitter inside a capsule.
- Measures runner's core temperature: most accurate indicator of whether a person is overheating under strenuous conditions.
- Database of temperatures created to boost smartwatches' detection of core temperatures and flag risk of heat injury.



AI COACHING MECHANISMS

ARE AI TOOLS AS RELIABLE AND EFFECTIVE AS A HUMAN COACH?

YES & NO

- Provides cost-effective training alternatives for athletes via apps to get reliable guiding.
- Enables coaches to focus on tasks that benefit most from human interaction (relational aspects).

"The most effective coaches aren't necessarily those with the most knowledge of their sport. More often, they're those with the best people skills"
- Matt Fitzgerald

1. Don't be afraid of AI
2. Do be selective
3. Don't overestimate the power of AI

FINDINGS AND FUTURE WORK

- **Outstanding** positive societal response to AI and Machine Learning Algorithms that are shaping the future of sports.
- Athletes' **biomechanics and inner-body functionalities** in real-time is **changing the course of running.**
- The integration of Artificial Intelligence is allowing for runners to **train beyond their limits** by **optimizing their performance.**
- An **important gap** remains for future work in the realm of **privacy and security concerns** as well as **mental health** research.

ETHICAL CONCERNS
Privacy & Consent
IoB collects personal sensitive data and data protection laws are lacking

PSYCHOLOGICAL EFFECTS
Dependency
Risk of over-reliance on technology performance and addiction to metrics

TECHNOLOGICAL CHALLENGES
Security & Integration
Susceptible to cybersecurity threats and gap with healthcare system

REGULATORY & LEGAL ISSUES
Regulation & Liability
Pressing need for legal frameworks and gap in standard practices

SOCIAL EFFECTS
Socioeconomic Division
IoB may widen health disparities

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