



EXTENDED REALITY TRAINING

Neue Möglichkeiten für die Bewegungsförderung

Prof. Dr. Anna Lisa Martin-Niedecken

Leiterin, Institut für Designforschung & Digital Health Design Living Lab
Departement Design
Zürcher Hochschule der Künste (ZHdK)

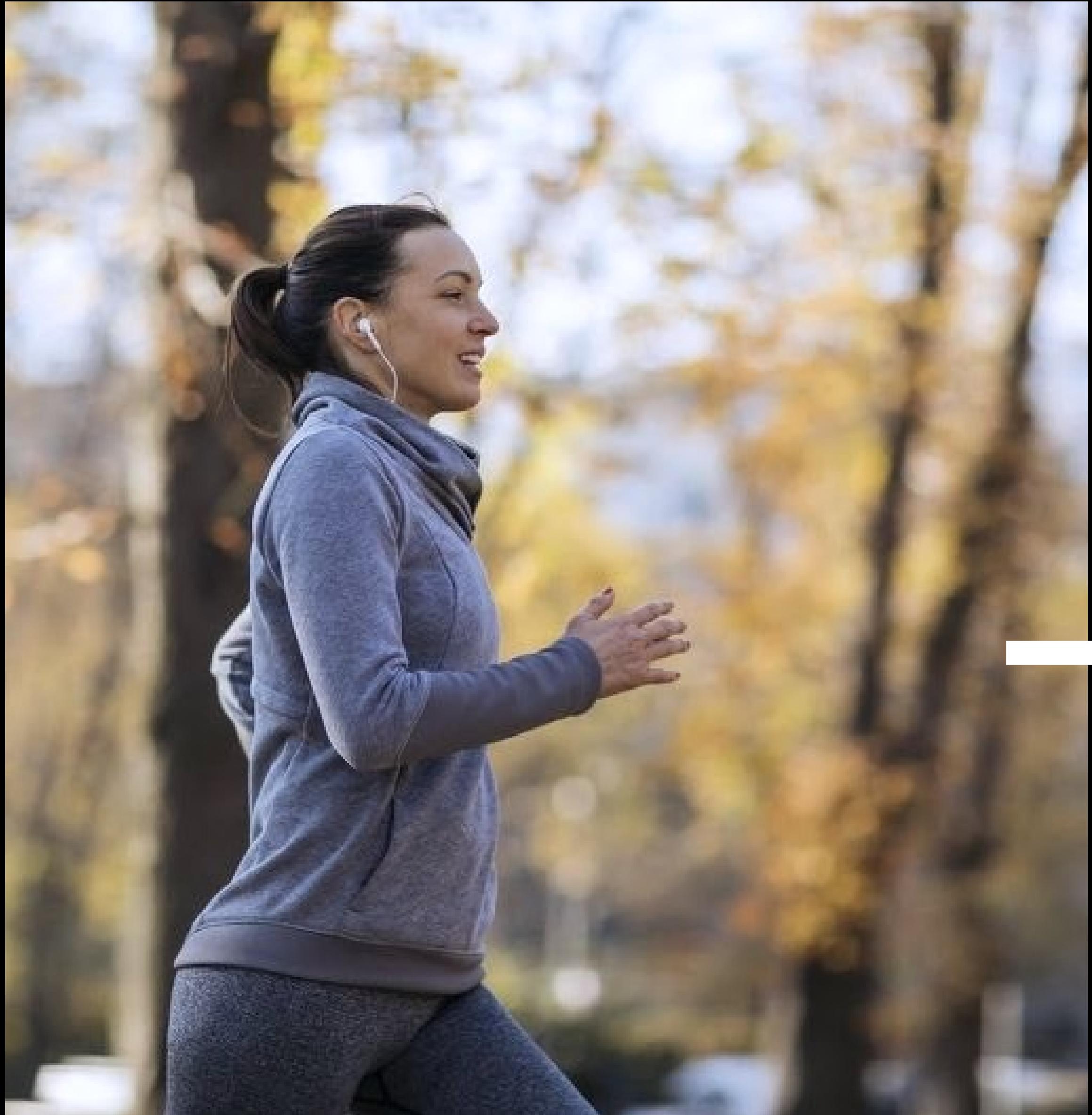
CEO & Gründerin, Sphery AG

Überblick

- Technologie x Sport: Extended Reality im Sport
 - Gaming x Sport: Exergames
 - How to: Exergame Design, Forschung und Implementation
 - Konklusion
- + Interaktive Übungen



TECHNOLOGIE x SPORT



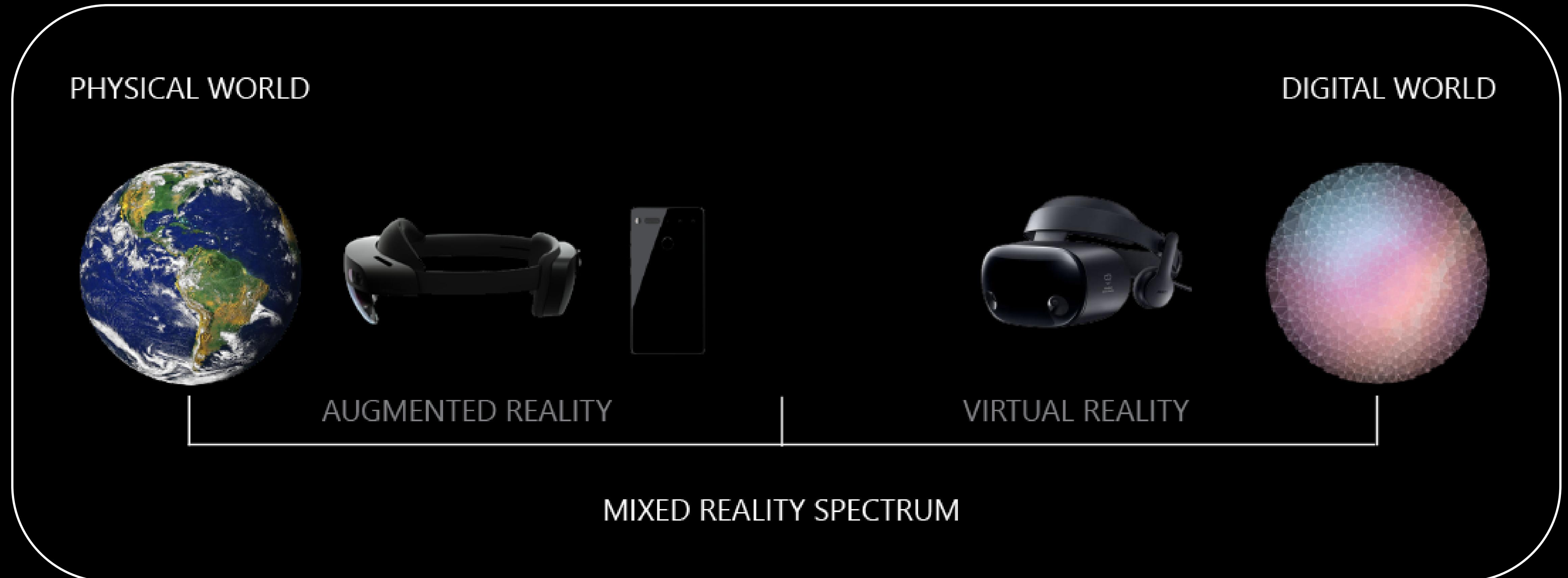
(iStockphoto)

(kreiert mit midjourney.com)

EXTENDED REALITY (XR)

Virtual Reality (VR) // Augmented Reality (AR) // Mixed Reality (MR)

EXTENDED REALITY



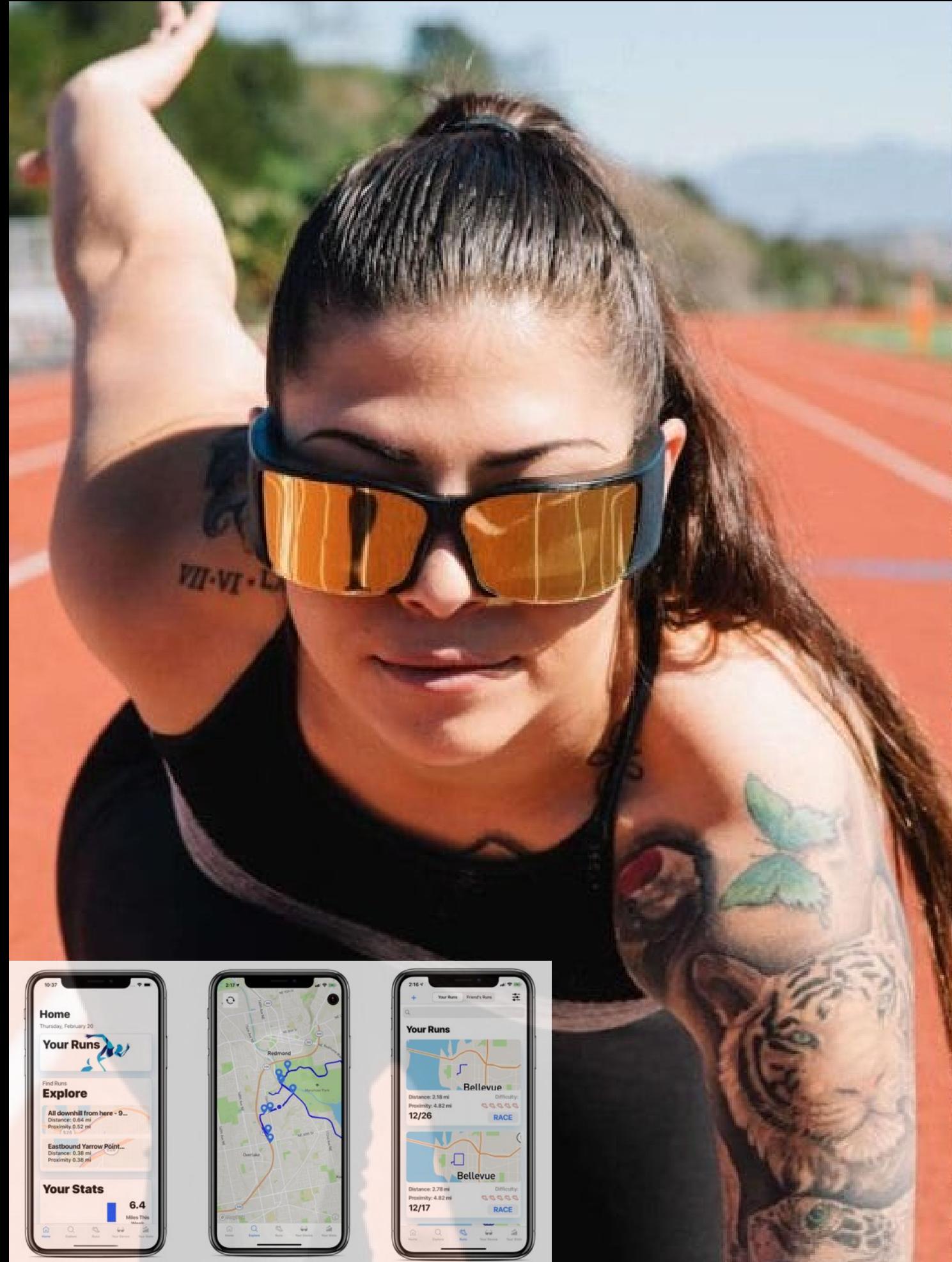
(Modifiziert nach: Milgram & Colquhoun, 1999)

Augmented Reality Sports

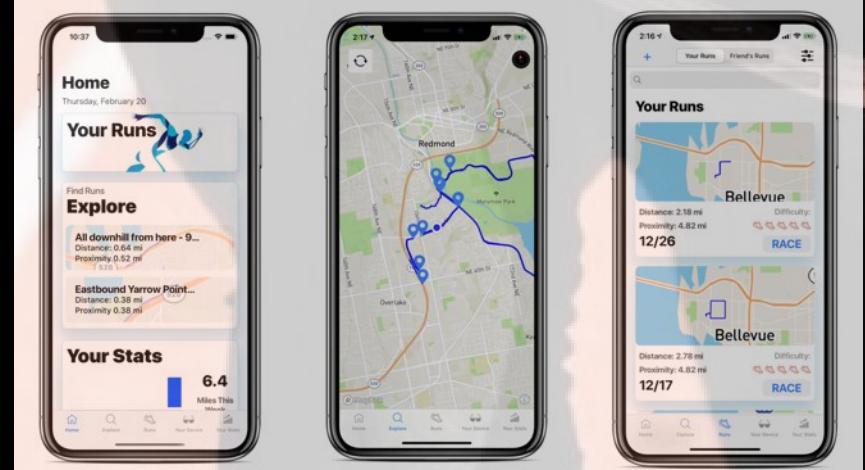


Sports—Agility AR

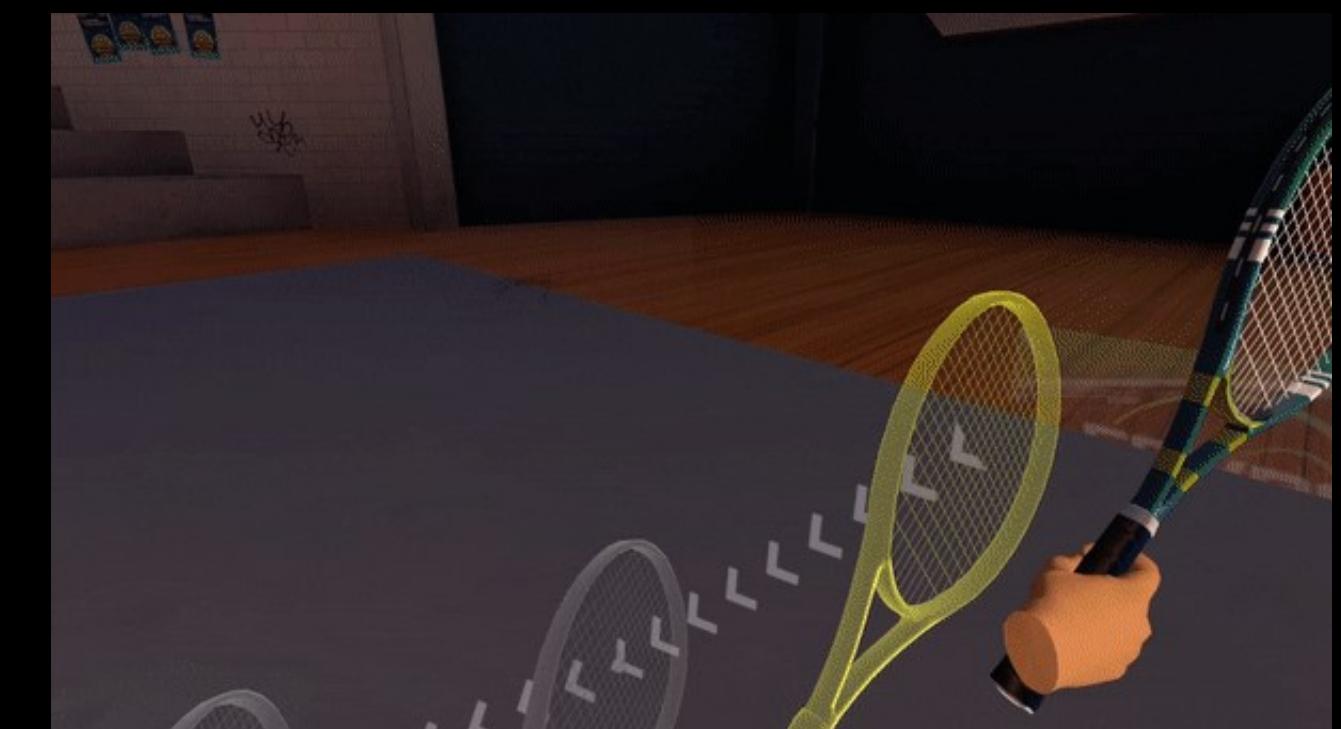
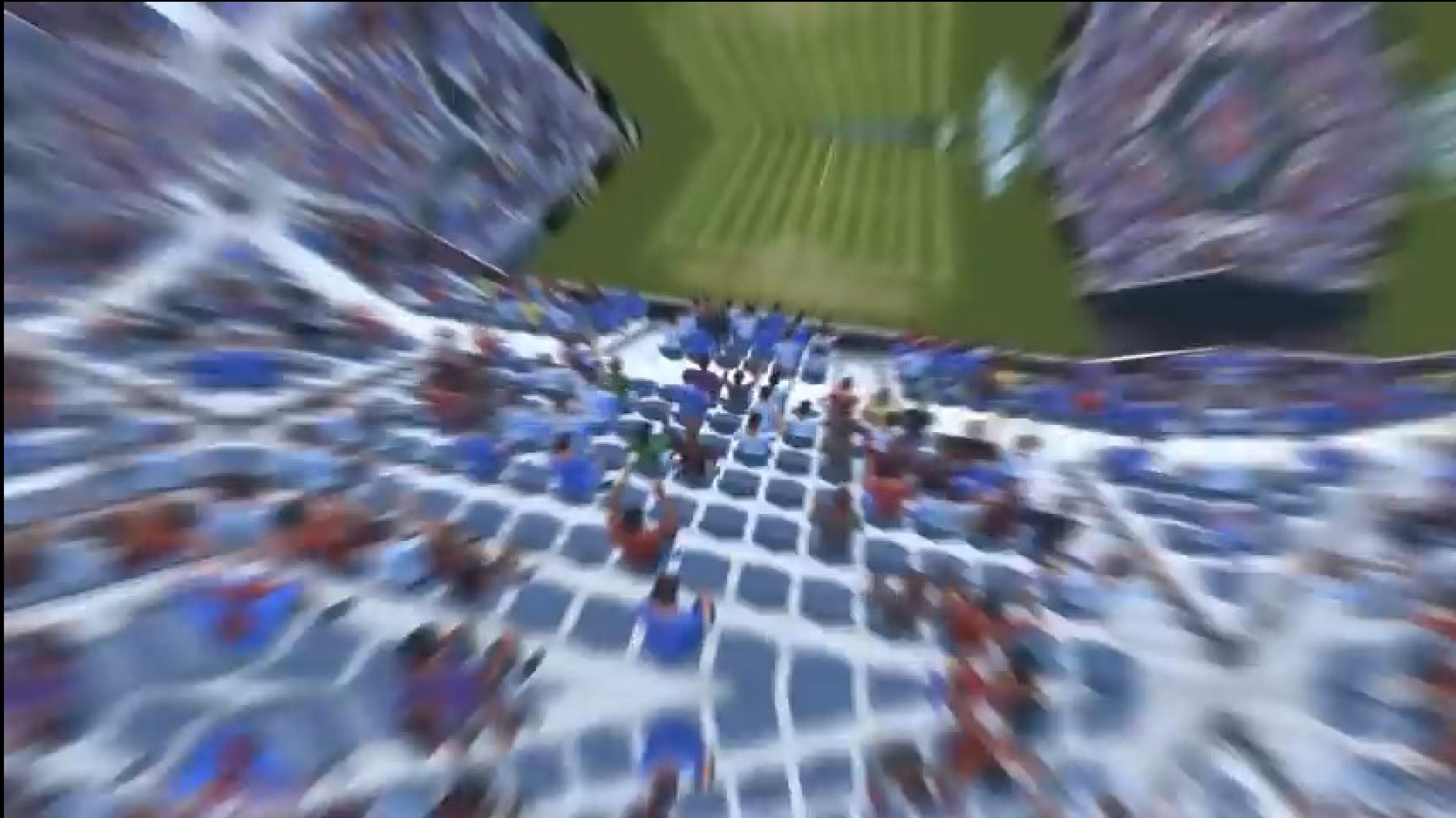
Augmented Reality Sports



Ghost Pacer

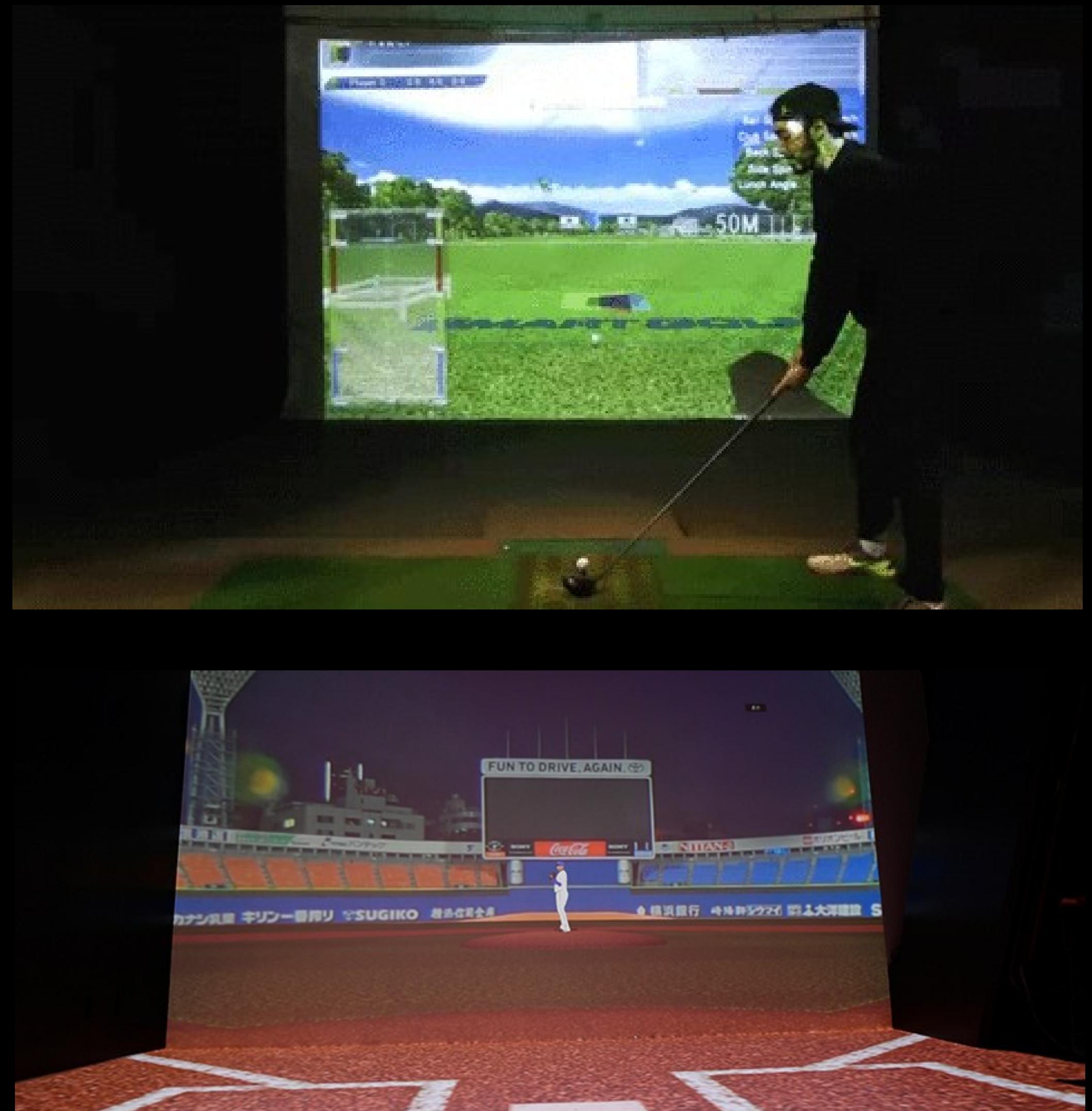


Virtual Reality Sports



Tennis Esports

Mixed Reality Sports



Aber...



Tenor.com

**SWEET SPOT
OF IMMERSION...**

MOTIVATION...



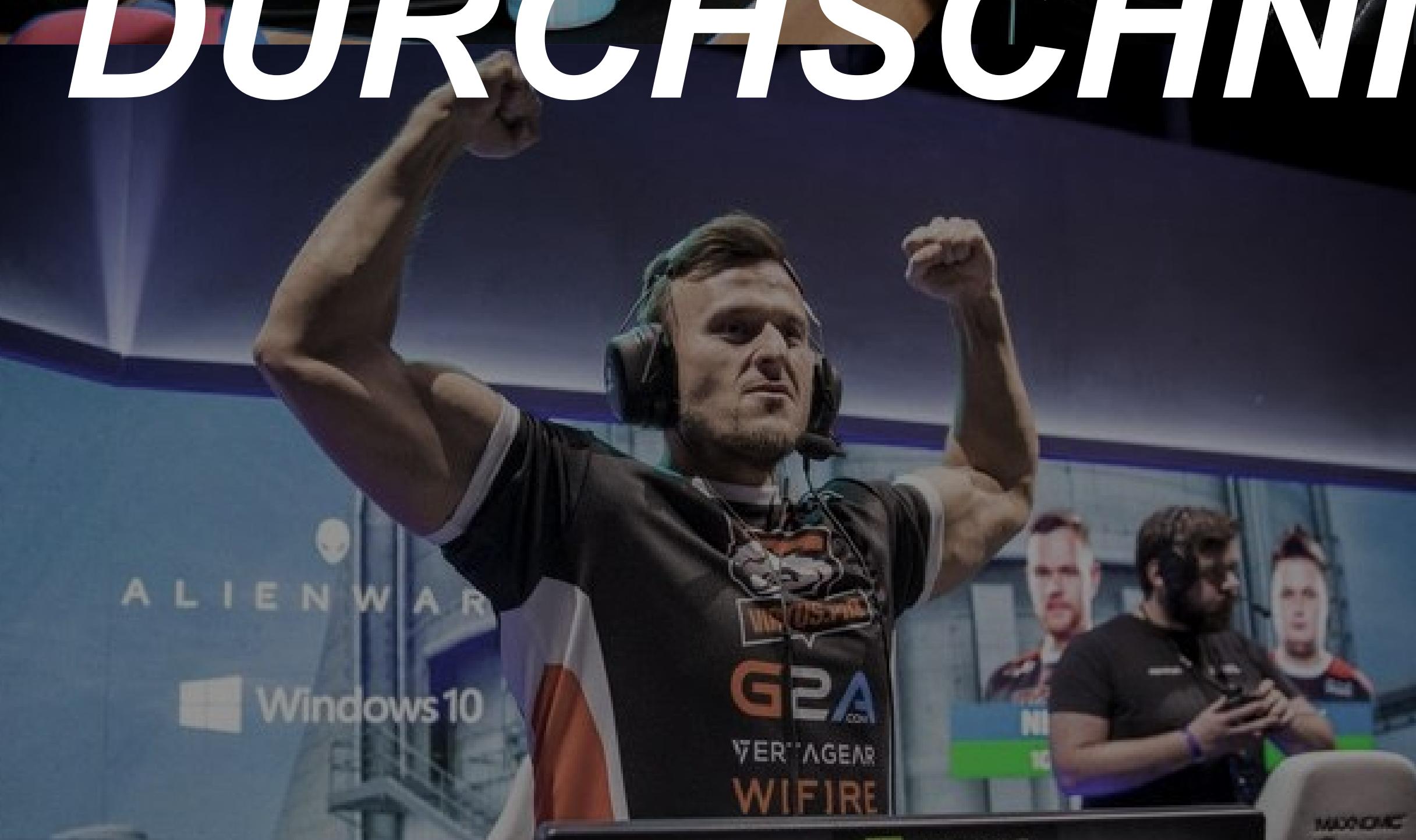
**8 MRD. MENSCHEN
3.7 MRD. GAMERS
1.5 MRD. KÖRPERL. AKTIVE**

HOMO LUDENS?!

Typischer Gamer?!



DURCHSCHNITTS-GAMER:IN



GAMIFICATION

«The use of game-elements and game-design techniques in non-gaming contexts.»

(Deterding et al., 2011)

- Points
- Badges
- Leaderboards
- etc.



SERIOUS GAMES

«Games with a purpose beyond fun.» (K. Werbach & D. Hunter, 2012)

- Gesundheitswesen & Therapie
- Bildung & Lernen
- Berufliche Ausbildung & Simulation
- Soziales & emotionales Lernen
- Bürgerschaftliches Engagement & Bewusstsein
- (Citizen) Science & Forschung

Beispielhafte Serious Games for Health:



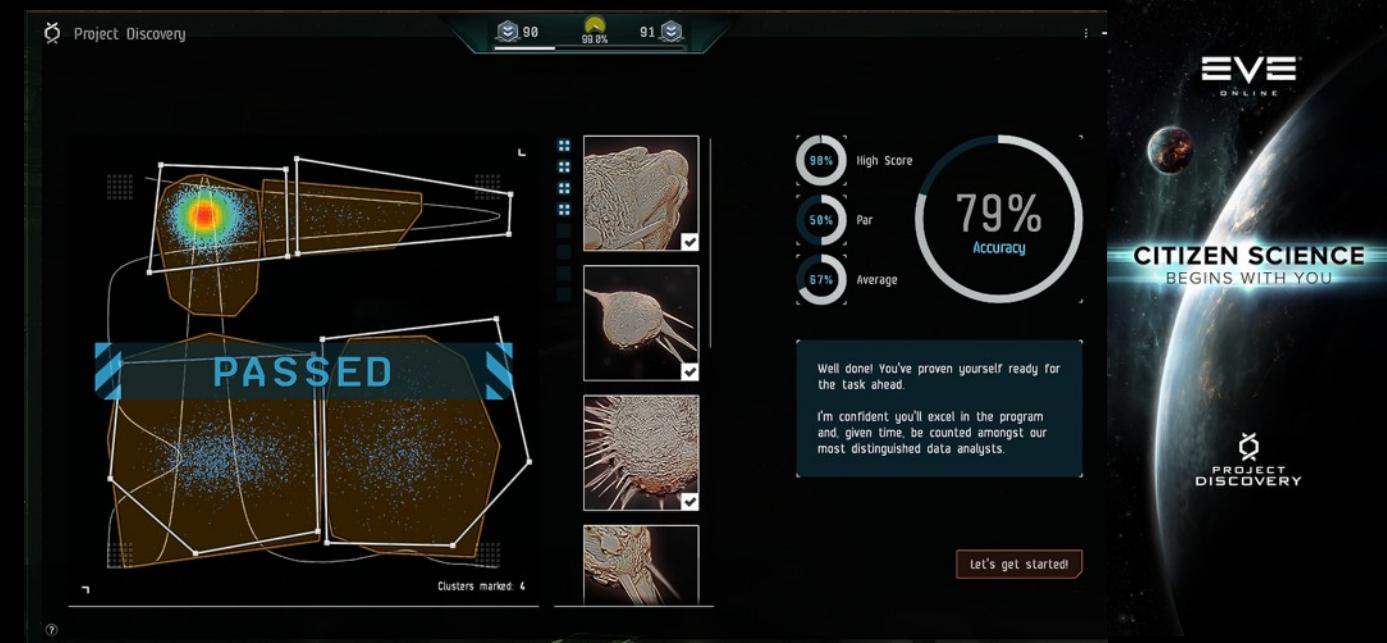
DEEP VR: Eine virtuelle Realität (VR)-Meditationserfahrung, die durch die Atmung gesteuert wird



That Dragon, Cancer ist ein emotionales narratives Spiel, das die Erfahrung einer Familie mit der Krebserkrankung ihres kleinen Sohnes erkundet.



Re-Mission unterstützt junge Krebspatient:innen dabei, ihre Krankheit zu verstehen und während der Behandlung motiviert zu bleiben.

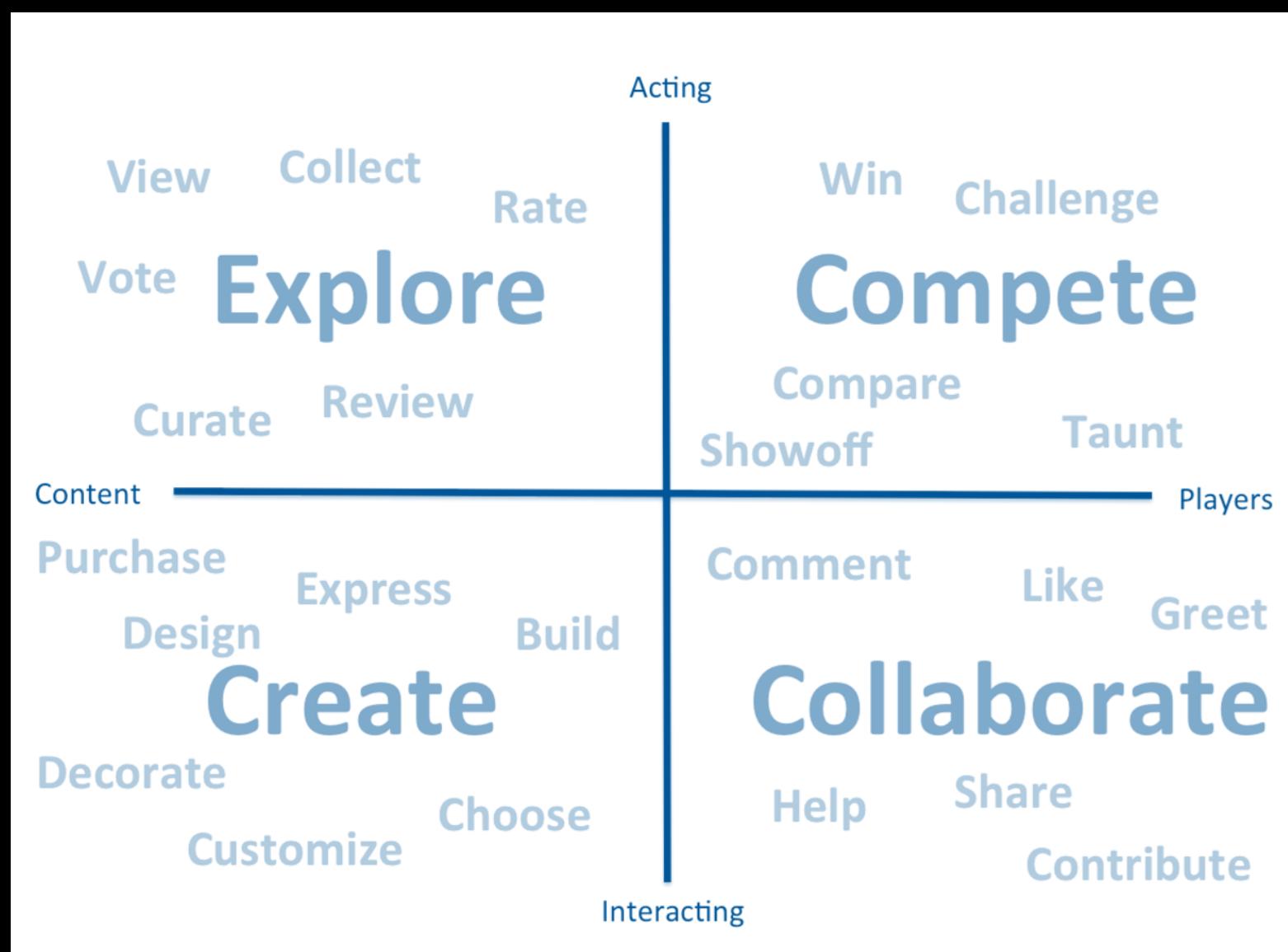


EVE Online Project Discovery – Citizen Science für die Krebsforschung

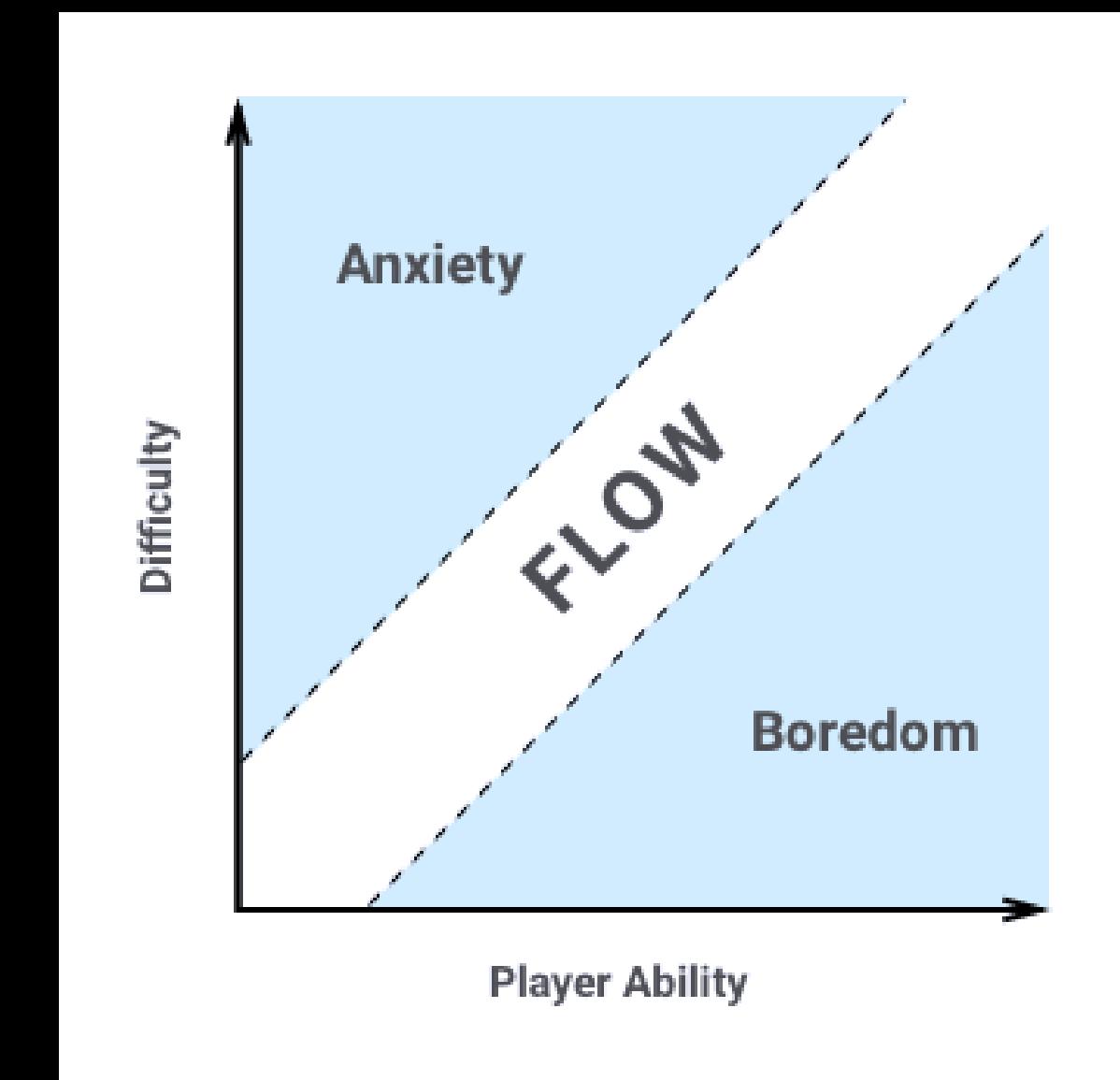
Gameplay Experience: Theorien & Modelle

«Spiel ist eine freiwillige Handlung oder Beschäftigung, die innerhalb gewisser festgesetzter Grenzen von Zeit und Raum nach freiwillig angenommenen, aber unbedingt bindenden Regeln verrichtet wird, ihr Ziel in sich selber hat und begleitet wird von einem Gefühl der Spannung und Freude und dem Bewusstsein des *Andersseins* als das *gewöhnliche Leben*.»

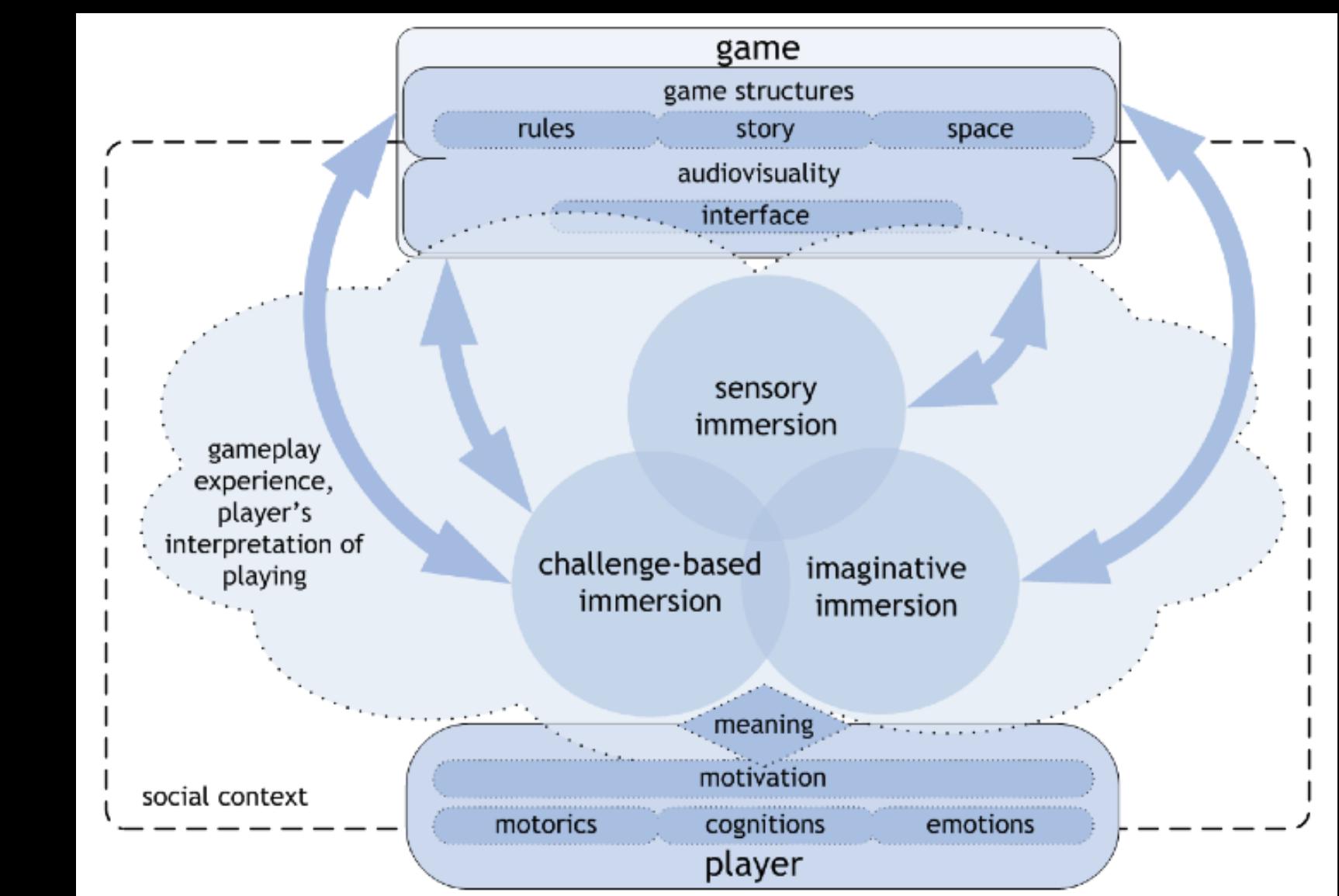
(Johan Huizinga, Homo Ludens – Vom Ursprung der Kultur im Spiel, 1938, S. 37)



(Bartle, 1996)



(Csikszentmihalyi, 1990)

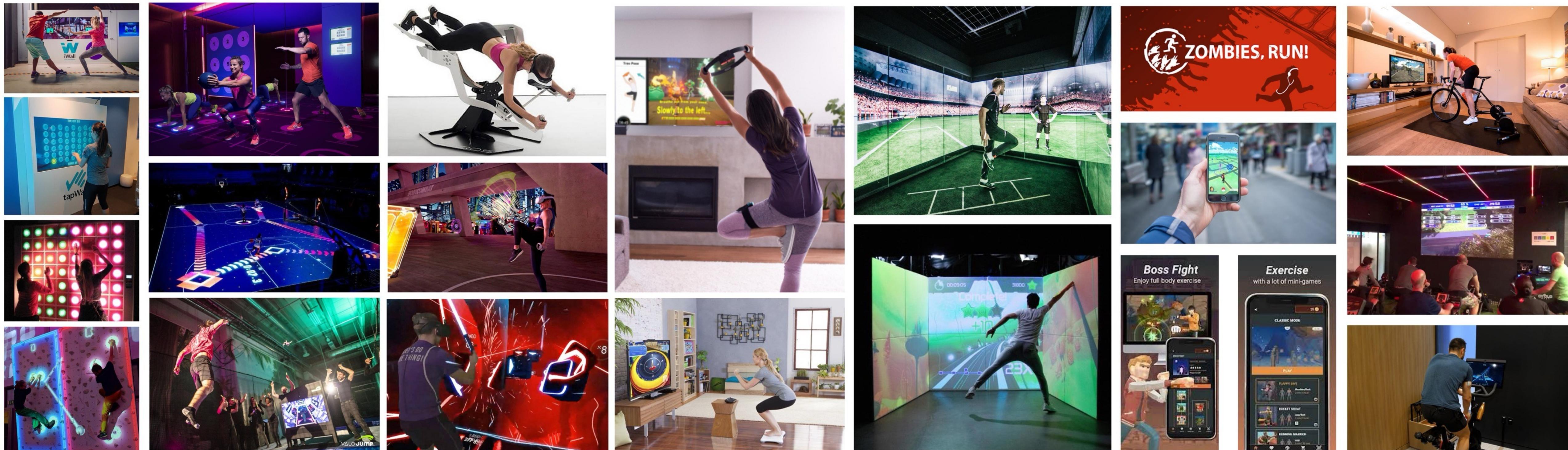


(Eri & Mäyrä, 2005)

GAMING x SPORT

EXERGAMES

(Exercise + Gaming)



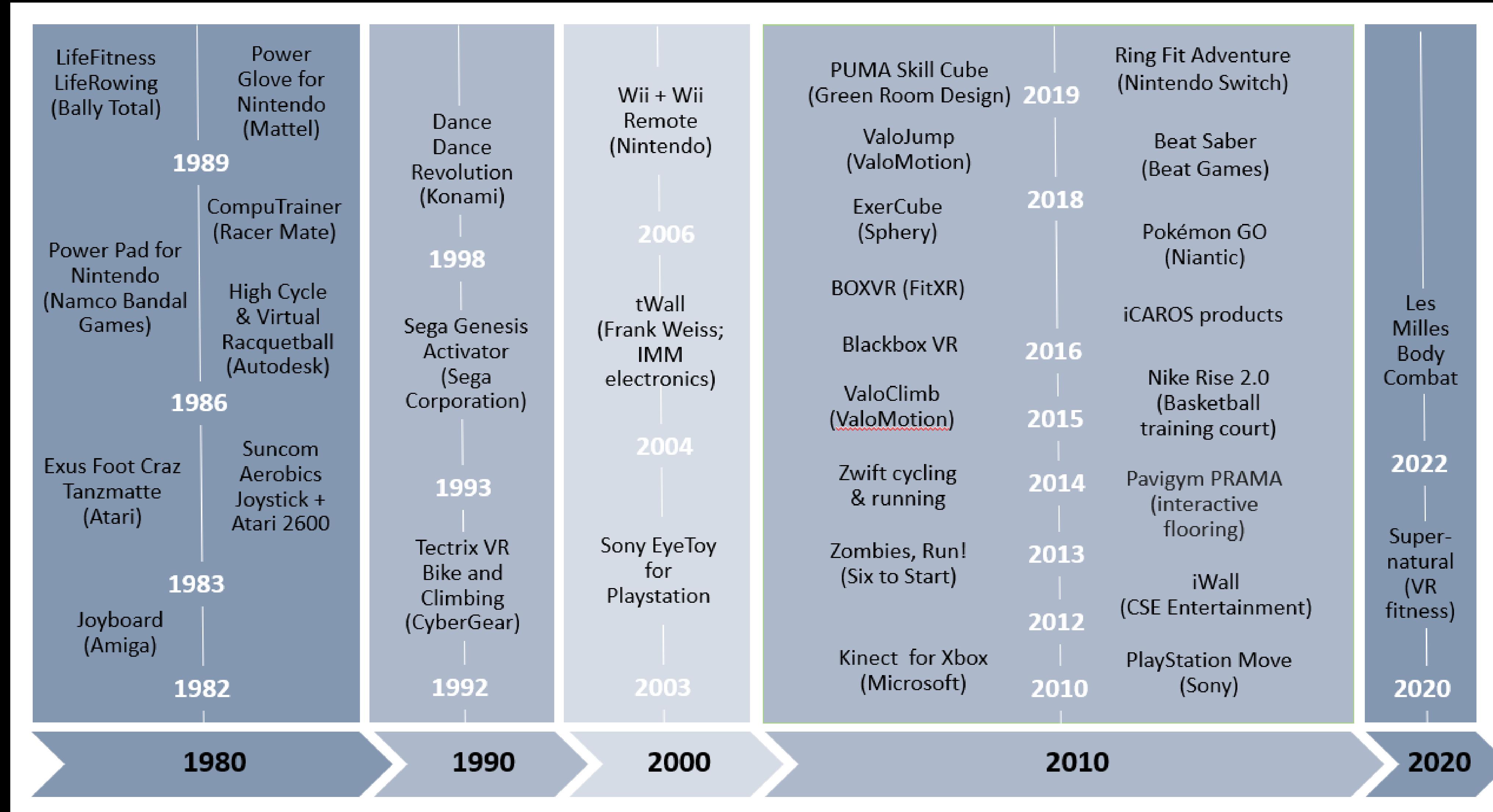


(Martin-Niedecken, 2020)

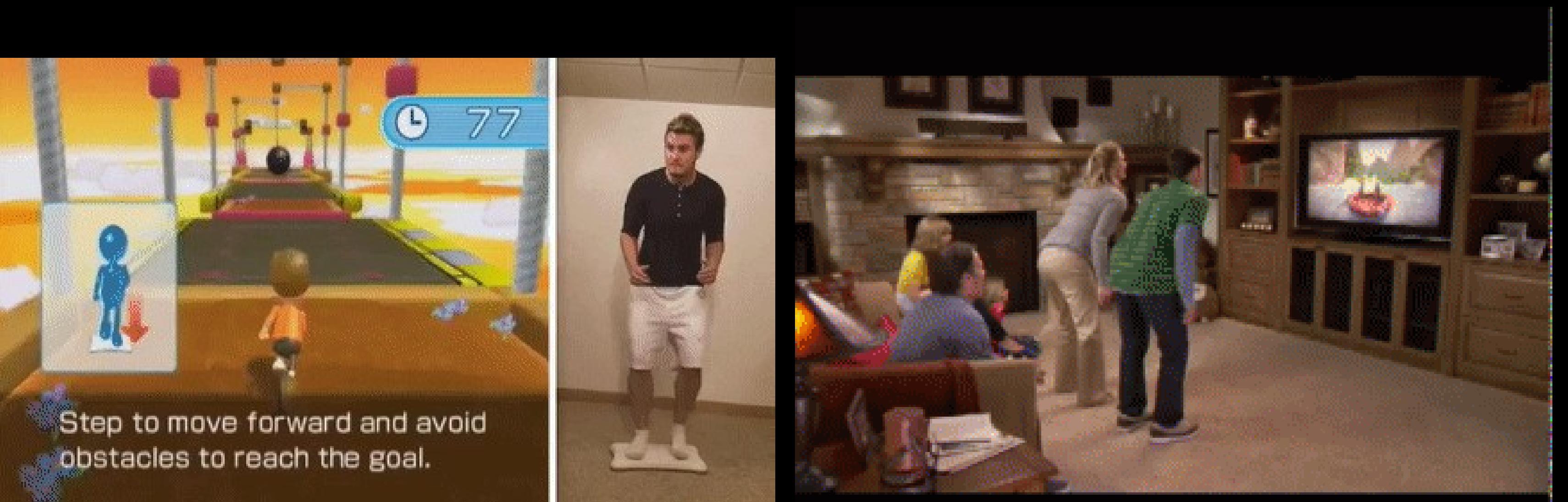
FLYING STAR EXERGAME



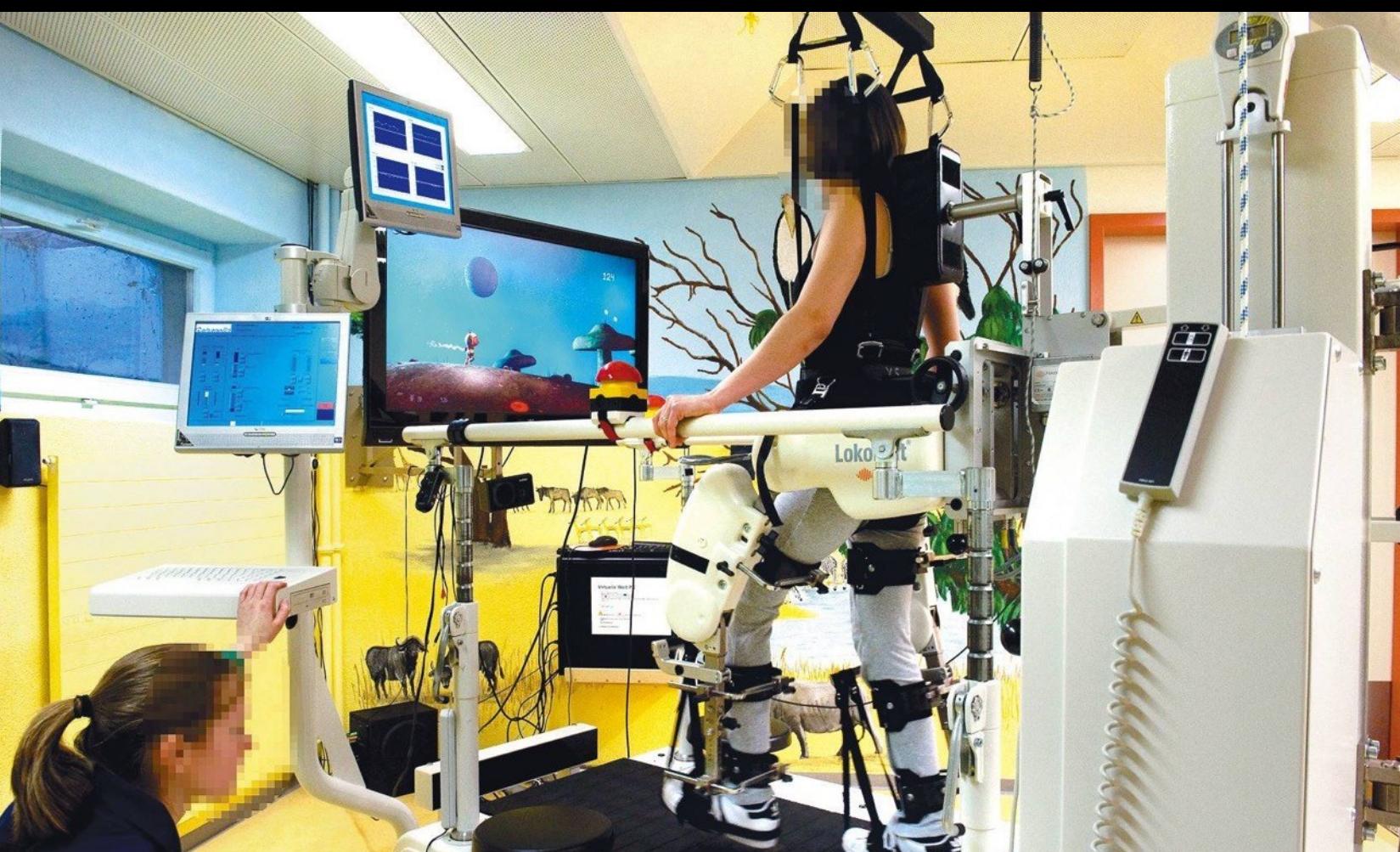
Exergame-Geschichte



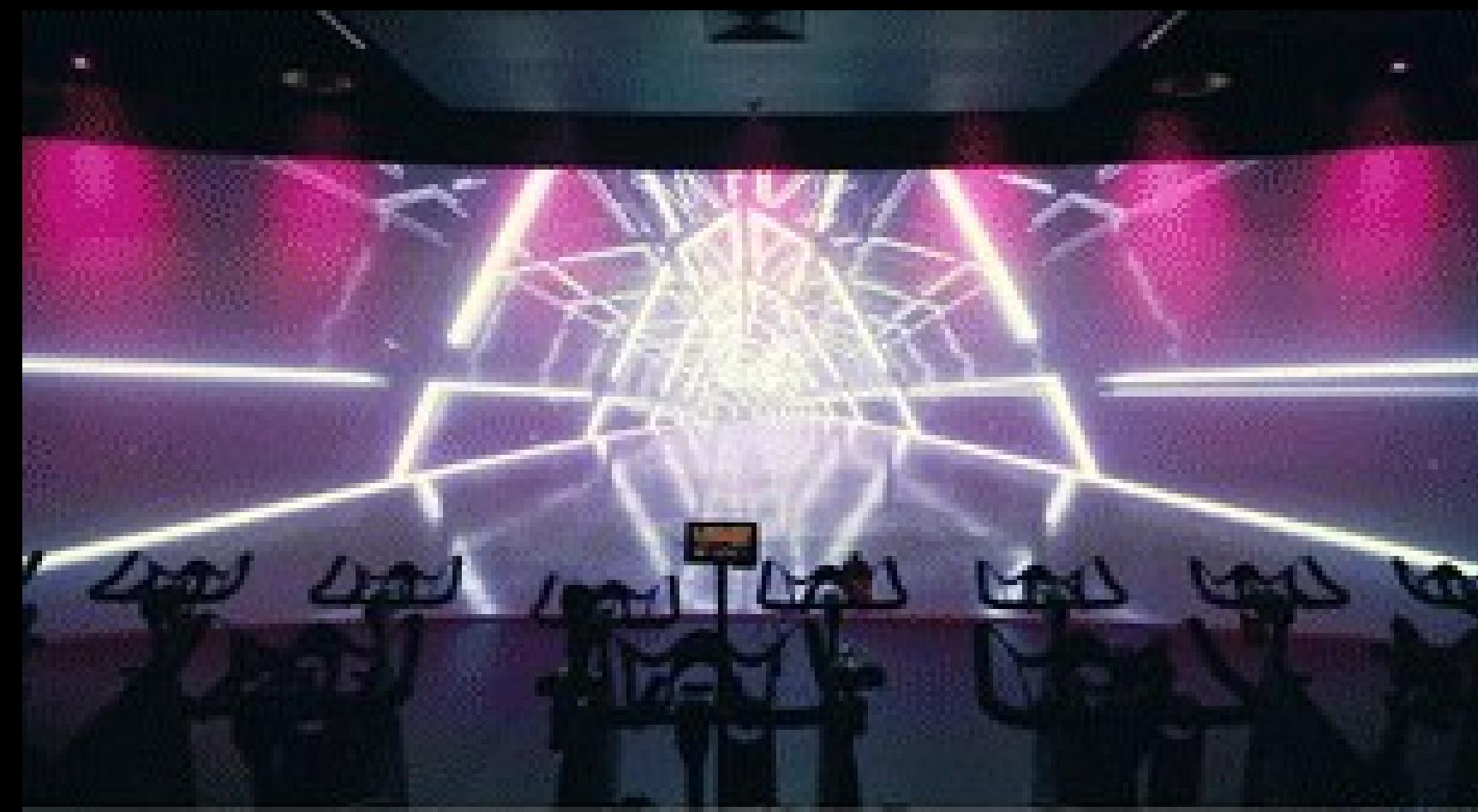
Exergames @Home



Spielbasierte Rehabilitation



VR Fitness – Immersive Fitness – Gamified Fitness



Mixed Reality Sports x Gaming



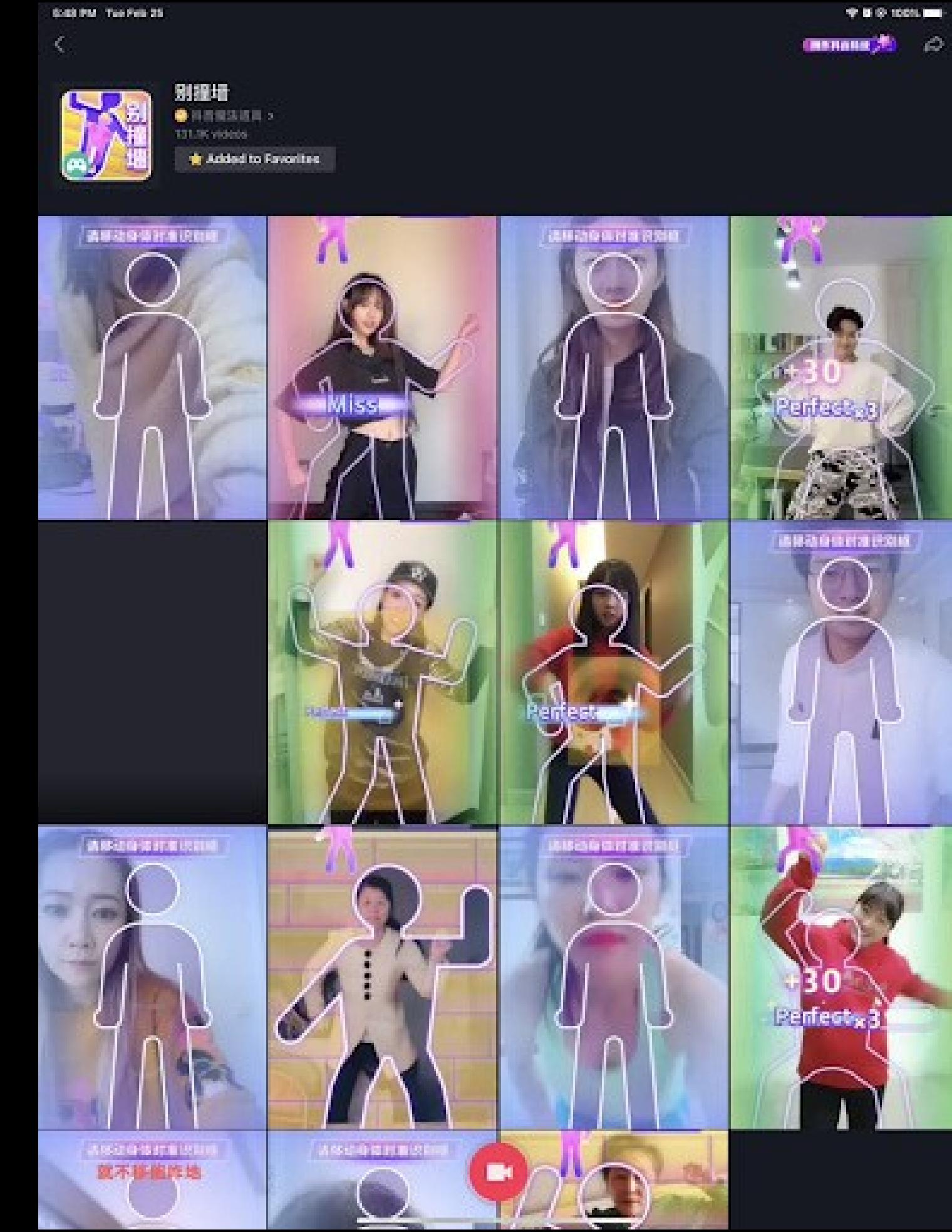
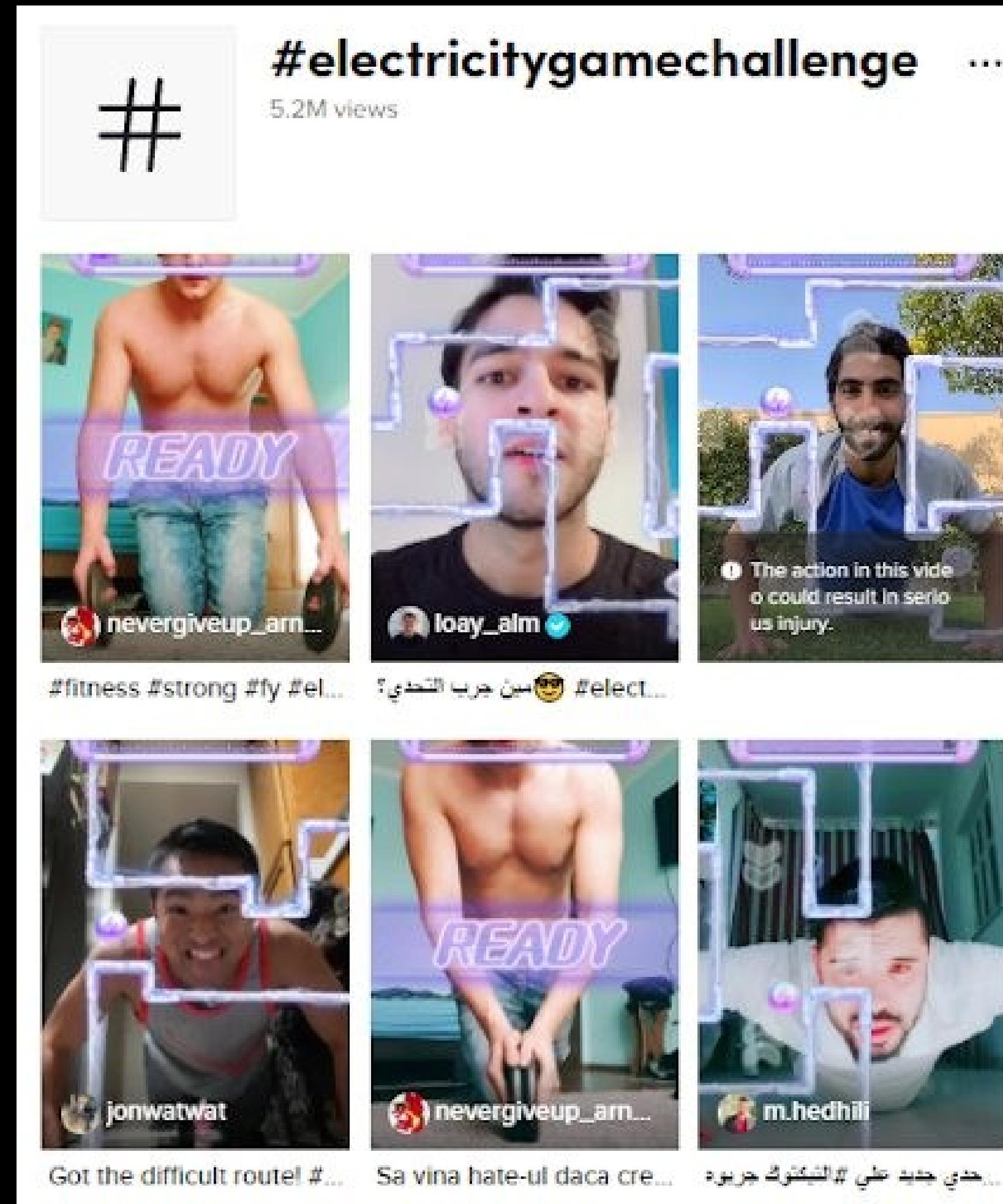
Valo Climb

Augmented Reality Sports x Gaming



Hado AR

Augmented Reality Sports x Gamification



The Physical Education @ Tik Tok

Fill the Shape @ Tik Tok

Mobile Exergames



Pokemon Go!

Sound-based Exergames

Walk, jog or run anywhere in the world.

Hear your mission and music through your headphones.

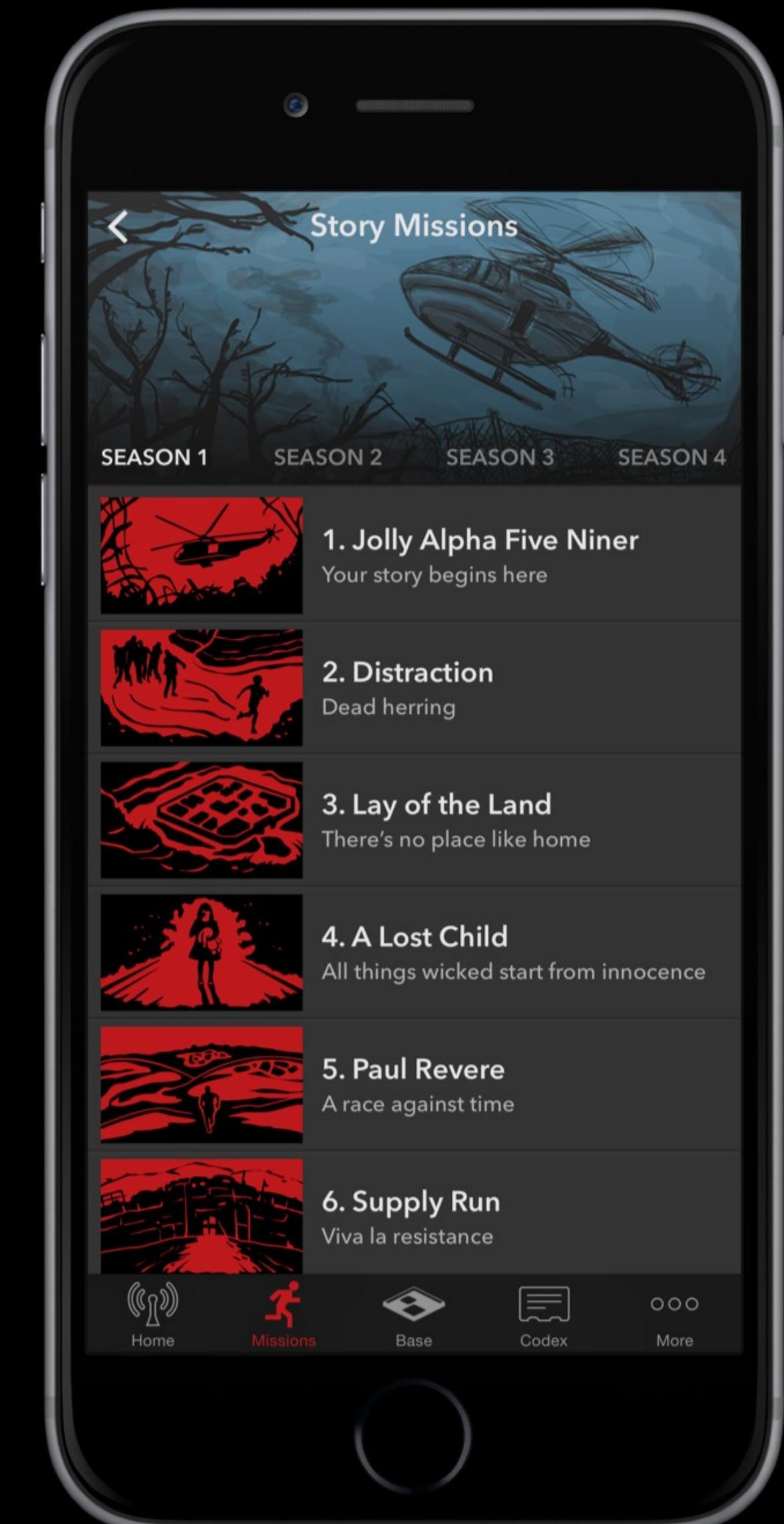
If you're chased by zombies, you'll have to speed up!

You'll automatically collect supplies to build up your base.

Zombie Chases. Get your heart racing.

200 Missions. You'll never run out of motivation.

Award-Winning Story. So good you'll want to play every day.



Zombie Run

Mixed Reality Exergames



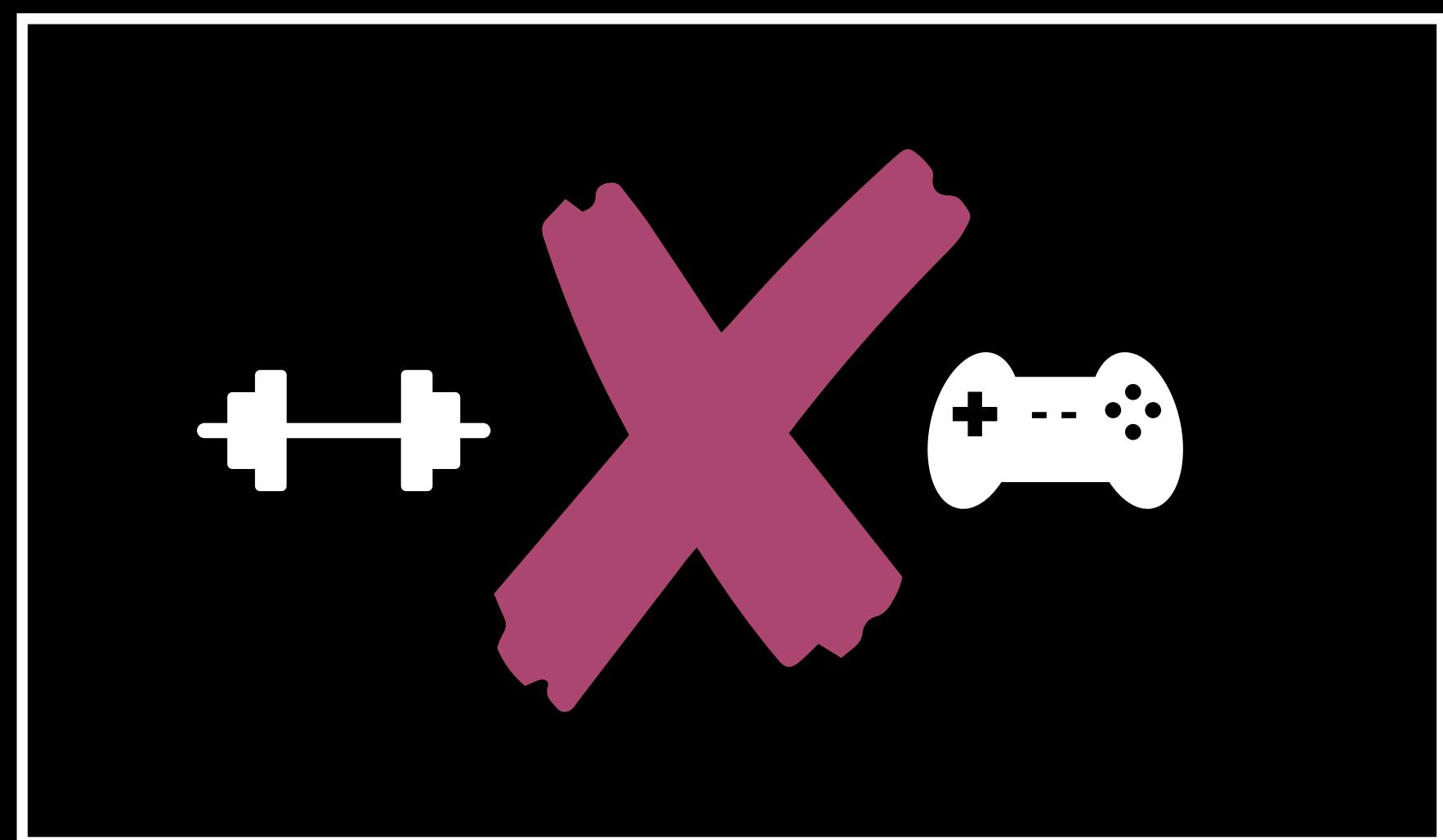
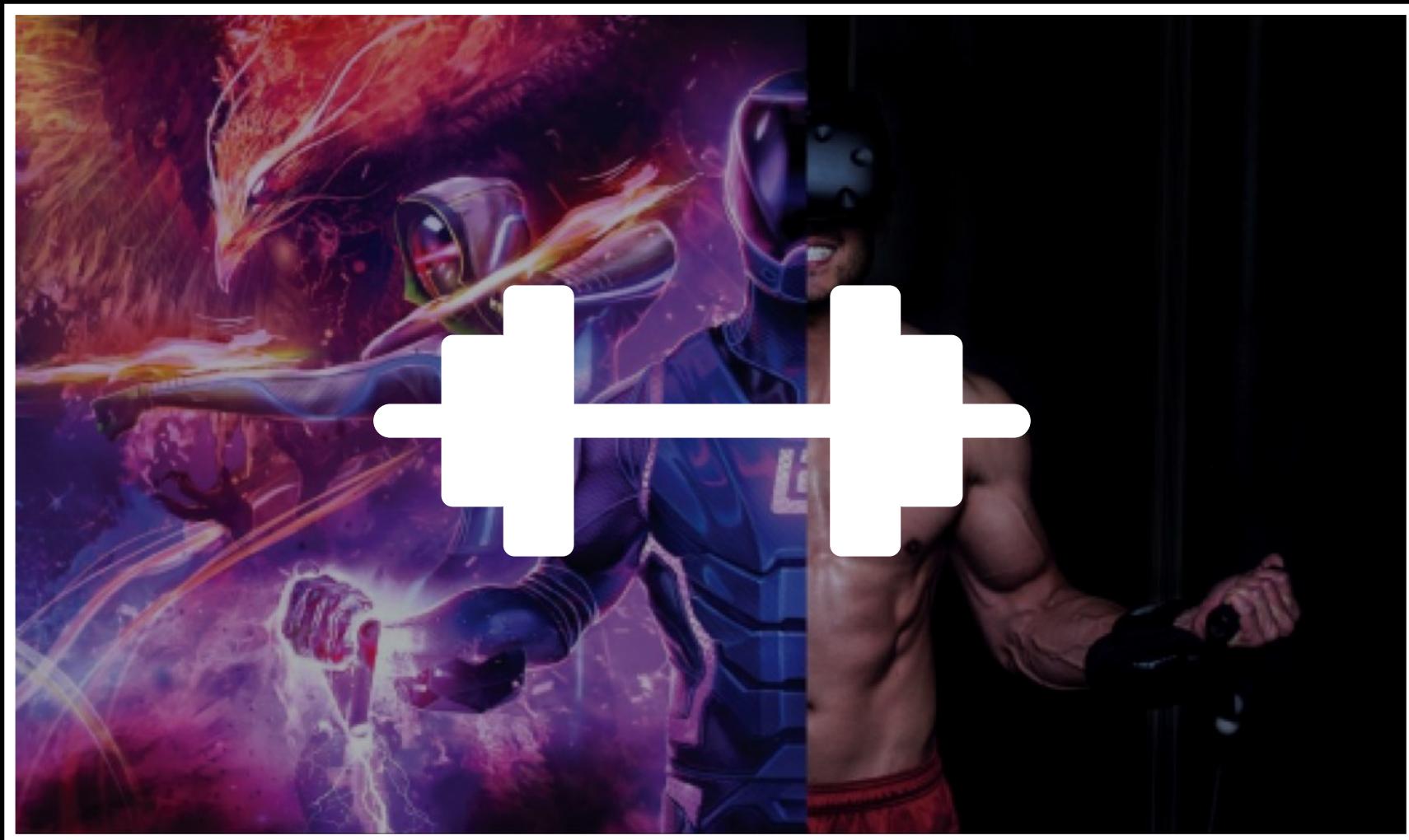
INTRODUCING
ROXs 



Rox, A-Champ

**FROM SPORTIFICATION
OF GAMES TO
GAMIFICATION OF
SPORTS**

What's missing?



Potenzielle Effekte von Exergames

- **Kognitiv:** Exekutive Funktionen, Aufmerksamkeit u. visuell-räumliche Fähigkeiten verbessern
(Benzing et al., 2016; Best, 2015; Mura et al., 2017; Staiano & Calvert, 2011; Stojan & Voelcker-Rehage, 2019; Xiong et al., 2019)
- **Physisch:** Energieverbrauch, körperliche Aktivität und Herzfrequenz steigern
(Best, 2015; Kari, 2017; Staiano & Calvert, 2011; Sween et al., 2014)
- **Mental:** Stimmung, Motivation, soziale Interaktion und Selbstwertgefühl fördern
(Byrne & Kim, 2019; Joronen et al., 2017; Lee et al., 2017; Li et al., 2016; Staiano & Calvert, 2011)
- **Physisch-/Motor-kognitiv:** Kombinierte motorisch-kognitive Leistung verbessern
(Ballesteros et al., 2018; Egger et al., 2019; Schättin et al., 2016; Stojan & Voelcker-Rehage, 2019)

Potenzielle Attraktivität von Exergames

- **Ansprechend** für weniger aktive Populationen (e.g., Kappen et al., 2019; Lu et al., 2013)
- bessere **Adhärenz** (e.g., Valenzuela et al., 2018)
- bessere **Langzeitmotivation** (e.g., MacRae & Robbters, 2013)
- besseres **Engagement** (e.g., Lyons, 2015)

Unausgeschöpfte Potentiale

- **Skalierbare Trainingsintensität:** Bedarf an skalierbaren motorisch-kognitiven Trainingskonzepten
- **Ganzheitliche Systeme:** Erfordert anpassbares und individualisierbares Gameplay
- **Generische Designansätze:** Bedarf an Co-Design mit spezifischen Zielgruppen
- **Unzureichende wissenschaftl. Grundlage:** Erfordert evidenzbasierte Designprinzipien
- **Mangel an Interdisziplinarität:** Bedarf an Zusammenarbeit über verschiedene Fachbereiche hinweg

HOW TO: ATTRAKTIVE & EFFEKTIVE EXERGAMES

Projektübersicht



(Martin et al., 2014)



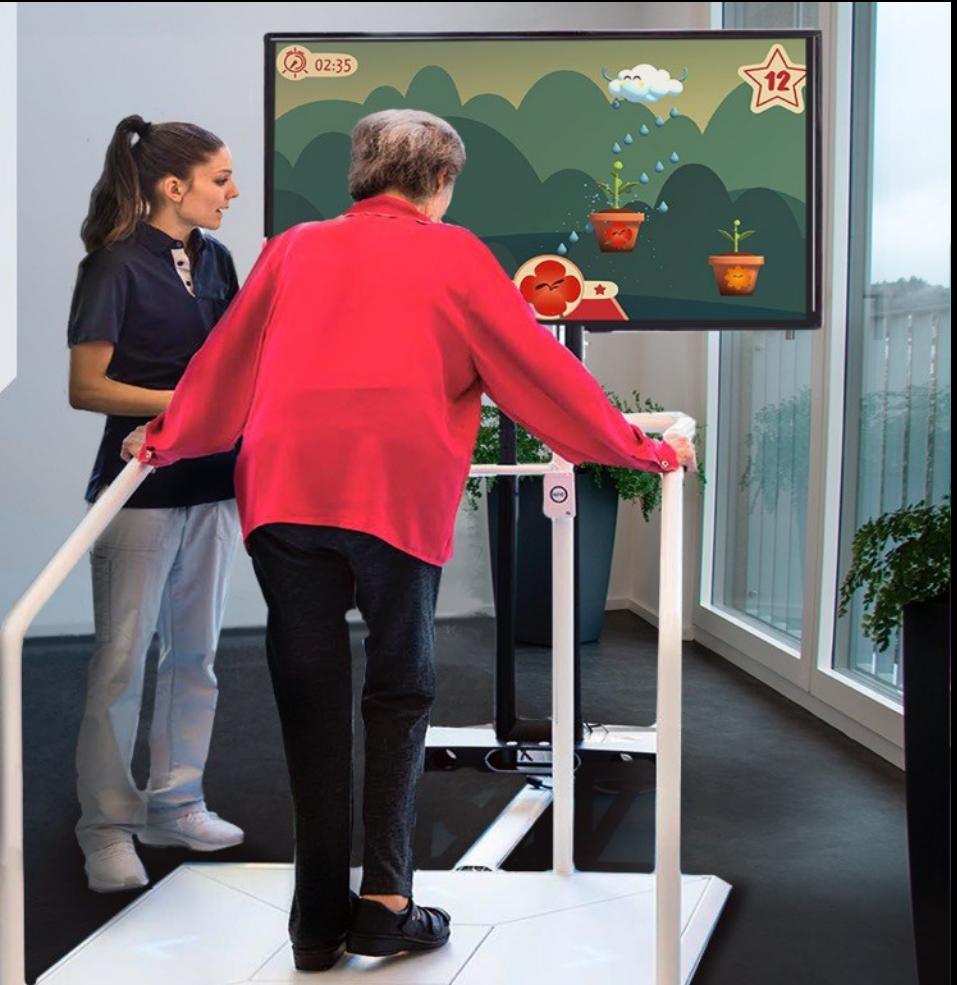
(Martin-Niedecken et al., 2018, 2019, 2020)



(Martin-Niedecken et al., 2020)



(Martin-Niedecken et al., 2016)



(Schättin, Martin-Niedecken et al., 2020)



(Martin-Niedecken et al., 2017, 2018)



(Ringgenberg et al., 2022; Herren et al., 2025)

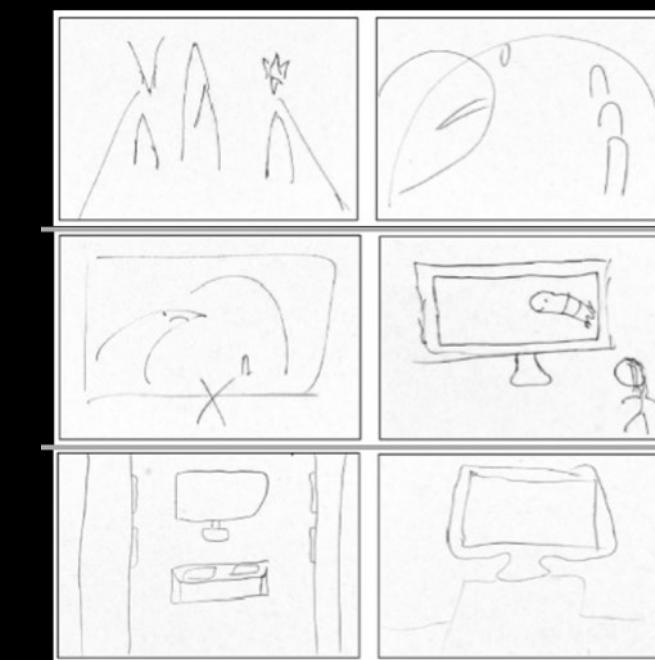


(Martin-Niedecken et al., 2019)

*INTERDISZIPLINÄRER,
NUTZER:INNEN-
ZENTRIERTER,
FORSCHUNGS-BASIERTER
& *ITERATIVER*
DESIGNPROZESS*

Interdisziplinäre «Mixed Methods»

- Literatur-Review
- Analyse anderer Anwendungen
- Fokusgruppen
- Partizipative Beobachtung
- Kontextanalyse
- Co-Creation Workshops
- User Journey & Empathy Mapping
- Bodystorming
- Sketching
- Walkthrough
- Technologische Exploration
- Feldtestungen
- Usability Study
- User & Player Experience Fragebögen
- Lab-Studien
- RCT
- ...



SENSO EXPLORIA

F&E Projekte (2018-2021) / Innosuisse

Senso Exploria: Exergames für MS Patient:innen



Dividat

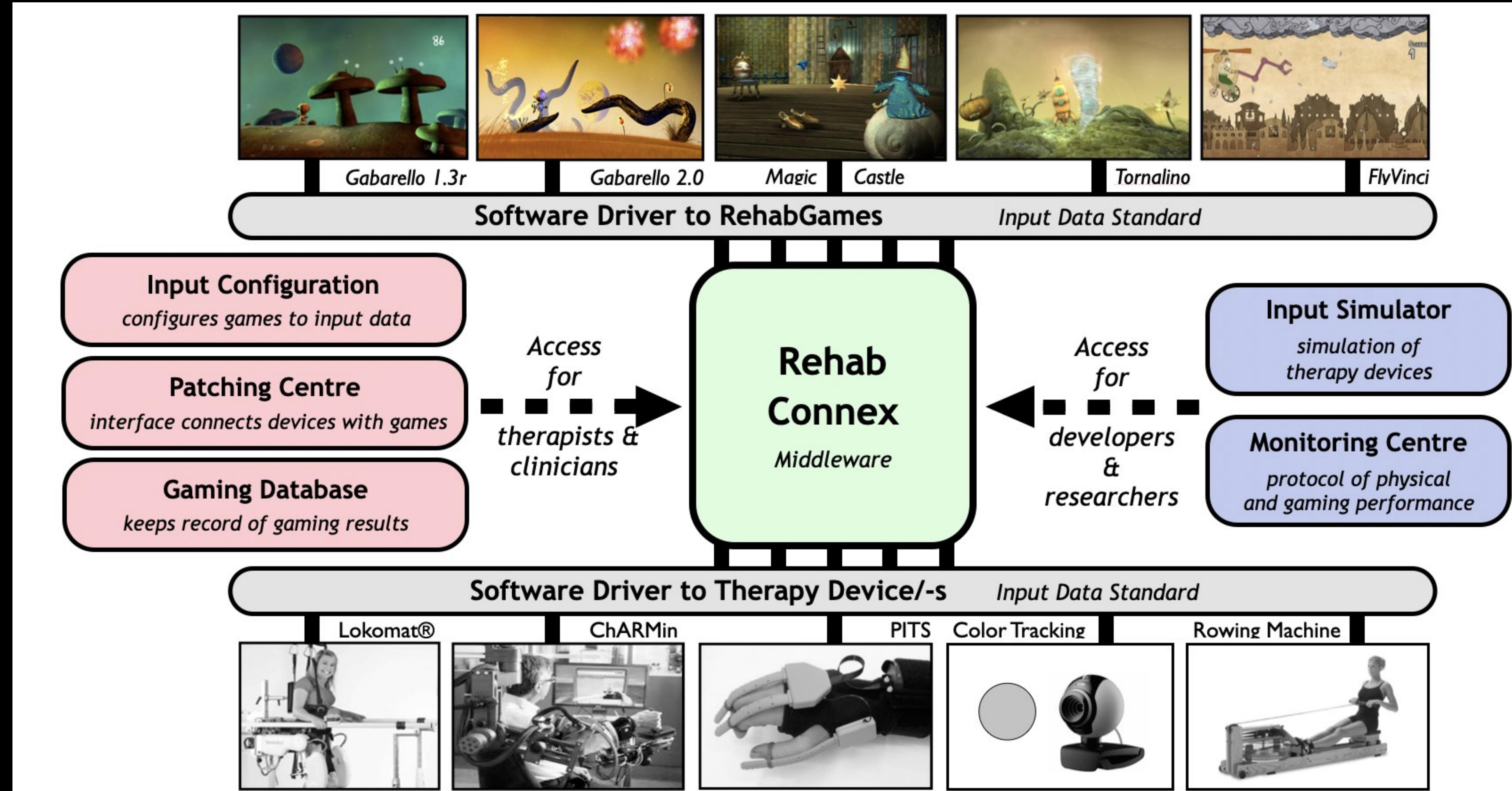
A photograph of a child with a physical disability using a specialized therapy machine. The child is seated in a black harness attached to a mechanical arm that is suspended from a ceiling track. The machine has various sensors and actuators. In the background, there's a large screen displaying a blue landscape with a large sun, and a control panel with a red button. The room has light-colored walls and a mural of trees.

IMIC

INNOVATIVE MOVEMENT THERAPY IN CHILDHOOD

F&E Projekt (2008-2015) / Mäxi Stiftung

IMIC: Spielbasierte, robotergestützte, pädiatrische Bewegungstherapie



(Martin-Niedecken et al., 2015)

PLUNDER PLANET

F&E Projekt (2015-2018) / Sportfonds Kanton Zürich



139bpm

16:72:3

THE EXERCUBE

PhD & F&E Projekt – ZHdK-SpinOff (ausgegründet 2018)

EXPLORATION

«Plunder Planet» & «The ExerCube»

PLUNDER
PLANET
AN ADAPTIVE EXERGAME ENVIRONMENT

(S)

EINFLUSS UNTERSCHIEDLICHER DESIGNPARAMETER

BEWEGUNGSKONZEPT

Bewegungskonzept



**AUDIO-VISUELLES,
NARRATIVES DESIGN &
MECHANIKEN**

Game Scenarios & Mechaniken



CONTROLLER

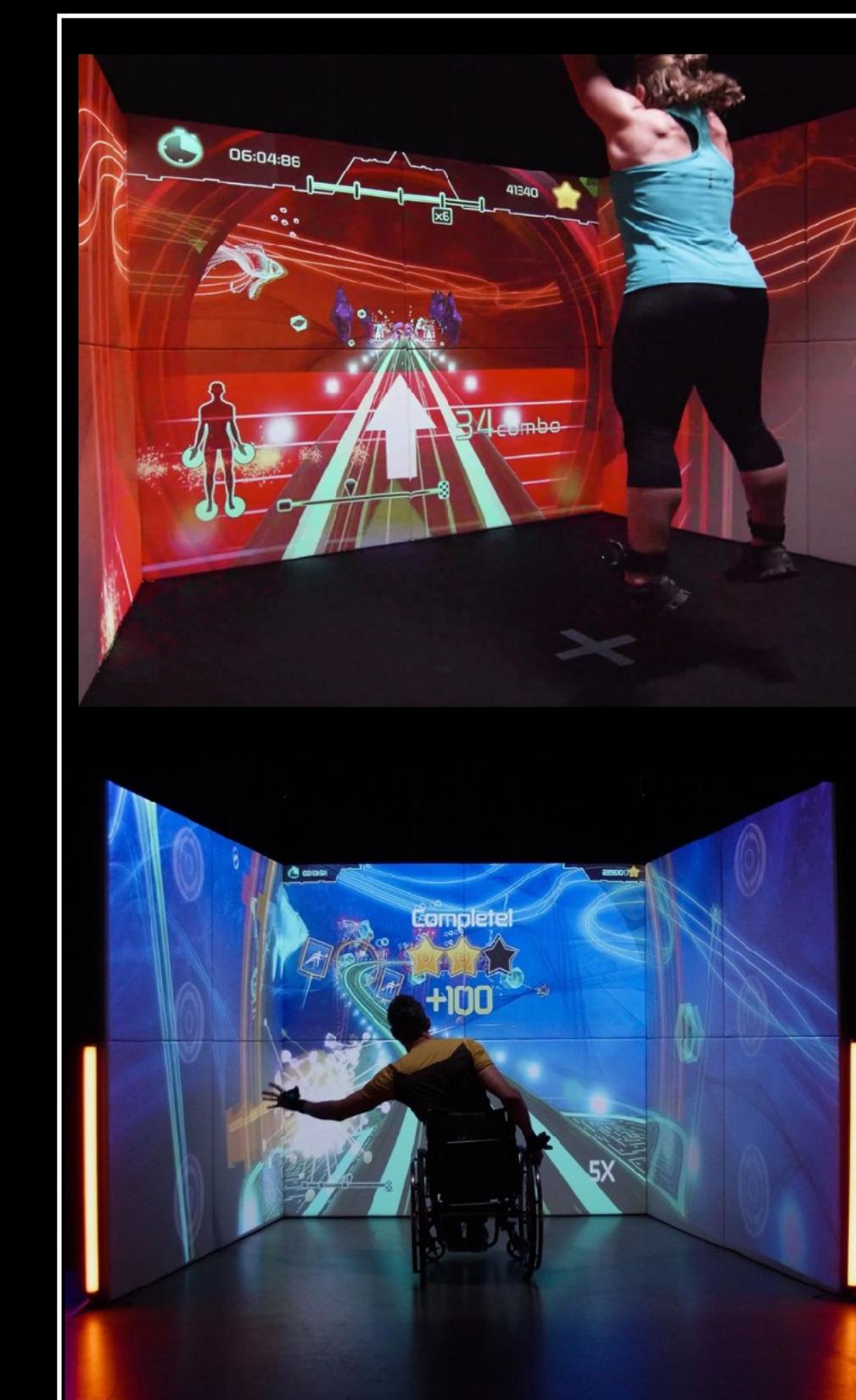
Controller

FULL-BODY-MOTION CONT^I

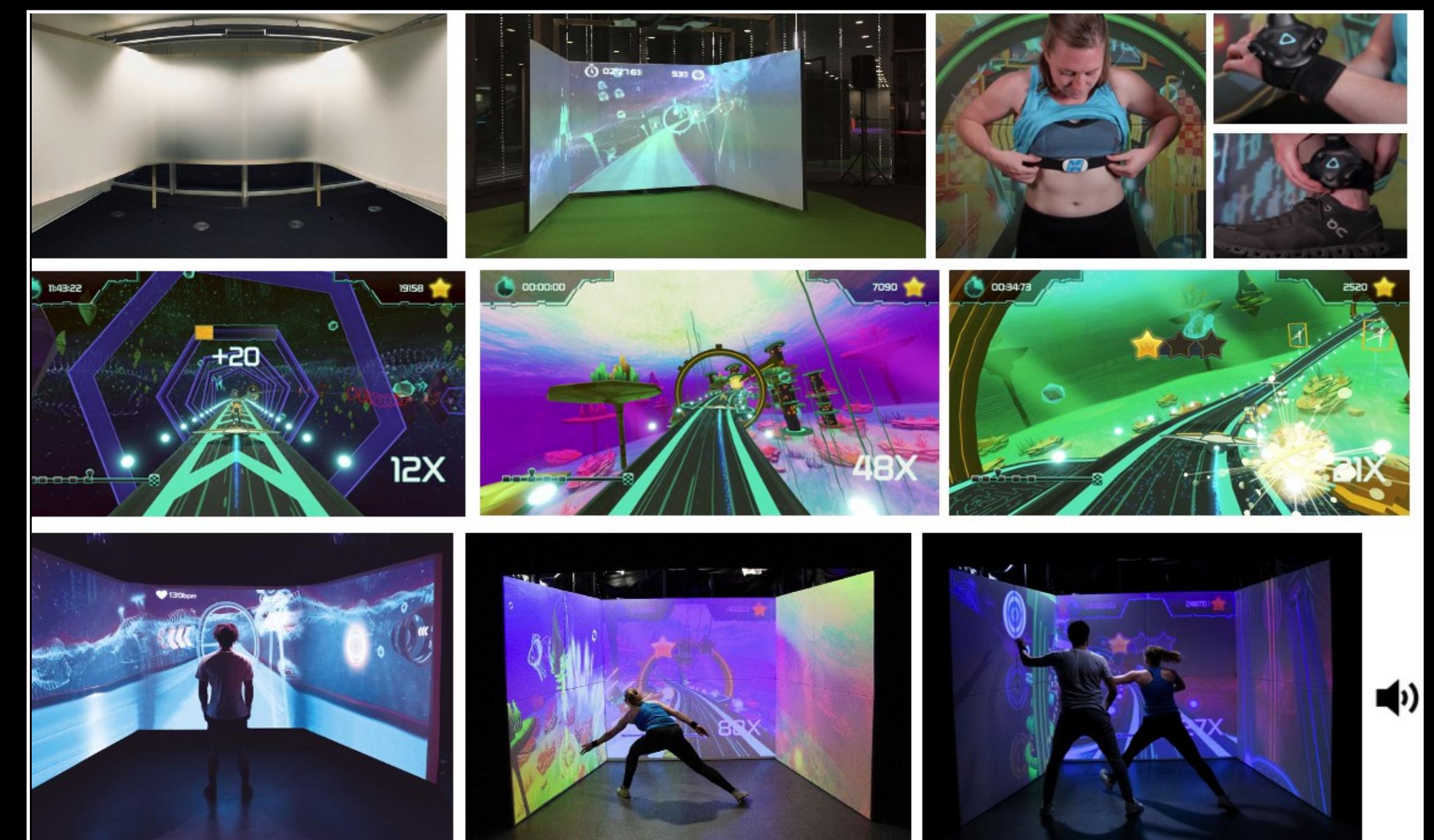
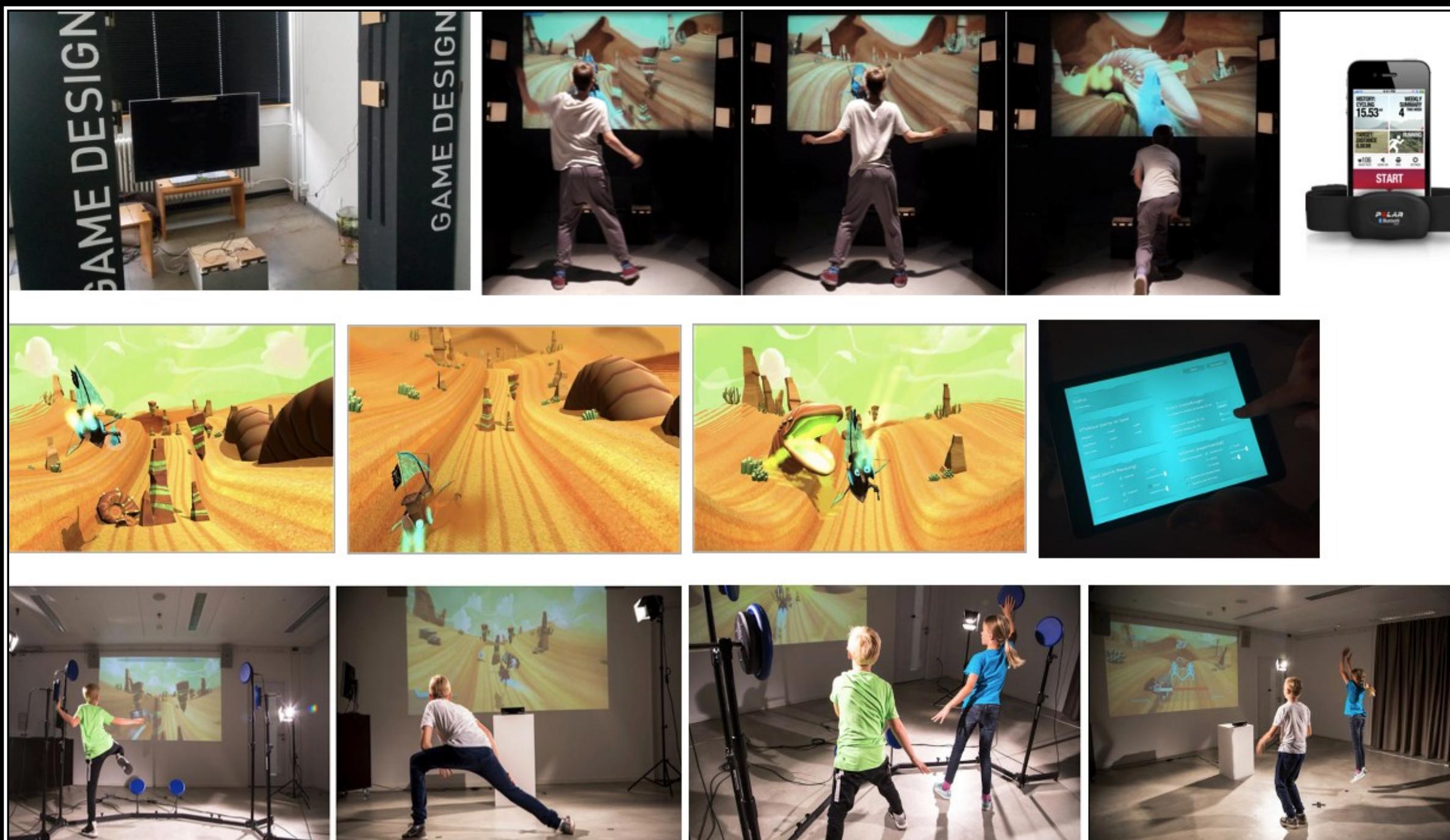


PLAYER MODE

Player Mode



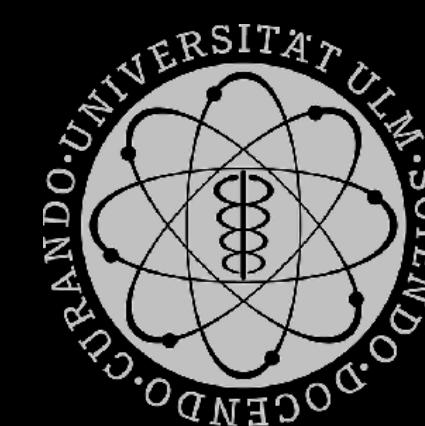
Forschungsbasierte, nutzerzentrierte Designiterationen







Internationales Forschungsnetzwerk



TECHNISCHE
UNIVERSITÄT
DARMSTADT



uc3m

Universidad
Carlos III
de Madrid

Aix*Marseille
université
Socialement engagée



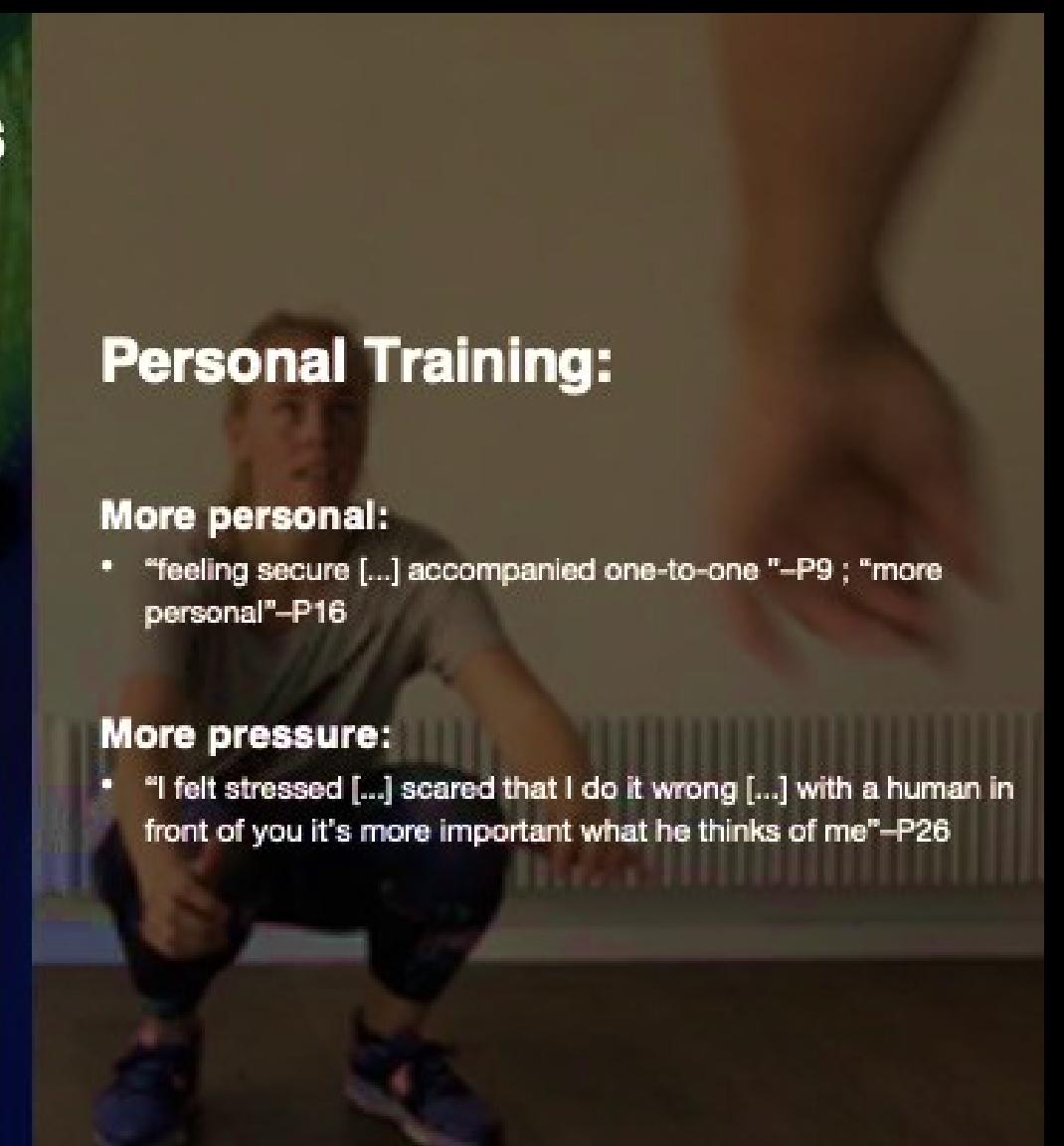
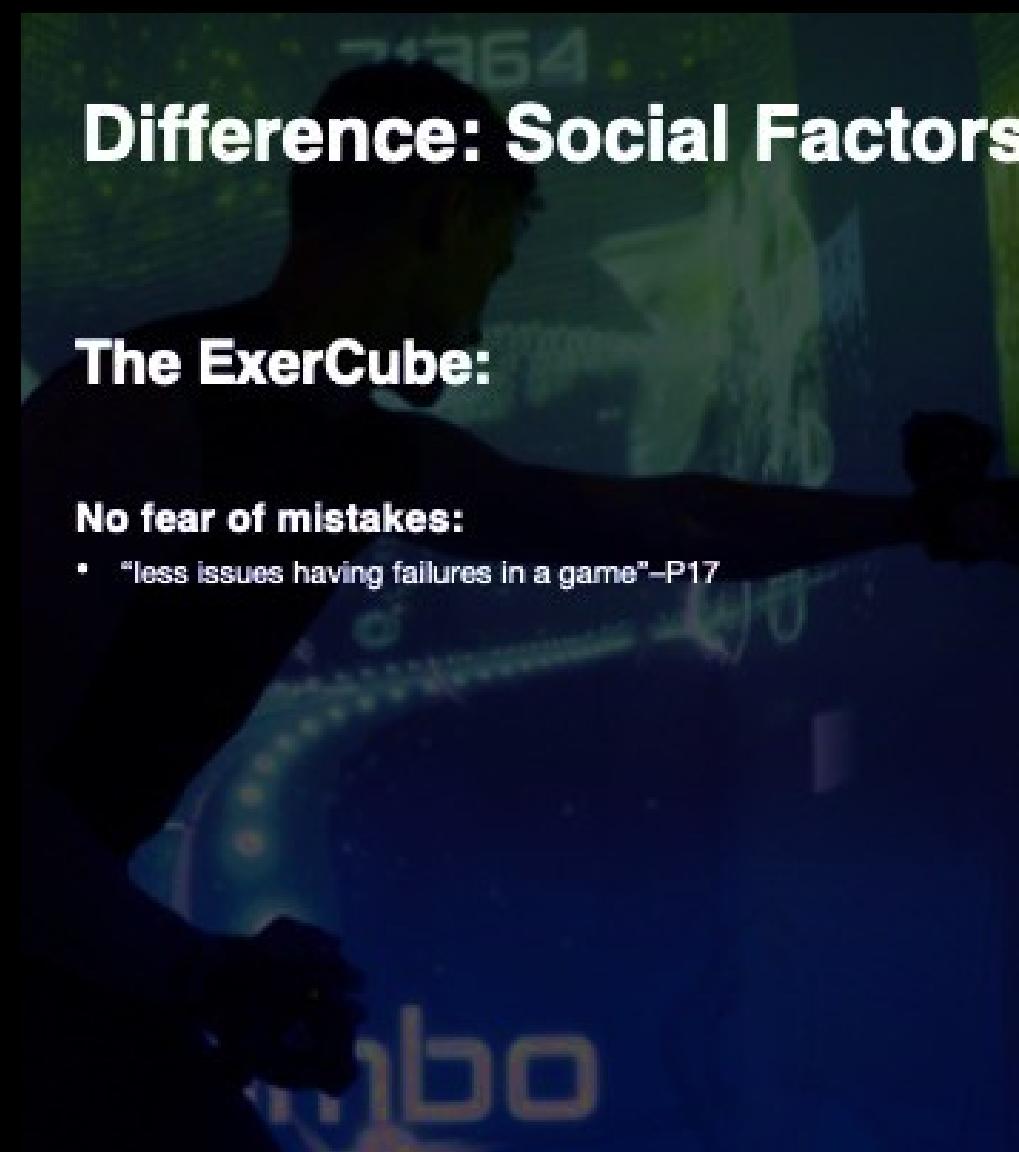
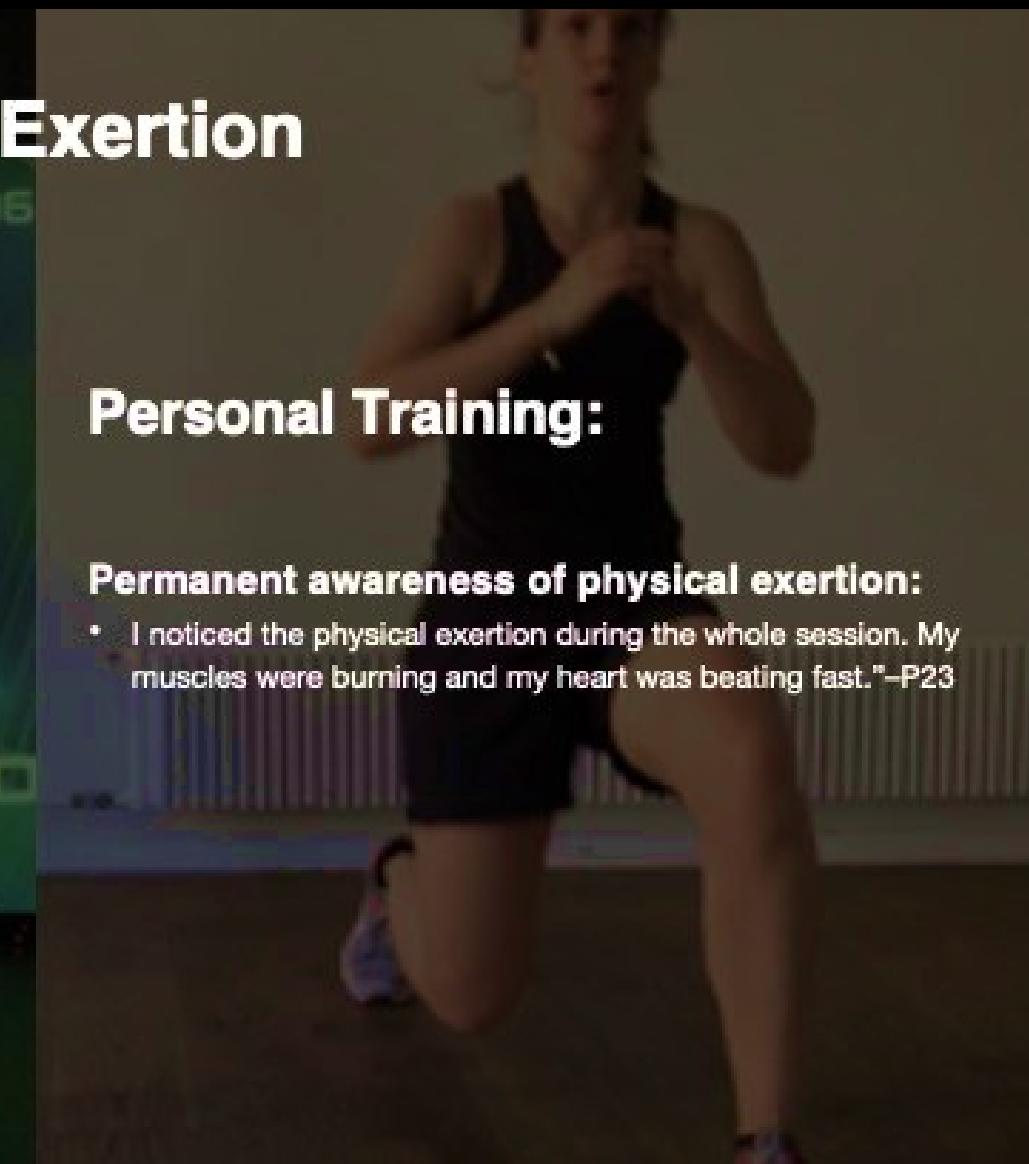
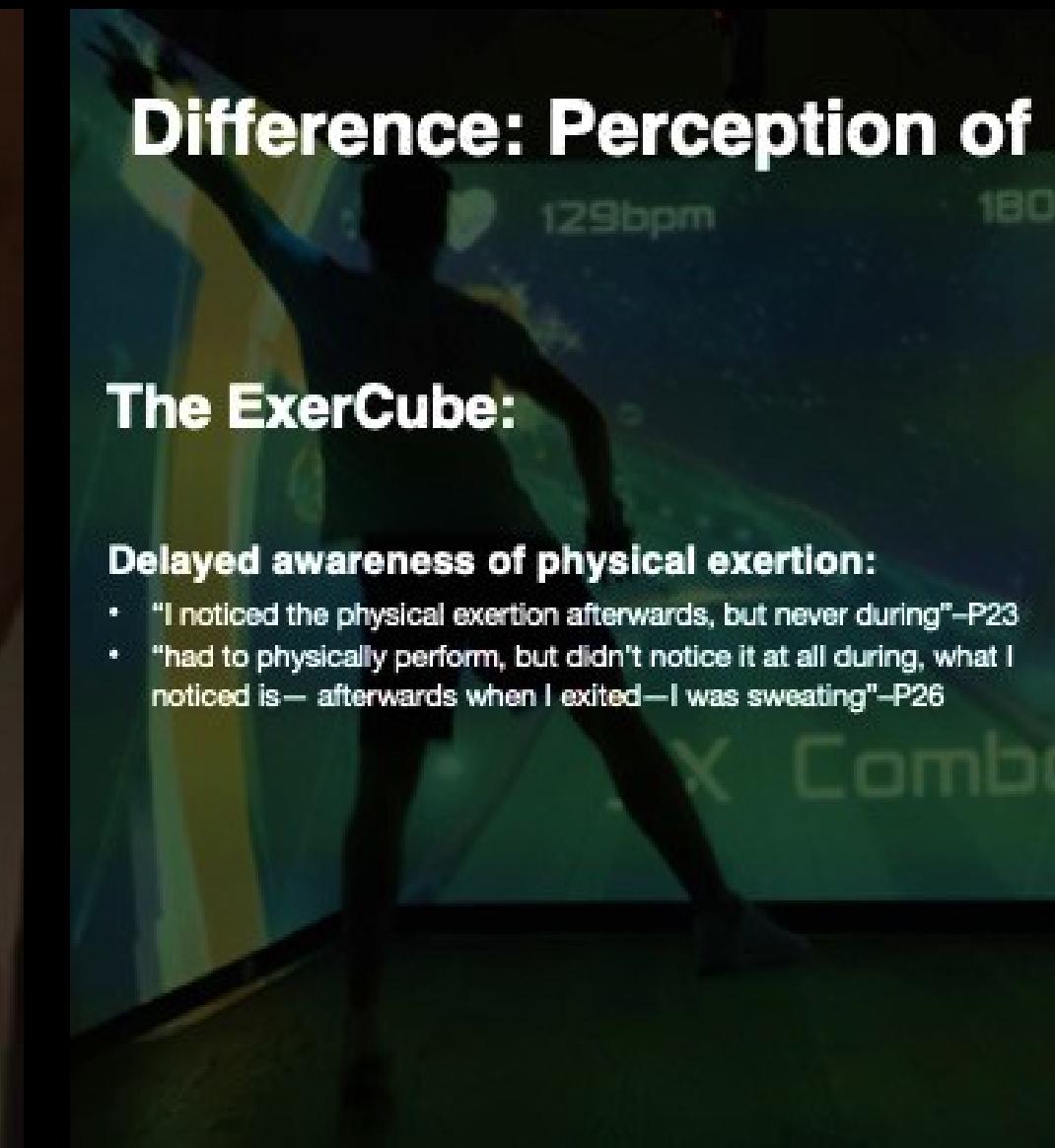
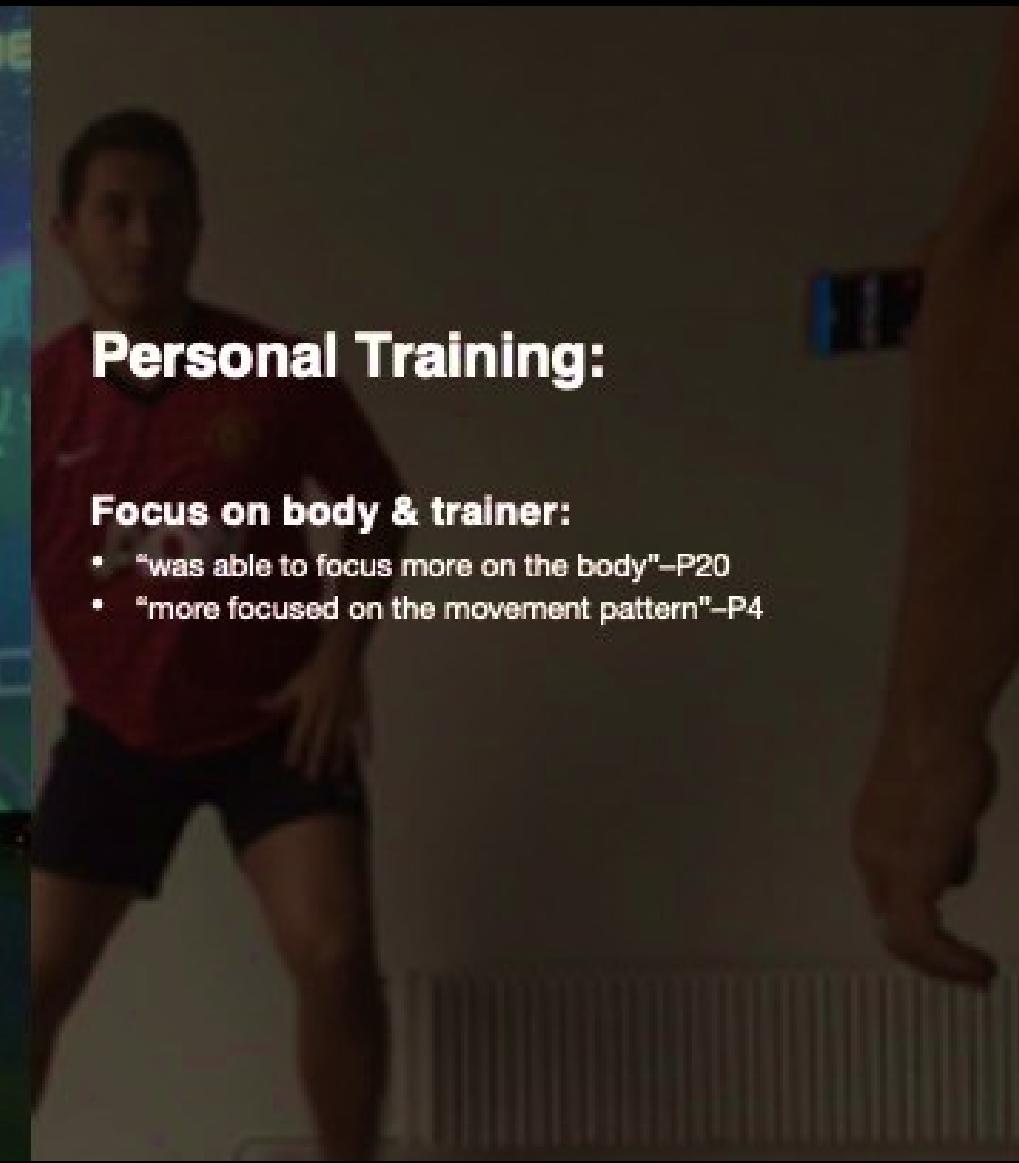
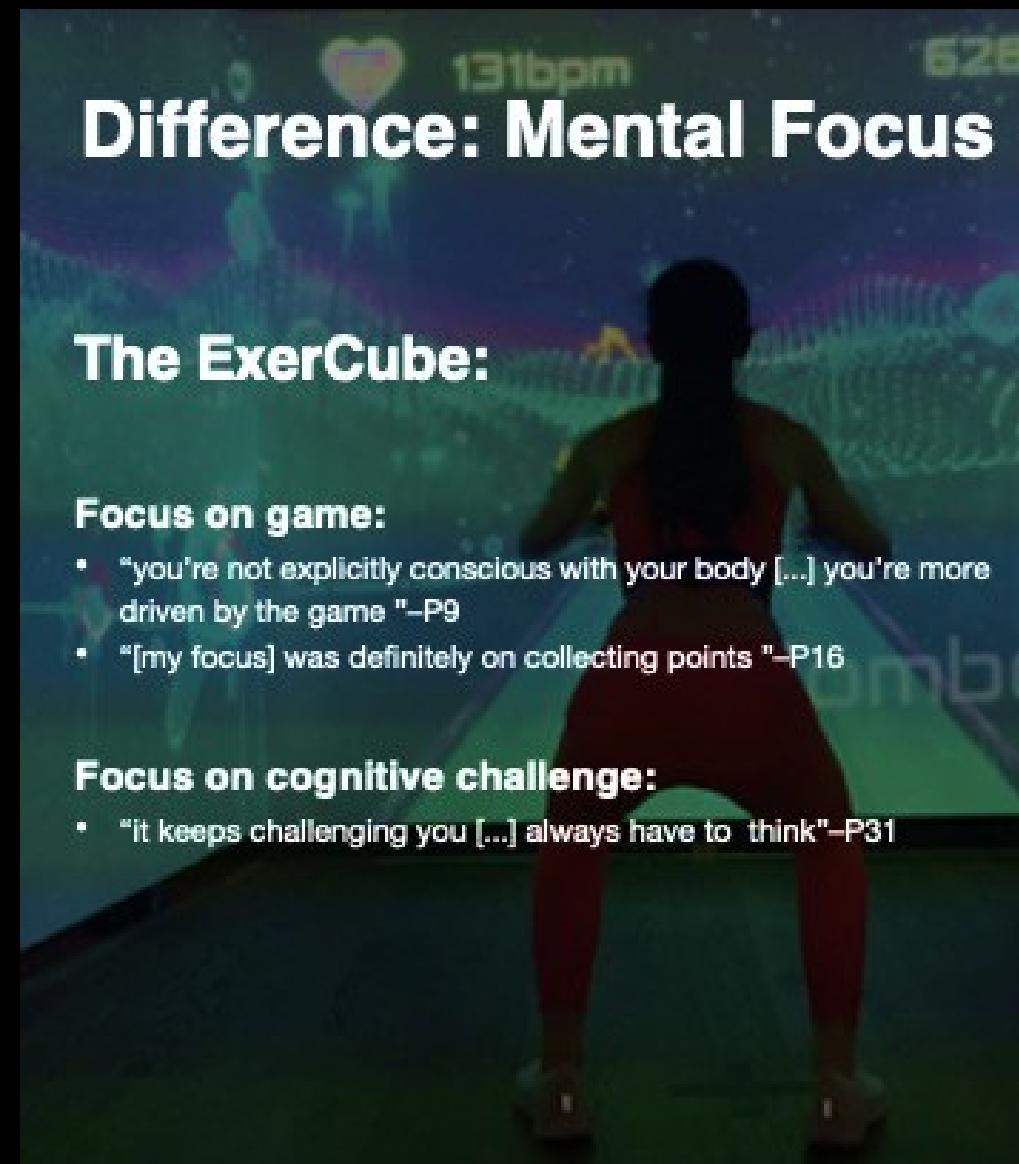
...

EVALUATIONEN & ITERATIONEN

ExerCube vs. Personal Trainer



ExerCube vs. Personal Trainer – Subjektives Erleben



PT:

- Spielerfokus auf eigenem Körper
- Höhere körperliche Anstrengung
- «Sozialer Druck»

ExerCube:

- Geringere körperliche Anstrengung
- Höhere kognitive Anstrengung
- «Sich frei fühlen»

Vergleich Effektivität

	ExerCube	Traditional fHIIT	z	p	r
Average HR [bpm]	155.0 [141.5; 161.3]	159.5 [150.3; 167.0]	-2.878	.003*	0.46
Average HR (% of calculated HR_{max})	78.7 [72.6; 82.2]	81.1 [77.9; 85.8]	-2.837	.005*	0.45
Maximal HR [bpm]	182.5 [172.0; 191.0]	180.5 [176.0; 190.8]	-0.262	.806	0.04
Maximal HR (% of calculated HR_{max})	93.0 [88.7; 97.4]	91.6 [93.6; 97.3]	-0.302	.388	0.05
	ExerCube	Traditional fHIIT	z	p	r
Borg_{physical}	7.0 [6.0;8.0]	9.0 [8.0;9.0]	-3.020	.001*	0.48
Borg_{cognitive}	6.5 [5.0; 8.0]	5.0 [4.0; 6.0]	-1.603	.113	0.25

*=p<.05=significant

ExerCube:

- etwas geringere körperliche Anstrengung, ABER die durchschnittl. Herzfrequenz erreichte die funktionelle HIIT-Schwelle
- subjektiv höhere kognitive Belastung (Dual-Domain-Training)

(Martin-Niedecken et al. 2020)

Vergleich Attraktivität

Questionnaires		ExerCube	Traditional fHIIT	z	p	r
SIMS	intrinsic motivation	6.5 [5.8; 6.8]	5.1 [4.5; 5.5]	-3.566	<.001*	0.56
	identified regulation	6.3 [5.5; 6.7]	6.0 [5.6; 6.7]	-0.029	>.999	0.01
	external regulation	1.3 [1.0; 2.4]	1.6 [1.3; 2.7]	-0.940	.367	0.15
	amotivation	1.0 [1.0; 1.6]	1.3 [1.0; 1.9]	-0.939	.388	0.15
FSS	overall	6.0 [5.6; 6.4]	5.4 [4.9; 5.8]	-3.663	<.001*	0.58
	fluency of performance	6.3 [5.5; 6.5]	5.7 [5.2; 6.4]	-1.708	.088	0.27
	absorption by activity	6.0 [5.5; 6.5]	4.9 [4.5; 5.8]	-3.436	.001*	0.54
	perceived importance	1.7 [1.0; 2.2]	1.0 [1.0; 1.8]	-2.519	.012*	0.40
PACES		6.3 [6.0; 6.6]	5.0 [4.7; 5.5]	-3.884	<.001*	0.61

*=p<.05=significant

- ExerCube: sig. bessere Ergebnisse für Flow, Freude und Motivation

(Martin-Niedecken et al. 2020)

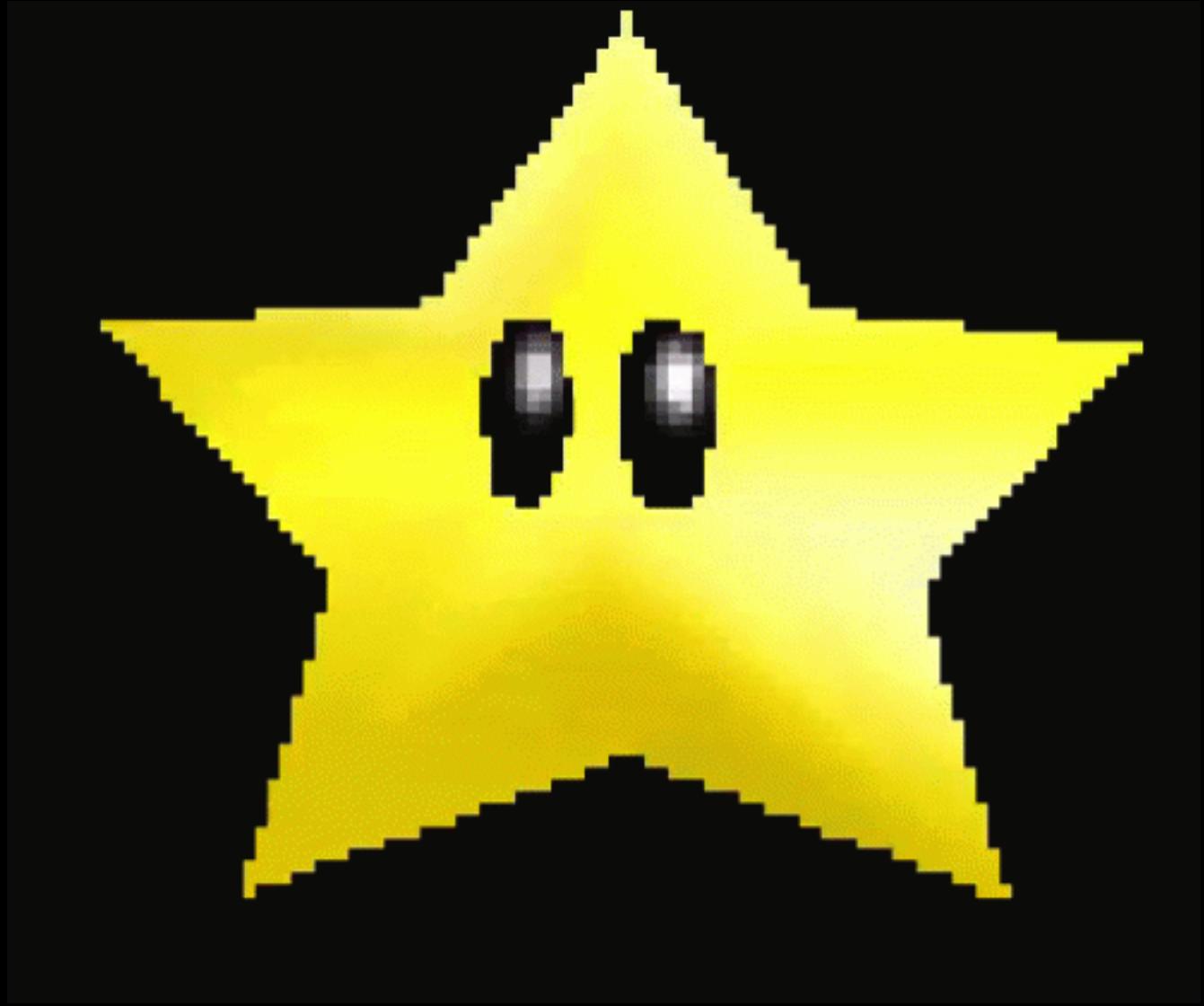
Body Storming – Multiplayer Makeover



- Unterschiedlich ausbalancierte Erfahrungen von sozialem Eintauchen, Spass sowie körperlicher und kognitiver Anstrengung
- Identifikation vielversprechender neuer Spielerformationen

(Martin-Niedecken et al., 2019)

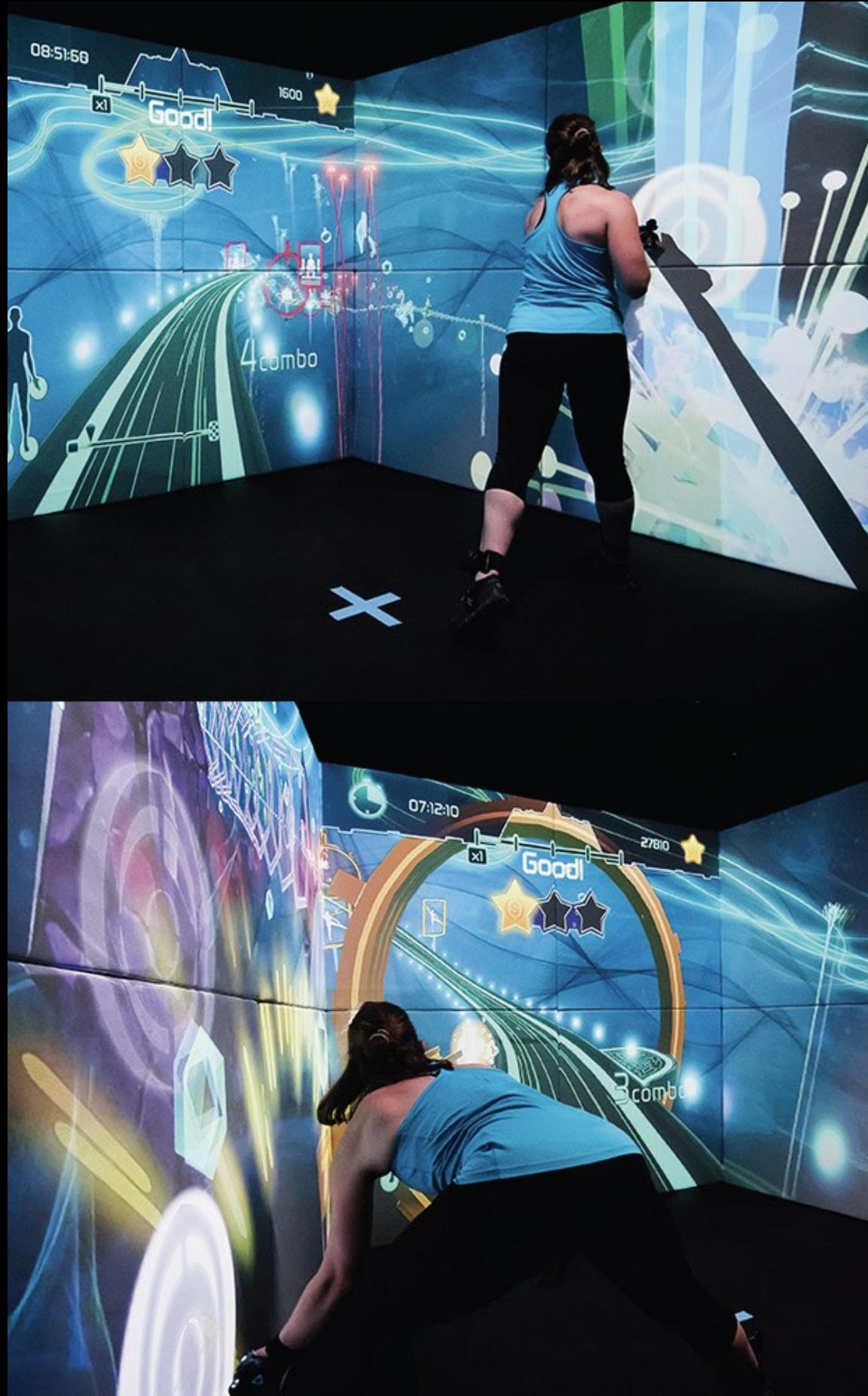
EXERCUBE BODYSTORMING





EVALUATION

ExerCube-Training für Nachwuchsthathlet:innen

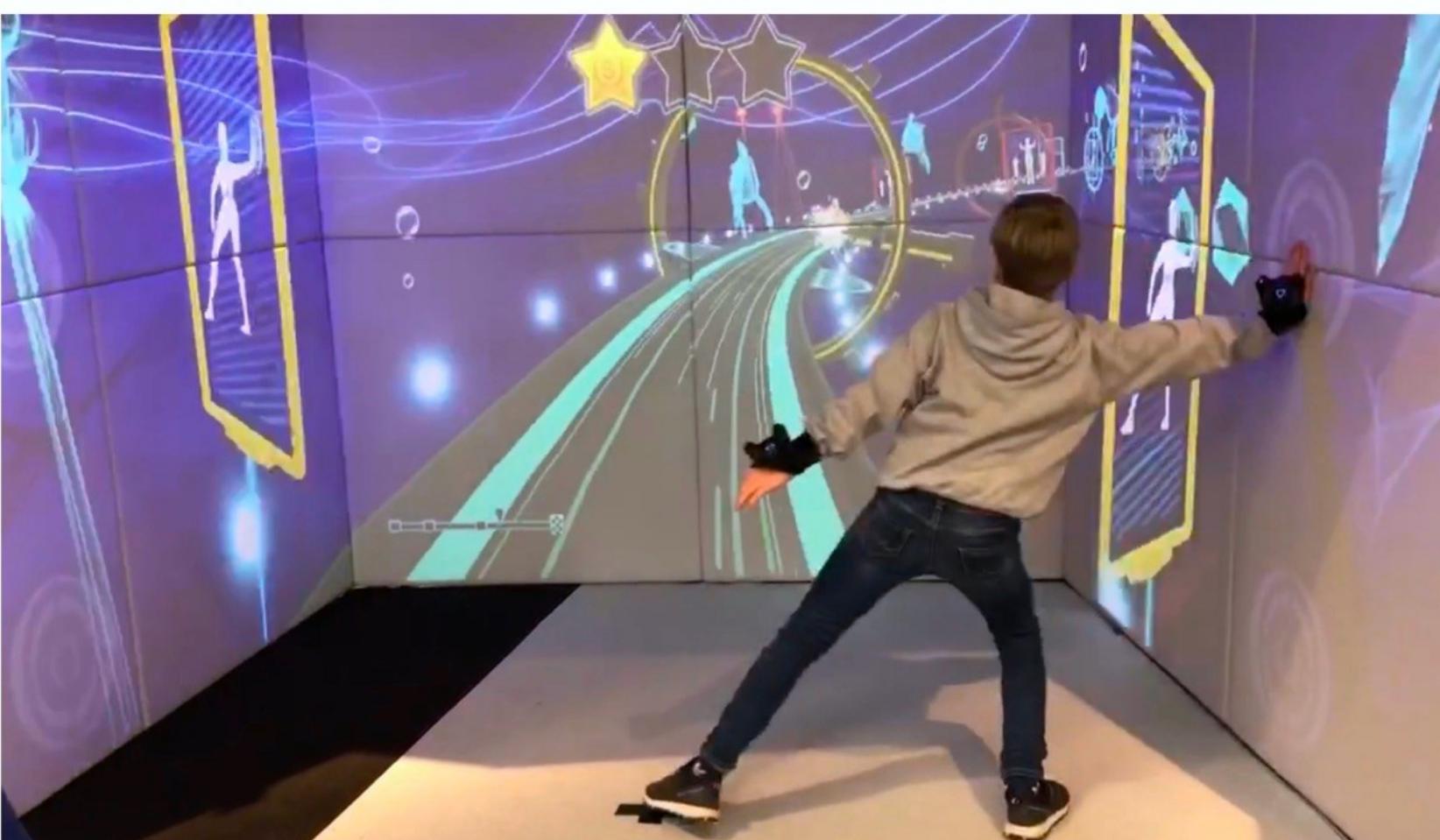
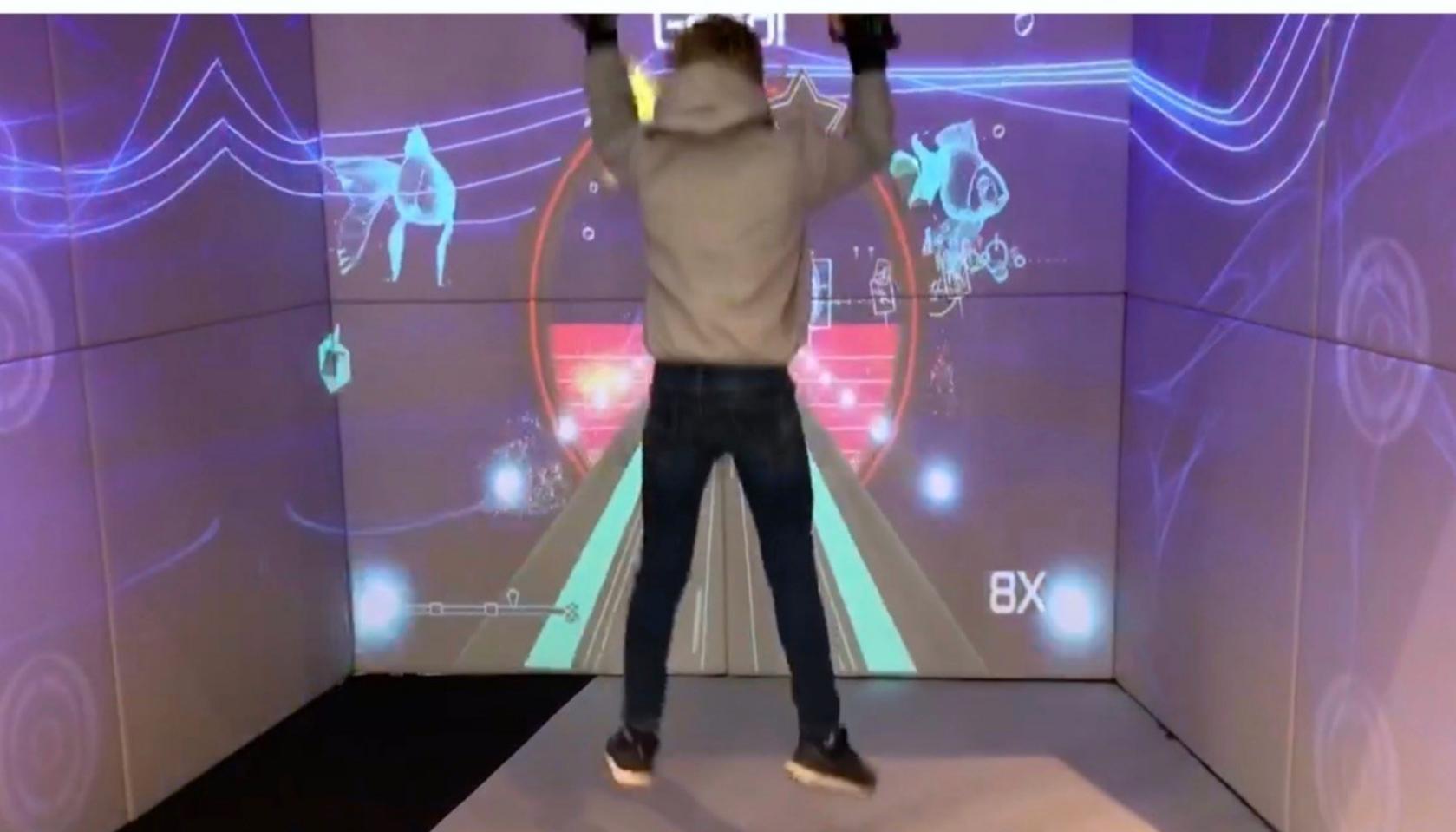


Ziel: Gewinnung von Erkenntnissen über die Trainingseffekte des ExerCube auf kognitive (und motorische) Funktionen

Results – Non-Randomized Controlled Trial

- 24 Nachwuchsathlet:innen im Spielsport (15 ± 0.7 Jahre; 46% Mädchen)
- 10 Wochen Interventionszeit → auf 8 Wochen verkürzt wegen pandemiebedingten Restriktionen:
 - Interventionsgruppe: 2x 25min ExerCube Training pro Woche + sportartspezifisches Training
 - Kontrollgruppe: nur sportartspezifisches Training
- Sig. positive Effekte auf **kognitive (motorische) Fähigkeiten** (schnellere Reaktion), besonders auf **Konzentration** ($U=-2.483$, $p=0.013$, $r=0.51$), **kognitive Flexibilität** ($F=12.176$, $p<0.001$, $d=1.488$) und **geteilte Aufmerksamkeit** ($F=9.776$, $p=0.002$, $d=1.404$).

ExerCube @School



Ziel: Untersuchung der Effekte einer schulbasierten Exergame-Intervention auf anthropometrische Parameter und körperliche Fitness.

Ergebnisse – Randomized Controlled Trial

- 58 Schüler:innen (10.4 ± 0.8 Jahre; 48% Mädchen)
→ nur 34 Schüler in finale Analyse eingeschlossen aufgrund pandemiebedingter Restriktionen
- 3 Monate Interventionslaufzeit:
 - Interventionsgruppe: 2x 20min ExerCube Training pro Woche+ Schulsport
 - Kontrollgruppe: nur Schulsport

Outcome	IG (n = 18)		CG (n = 16)		p-Values	η^2
	Pre	Post	Pre	Post		
BMI ($\text{kg}\cdot\text{m}^{-2}$)	21.7 ± 4.0	21.6 ± 4.2	19.3 ± 4.1	19.7 ± 4.1	n.s.	0.063
WHtR	0.47 ± 0.05	0.46 ± 0.05	0.44 ± 0.07	0.45 ± 0.07	n.s.	0.114
CMJ (cm)	18.6 ± 5.4	21.1 ± 5.2 ***	20.5 ± 5.2	18.6 ± 3.6 **	<0.001	0.403
ST (s)	4.12 ± 0.45	4.08 ± 0.47	4.06 ± 0.35	4.18 ± 0.32	0.020	0.157
SRT (m)	450.0 ± 228.0	537.8 ± 210.5 *	498.7 ± 208.3	469.3 ± 162.3	0.046	0.122

Abbreviations: Pre—before intervention; post—after intervention; BMI—body mass index; WHtR—waist-to-height ratio; CMJ—countermovement jump; ST—sprint test; SRT—shuttle run test; η^2 –partial eta squared.
* $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$ represent changes from before to after intervention for the IG and CG.
 p -values represent interaction effects.

CMJ = Counter movement jumps

SRT = Shuttle run test

ST = Sprint test

→ für alle sig. Verbesserung der Interventionsgruppe

WHtR = Waist to height ratio

BMI = Body mass index

Ausgewählte Folgestudien

 Journal of Clinical Medicine

Article
Integrating Regular Exergaming Sessions in the ExerCube into a School Setting Increases Physical Fitness in Elementary School Children: A Randomized Controlled Trial

Sascha Ketelhut^{1,*}, Lisa Röglan², Anna Lisa Martin-Niedecken³, Claudio R. Nigg¹ and Kerstin Ketelhut⁴

 frontiers in Cardiovascular Medicine

ORIGINAL RESEARCH published: 27 January 2022 doi: 10.3390/heart2022706149

Gaming Instead of Training? Exergaming Induces High-Intensity Exercise Stimulus and Reduces Cardiovascular Reactivity to Cold Pressor Test

Sascha Ketelhut¹, Reinhard G. Ketelhut², Eva Kircher³, Lisa Röglan¹, Kuno Hottenrott¹, Anna Lisa Martin-Niedecken⁴ and Kerstin Ketelhut⁵

Original Article
Acute Effects of Heart Rate-Controlled Exergaming on Vascular Function in Young Adults

Eva Kircher, MA¹, Sascha Ketelhut, PhD^{2,3}, Kerstin Ketelhut, PhD³, Lisa Röglan, MA^{2,ii}, Anna Lisa Martin-Niedecken, PhD^{4,iii}, Kuno Hottenrott, PhD² and Reinhard G. Ketelhut, PhD^{1,5}

Open camera or QR reader and scan code to access this article and other resources online.



 BMC Part of Springer Nature

Journal of NeuroEngineering and Rehabilitation

Home About Articles Submission Guidelines

Research | Open Access | Published: 16 August 2022

ExerG: adapting an exergame training solution to the needs of older adults using focus group and expert interviews

Nathalie Ringenbergs¹, Sarah Midner¹, Marcia Haqo¹, Sarah Hermann¹, Katharina Kruszewski¹, Anna Lisa Martin-Niedecken¹, Kalja Regens¹, Alexandra Schättin¹, Frank Behrendt¹, Sonja Brückler¹, Stefan Schmidlin¹, Roman Jurt¹, Stephan Niedecken¹, Christian Brennels¹, Leo H. Bonati¹, Corina Schuster-Amft¹ & Barbara Seebacher¹

Journal of NeuroEngineering and Rehabilitation 19, Article number: 89 (2022) Cite this article
2063 Accesses | 2 Citations | 5 Altmetric | Metrics

 International Journal of Environmental Research and Public Health

Article
A Game-Based Approach to Lower Blood Pressure? Comparing Acute Hemodynamic Responses to Endurance Exercise and Exergaming: A Randomized Crossover Trial

Eva Kircher¹, Sascha Ketelhut^{2,*}, Kerstin Ketelhut³, Lisa Röglan², Kuno Hottenrott², Anna Lisa Martin-Niedecken⁴ and Reinhard G. Ketelhut^{1,5}

 Training & Testing Thieme

The New Way to Exercise? Evaluating an Innovative Heart-rate-controlled Exergame

Authors
Sascha Ketelhut¹, Lisa Röglan¹, Eva Kircher², Anna Lisa Martin-Niedecken³, Reinhard Ketelhut^{2,4}, Kuno Hottenrott¹, Kerstin Ketelhut⁵

Exploring the Design Space of Immersive Social Fitness Games: The ImSoFit Games Model

Elena Márquez Segura Computer Science and Engineering Department, Universidad Carlos III de Madrid Madrid, Spain elena.marquez@uc3m.es

Katja Rogers HCI Games Group, Stratford School of Interaction Design and Business, University of Waterloo Waterloo, Canada katja.rogers@acm.org

Anna Lisa Martin-Niedecken Subject Area in Game Design, Department of Design, Zurich University of the Arts Zurich, Switzerland anna.martin@zhdk.ch

Stephan Niedecken Spheery Ltd Zurich, Switzerland stephan@spherry.ch

Laia Turmo Vidal Uppsala University Uppsala, Sweden laia.turmo@im.uu.se

GAMES FOR HEALTH JOURNAL: Research, Development, and Clinical Applications Volume 10, Number 6, 2021 © Mary Ann Liebert, Inc. DOI: 10.1089/g4h.2021.0014

Original Article
Adaptive High-Intensity Exergaming: The More Enjoyable Alternative to Conventional Training Approaches Despite Working Harder

Lisa Röglan, MA¹, Sascha Ketelhut, PhD¹, Kerstin Ketelhut, PhD², Eva Kircher, MA³, Reinhard G. Ketelhut, PhD^{3,4}, Anna Lisa Martin-Niedecken, PhD⁵, Kuno Hottenrott, PhD¹ and Oliver Stoll, PhD¹

ORIGINAL RESEARCH published: 21 June 2021 doi: 10.3399/bsyd.2021.57287

Comparing the Impact of Heart Rate-Based In-Game Adaptations in an Exergame-Based Functional High-Intensity Interval Training on Training Intensity and Experience in Healthy Young Adults

Anna Lisa Martin-Niedecken^{1*}, Tiziana Schwarz² and Alexandra Schättin^{2*}

Open Access Article
Evaluating Changes in Perceived Enjoyment throughout a 12-Week School-Based Exergaming Intervention

by Lisa Röglan^{1,*}, Oliver Stoll¹, Kerstin Ketelhut², Anna Lisa Martin-Niedecken³ and Sascha Ketelhut^{4,*}

¹ Institute of Sport Science, Martin-Luther-University Halle-Wittenberg, 06108 Halle (Saale), Germany
² Department of Medical Education and Health, MSB Medical School Berlin, 14197 Berlin, Germany
³ Institute for Design Research, Zurich University of the Arts, 8005 Zürich, Switzerland
⁴ Institute of Sport Science, University of Bern, 3012 Bern, Switzerland

* Authors to whom correspondence should be addressed.

Children 2023, 10(1), 144; <https://doi.org/10.3390/children10010144>

Received: 22 December 2022 / Revised: 7 January 2023 / Accepted: 9 January 2023 / Published: 11 January 2023

(This article belongs to the Special Issue Physical Education, Physical Activity, and Health Education in Children and Adolescents)

 Psychology of Sport and Exercise

Volume 66, May 2023, 102404

Acute exercise and children's cognitive functioning: What is the optimal dose of cognitive challenge? *

Sofia Anzeneder^a, Cäcilia Zehnder^a, Anna Lisa Martin-Niedecken^b, Mirko Schmidt^a, Valentin Benzing^a

Show more ▾

Share Cite

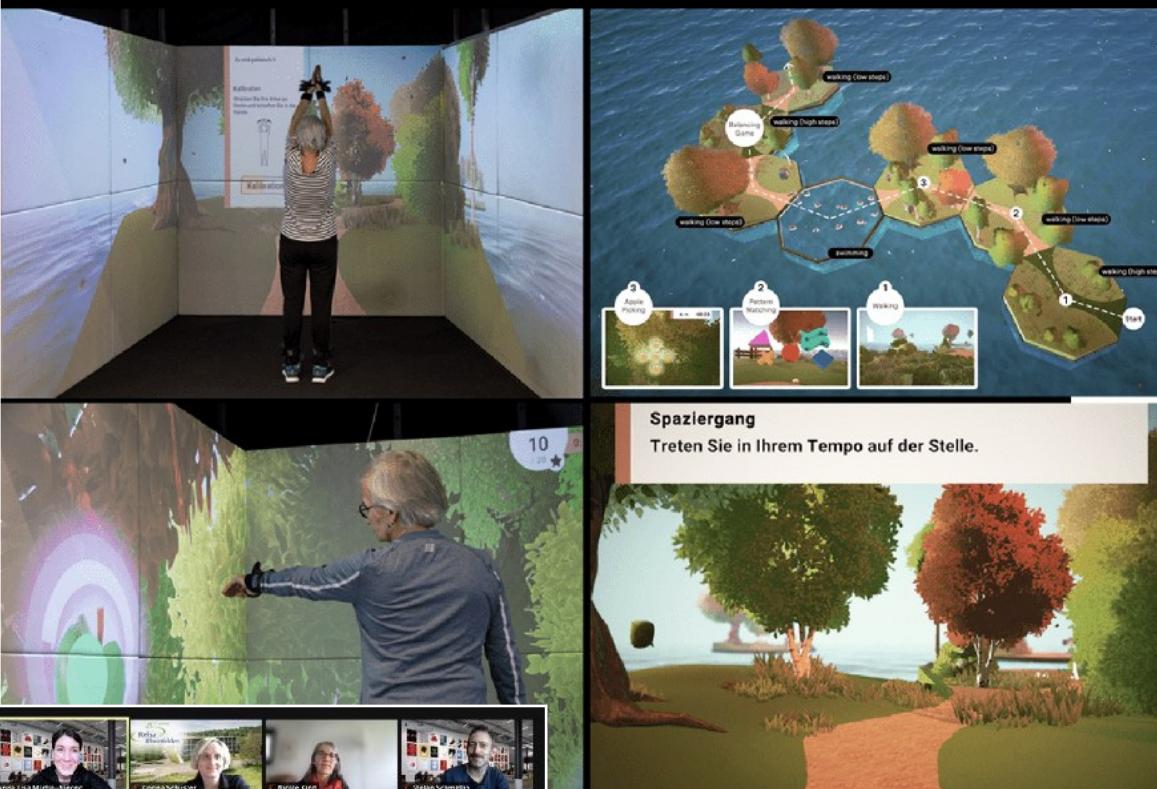
<https://doi.org/10.1016/j.psychsport.2023.102404>

Get rights and content Under a Creative Commons license open access

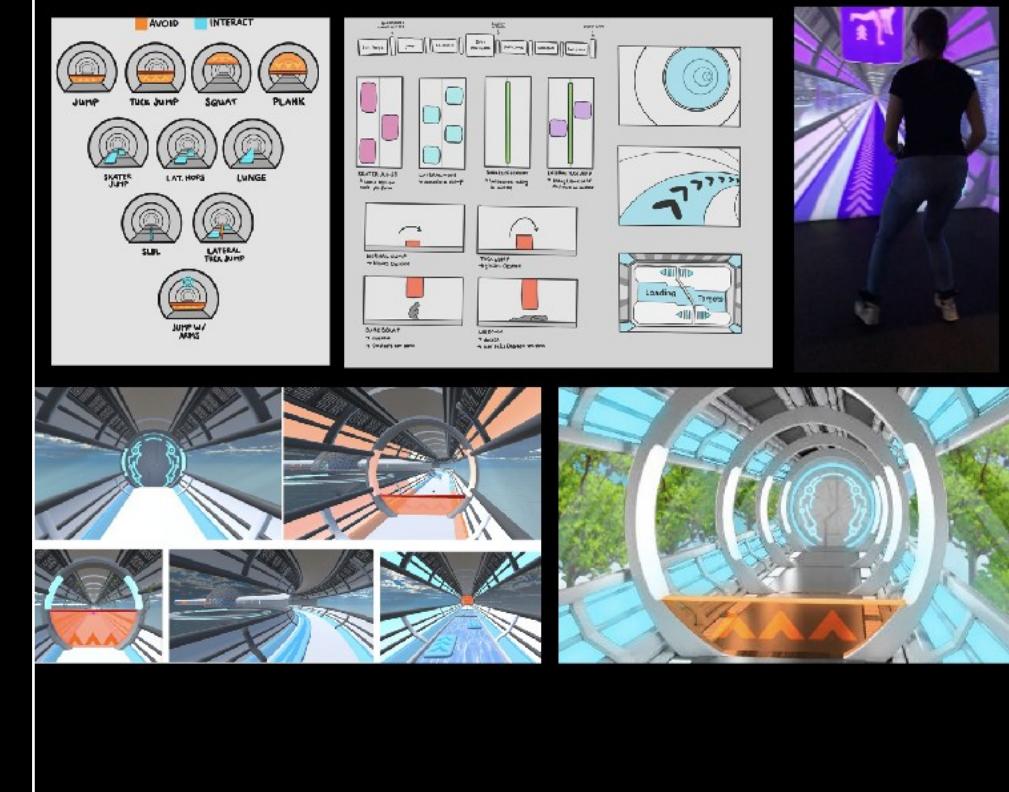
ERWEITERUNG

F&E Folgeprojekte

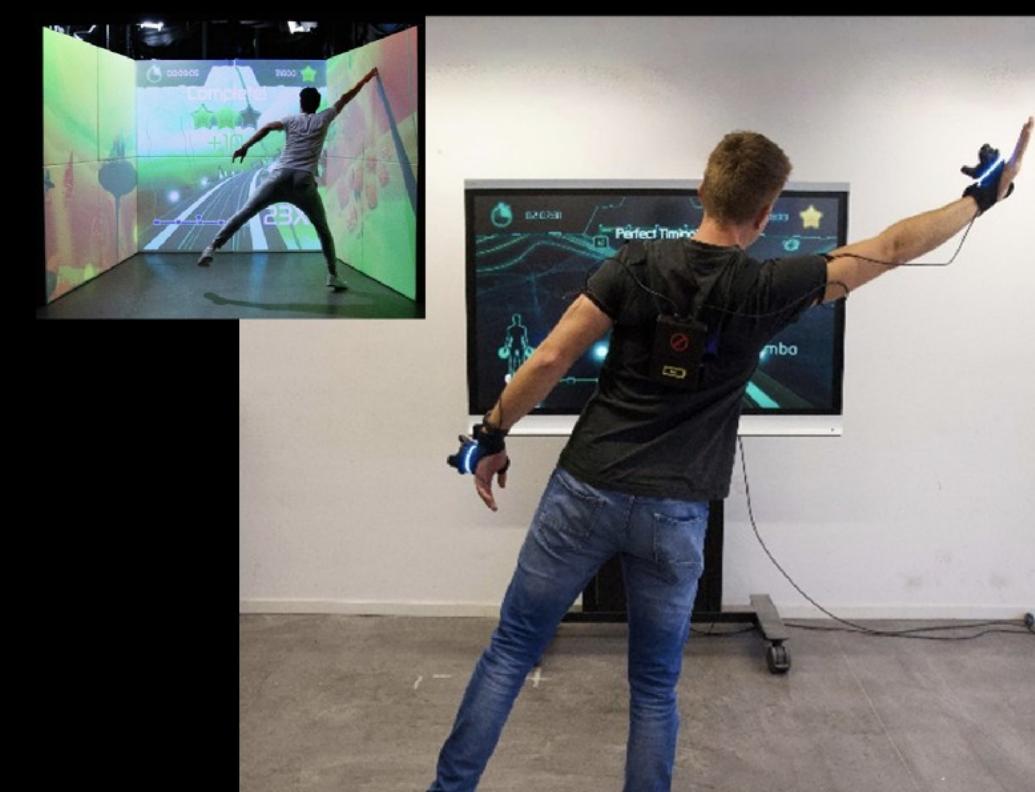
ExerG: Exergame-based Geriatric Therapy



ExerUp: «Control to Chaos» in Sports Rehabilitation



ExerCube @Home: On-Body Game Elements



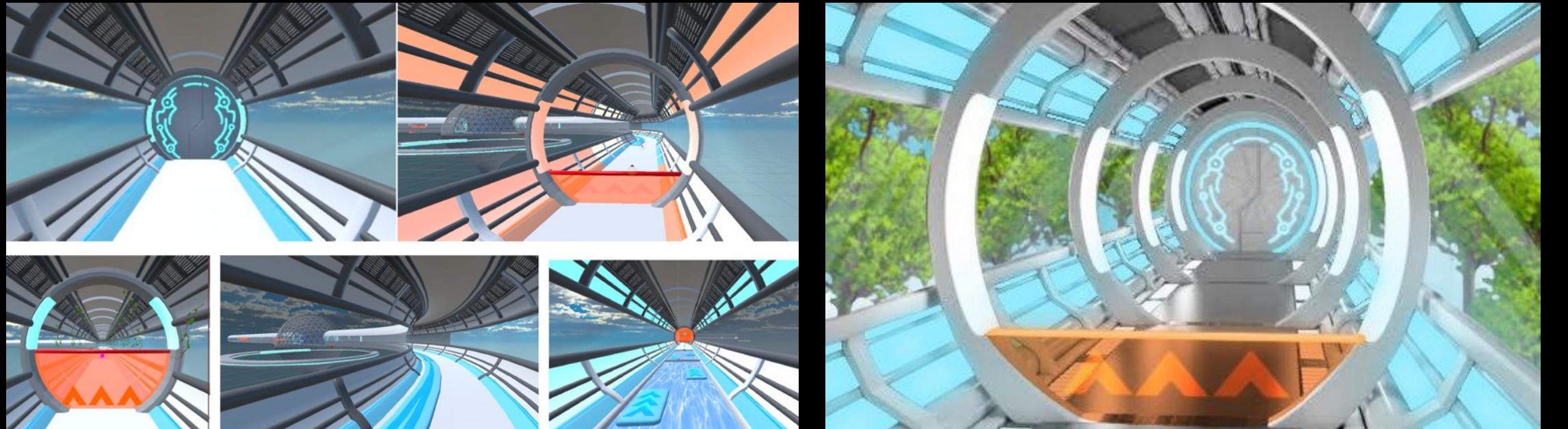
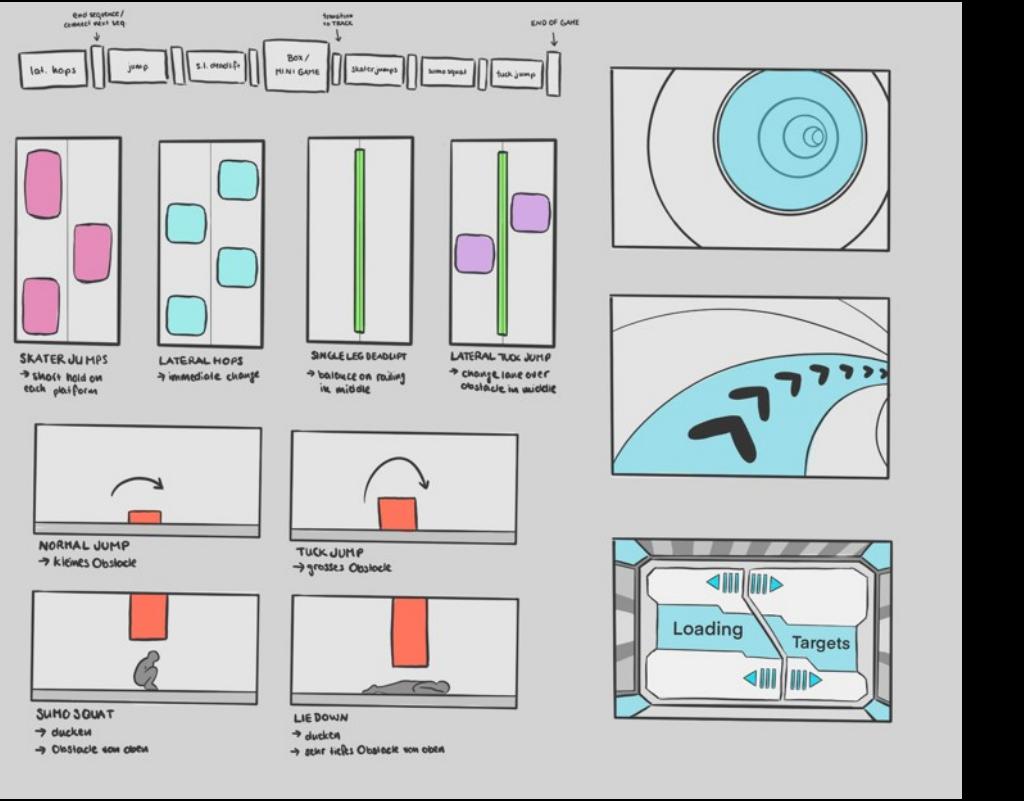
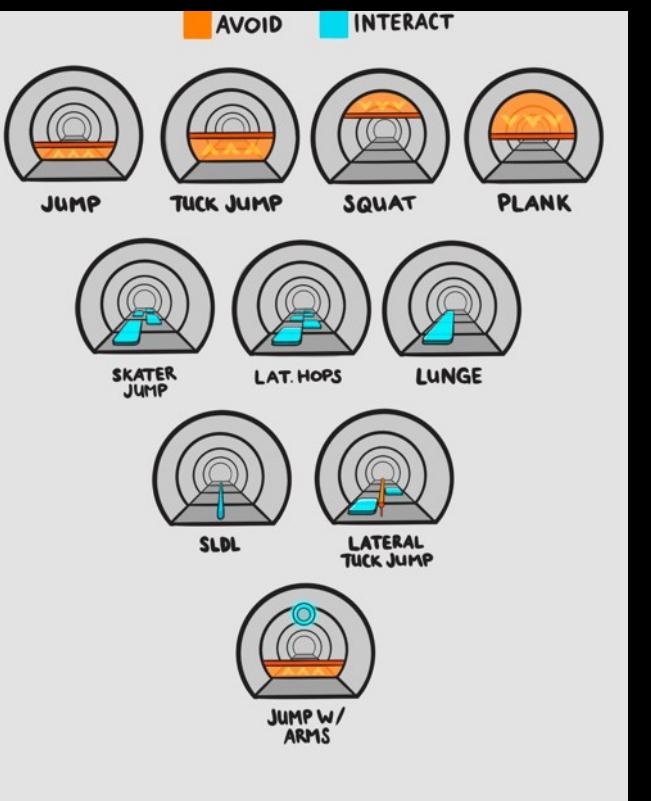
ExerUp: Exergame-basierte Sportrehabilitation



ExerUp: Exergame-basierte Sportrehabilitation



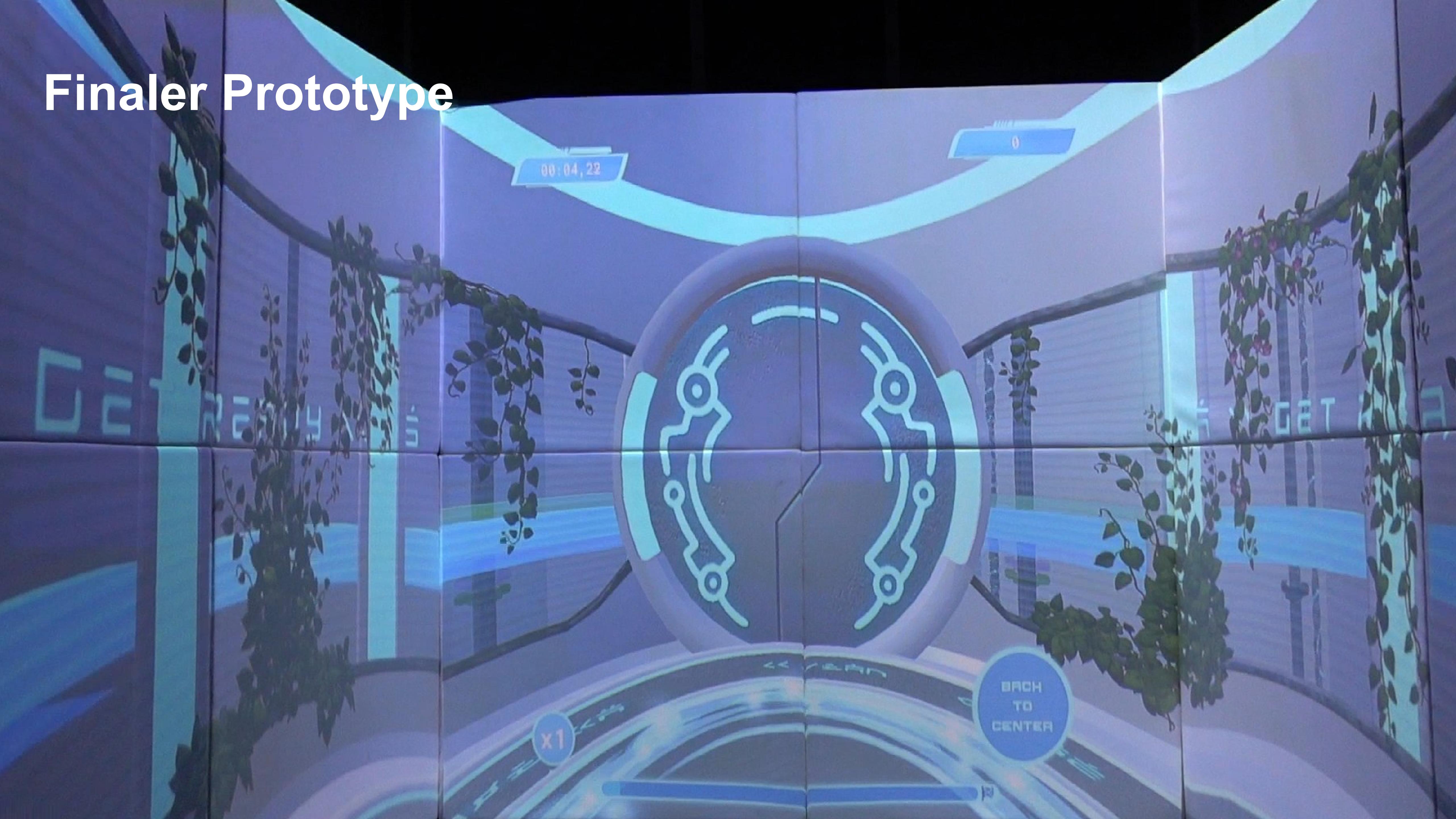
«Control to Chaos»



Fokus:

- Phase 3 der Rehabilitation nach Kreuzbandriss
- Return to sports (control to chaos)

Finaler Prototype



Finales Produkt

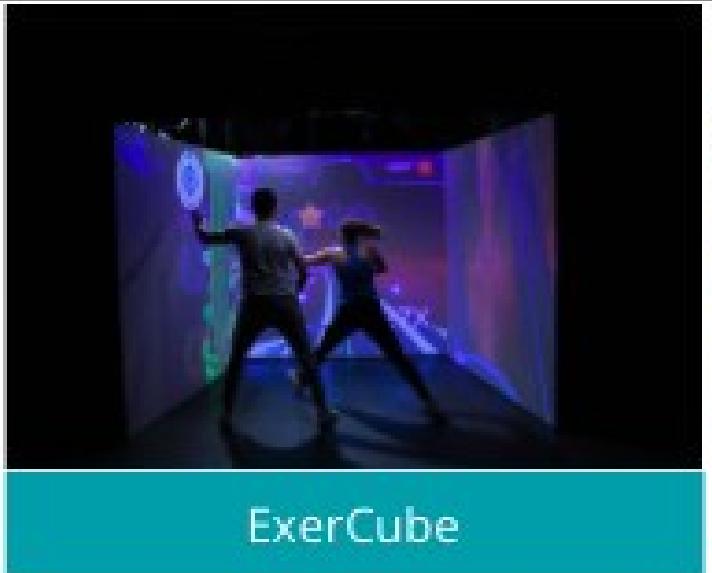


ExerUp Portal

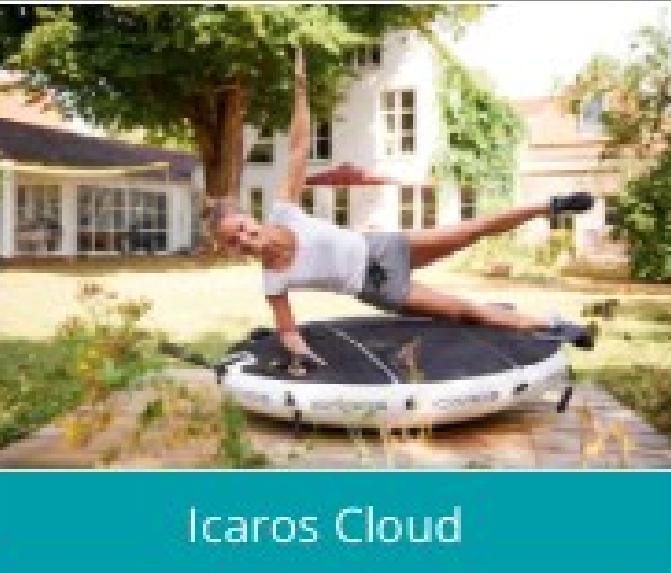
EXERUP! PORTAL



Dividat Senso



ExerCube



Icaros Cloud



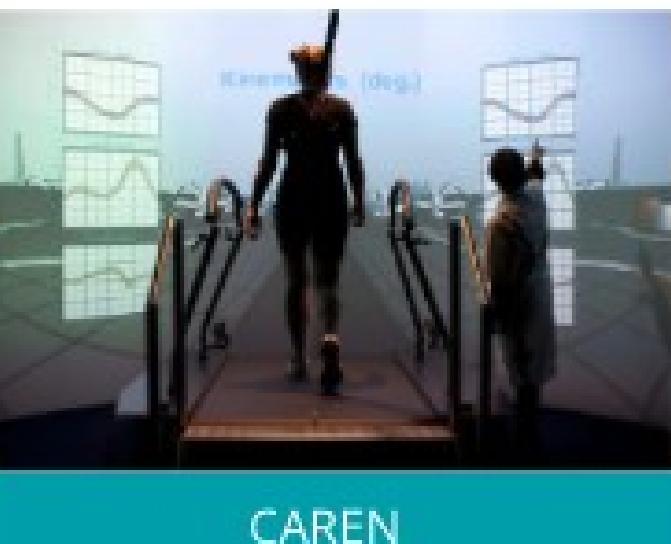
ddrobotec®



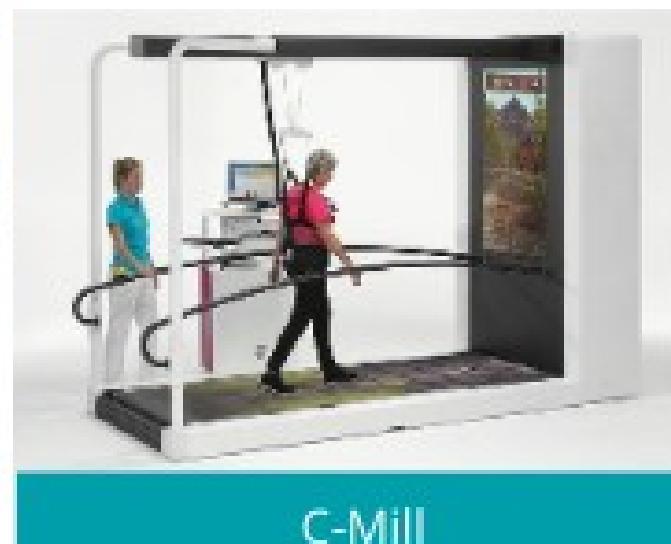
Armeo Spring



Lokomat



CAREN

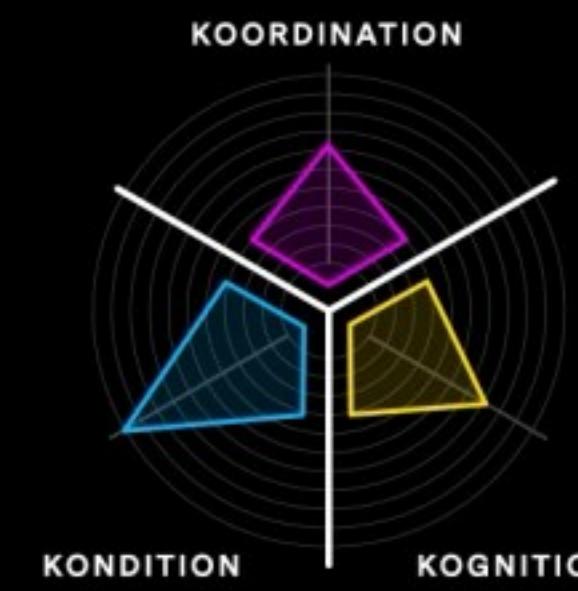


C-Mill

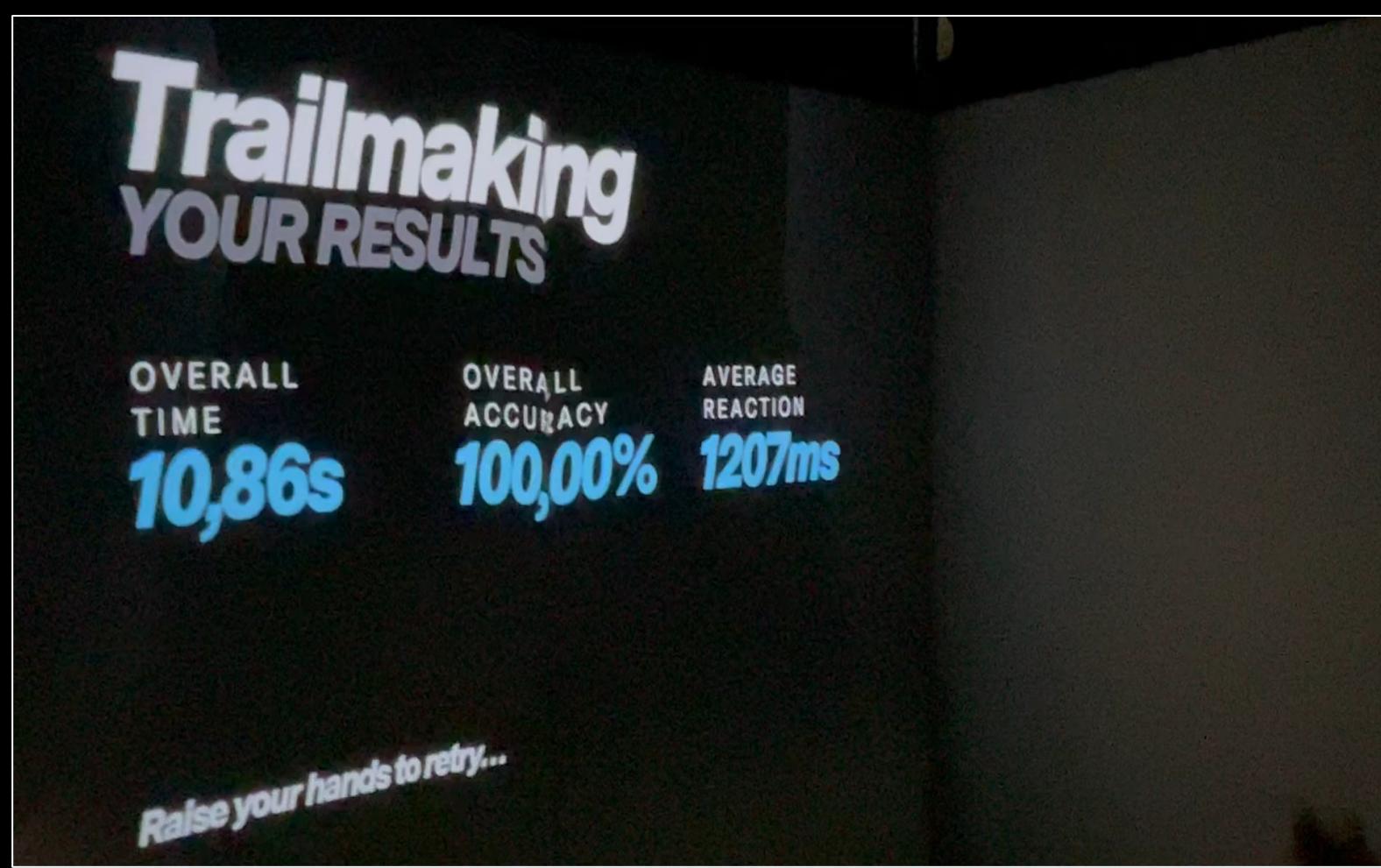


*FROM THE LAB
TO THE FIELD*

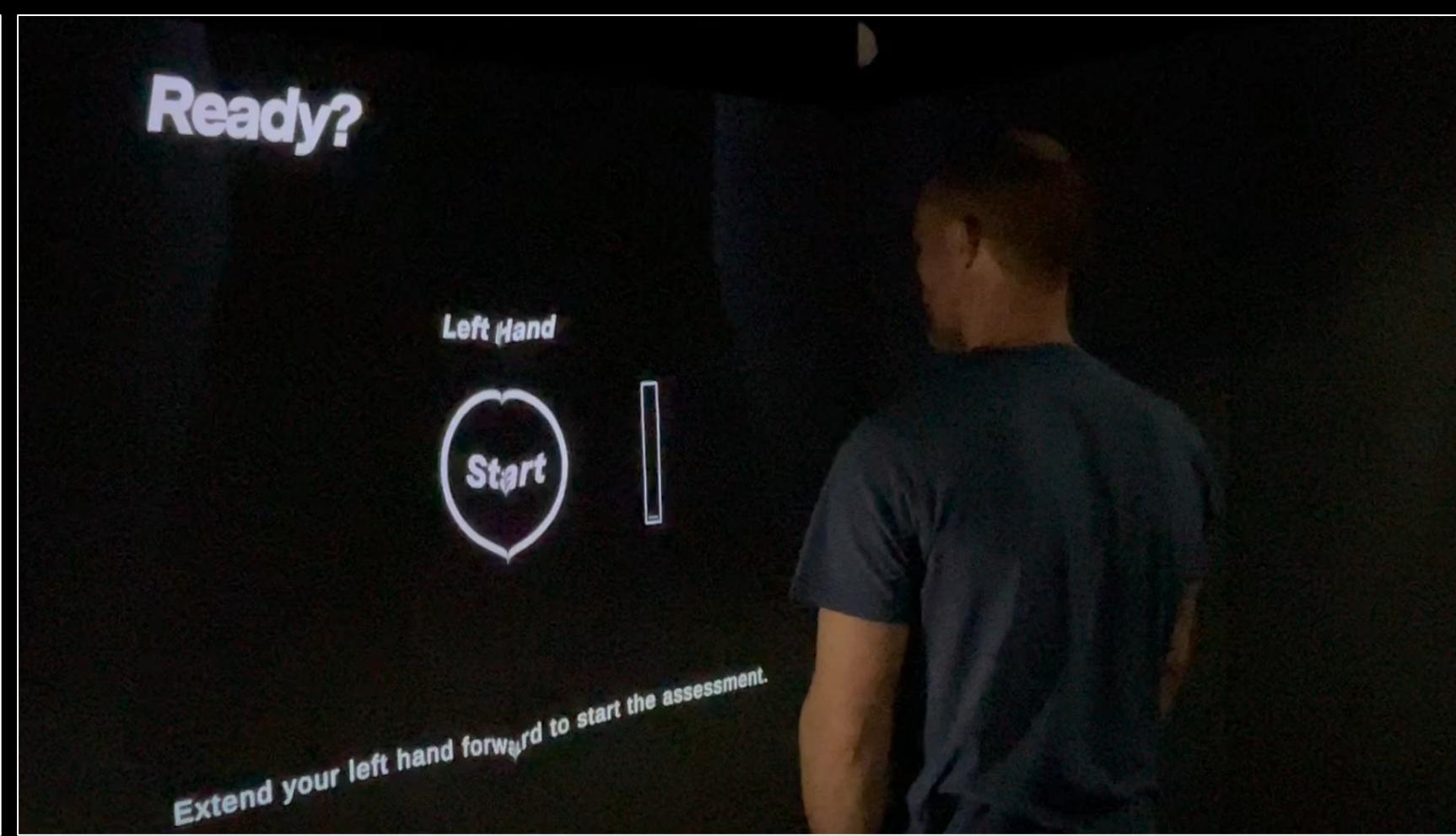
Exergame-Ökosystem



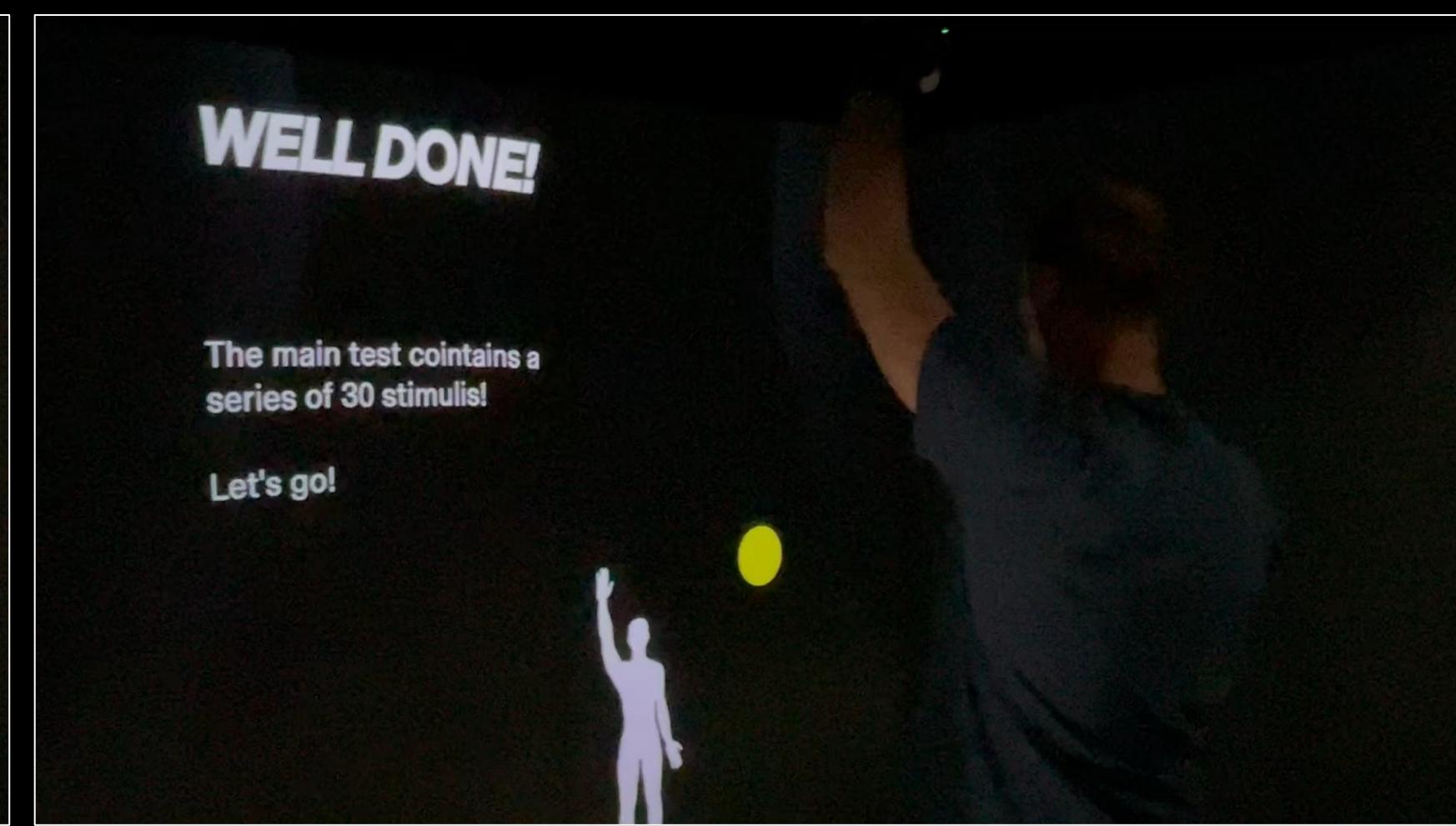
Motor-kognitive Assessments



Trail Making



Simple Reaction



N Back

12-Wochen Trainingsplan

David Habluetzel



Erfolgsgeschichte: Hospital zum Heiligen Geist in Hamburg



Exergames: Analog + Low Tech



Exergames: Analog + Low Tech

Exergame



Würfel-Workout

Wie es funktioniert

Die Spieler würfeln mit einem großen Würfel, um die Anzahl oder Art der Wiederholungen zu bestimmen (z. B. 6 = sechs Hampelmänner). Fördert zufallsbasiertes Bewegen mit minimalem Aufwand.



Bewegungs-Memory



Musik-Stopp-Spiel



Aktives Kartenspiel



Tierisches Bewegungsrennen

Eine Abwandlung des klassischen Memory-Spiels: jedes passende Paar enthält eine körperliche Aufgabe. Um das Paar zu gewinnen, müssen die Spieler die Aktion ausführen (z. B. „Froschsprünge“).

Die Teilnehmer tanzen oder bewegen sich frei zur Musik. Wenn die Musik stoppt, ruft ein Spielleiter eine körperliche Aufgabe aus (z. B. Kniebeugen, Dehnübungen). Ideal für Gruppendynamik und Aufmerksamkeit.

Ein normales Kartendeck wird verwendet, wobei jede Farbe für eine andere Übung steht (Herz = Hampelmänner, etc.). Der Kartenwert bestimmt die Anzahl der Wiederholungen.

Die Spieler laufen oder bewegen sich durch den Raum in tierischen Bewegungsformen (Krabbelgang, Bärengang). Spassig, energiereich und anpassbar für Kinder oder Erwachsene.

KONKLUSION



(iStockphoto)

(sphery)

INNOVATION



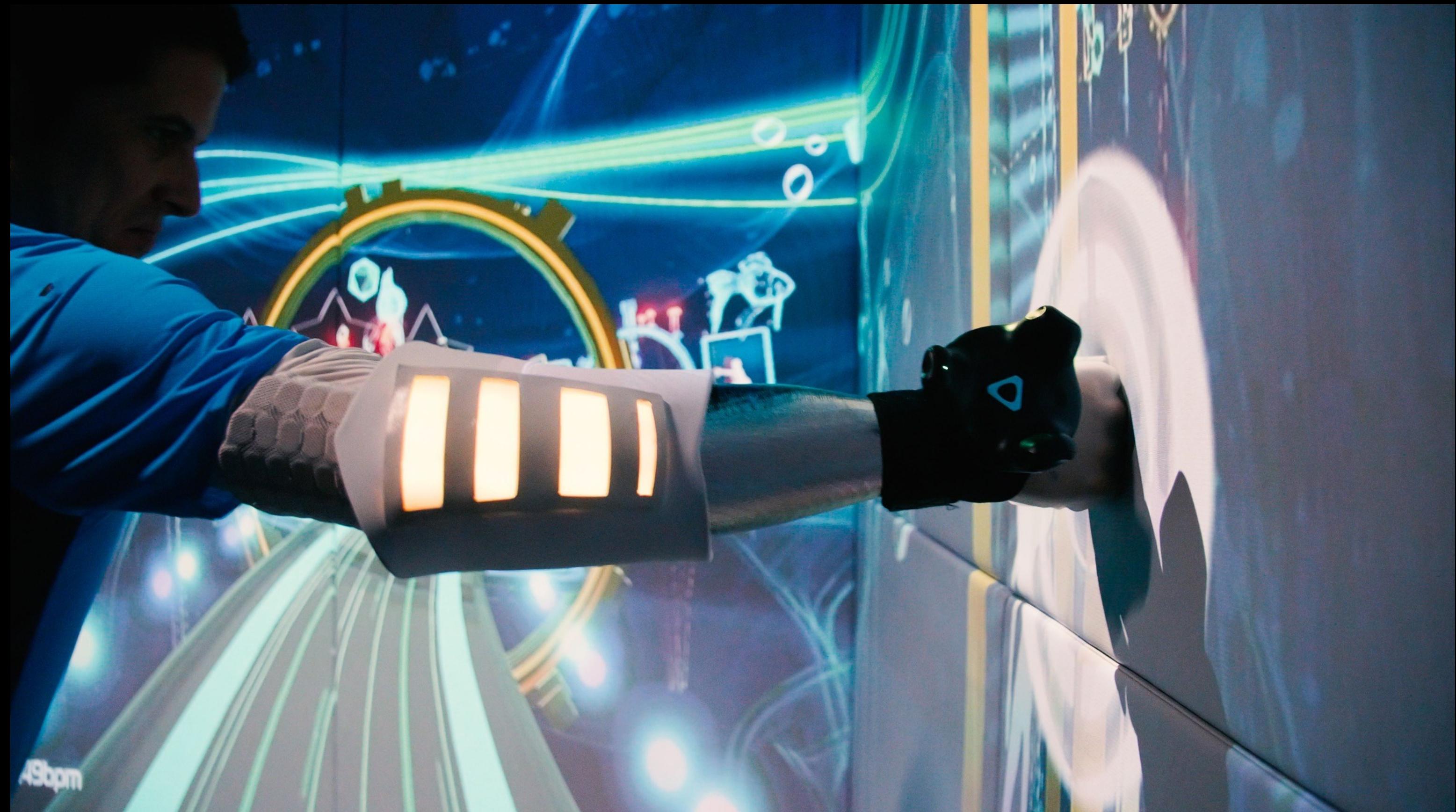
MOTIVATION



INKLUSION



EMPOWERMENT

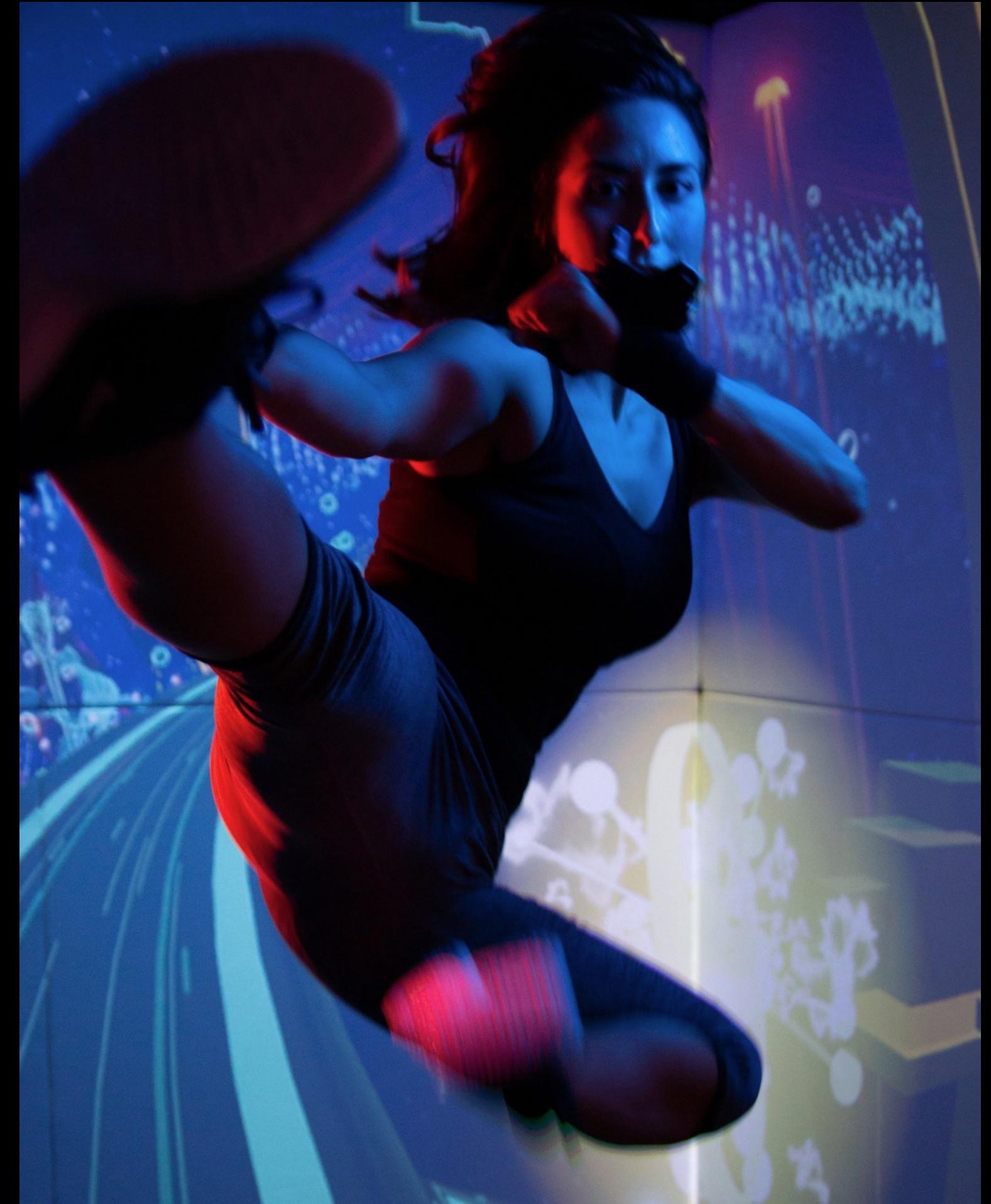


49bpm

INDIVIDUALISIERBARKEIT

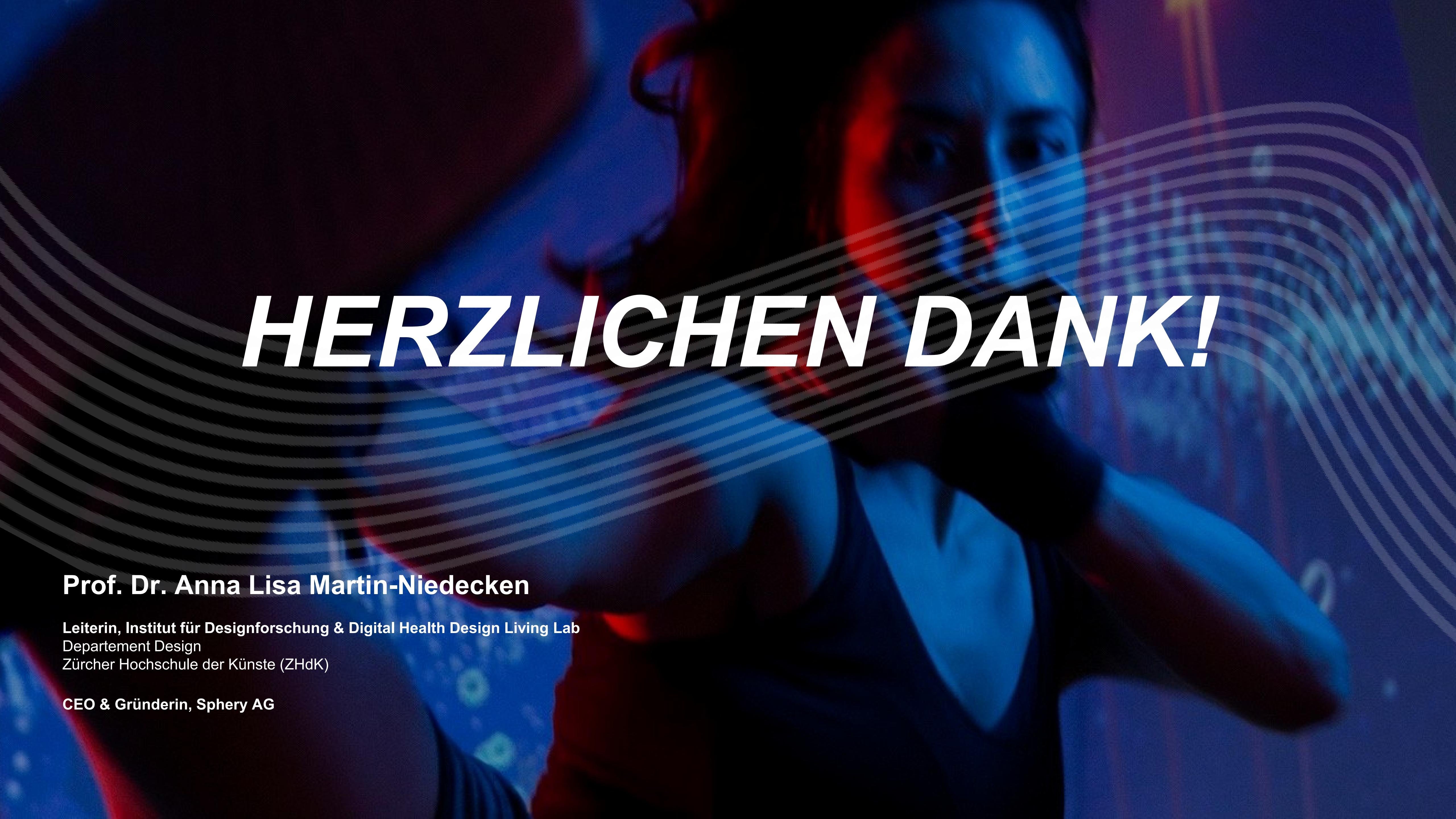


TRAININGSBENEFITS



EMOTIONEN





HERZLICHEN DANK!

Prof. Dr. Anna Lisa Martin-Niedecken

Leiterin, Institut für Designforschung & Digital Health Design Living Lab
Departement Design
Zürcher Hochschule der Künste (ZHdK)

CEO & Gründerin, Sphery AG