

# IT'S NOT A GAME. IT'S A GAME CHANGER

Dr. Johanna Pirker, TU Graz, Austria, @JoeyPrink

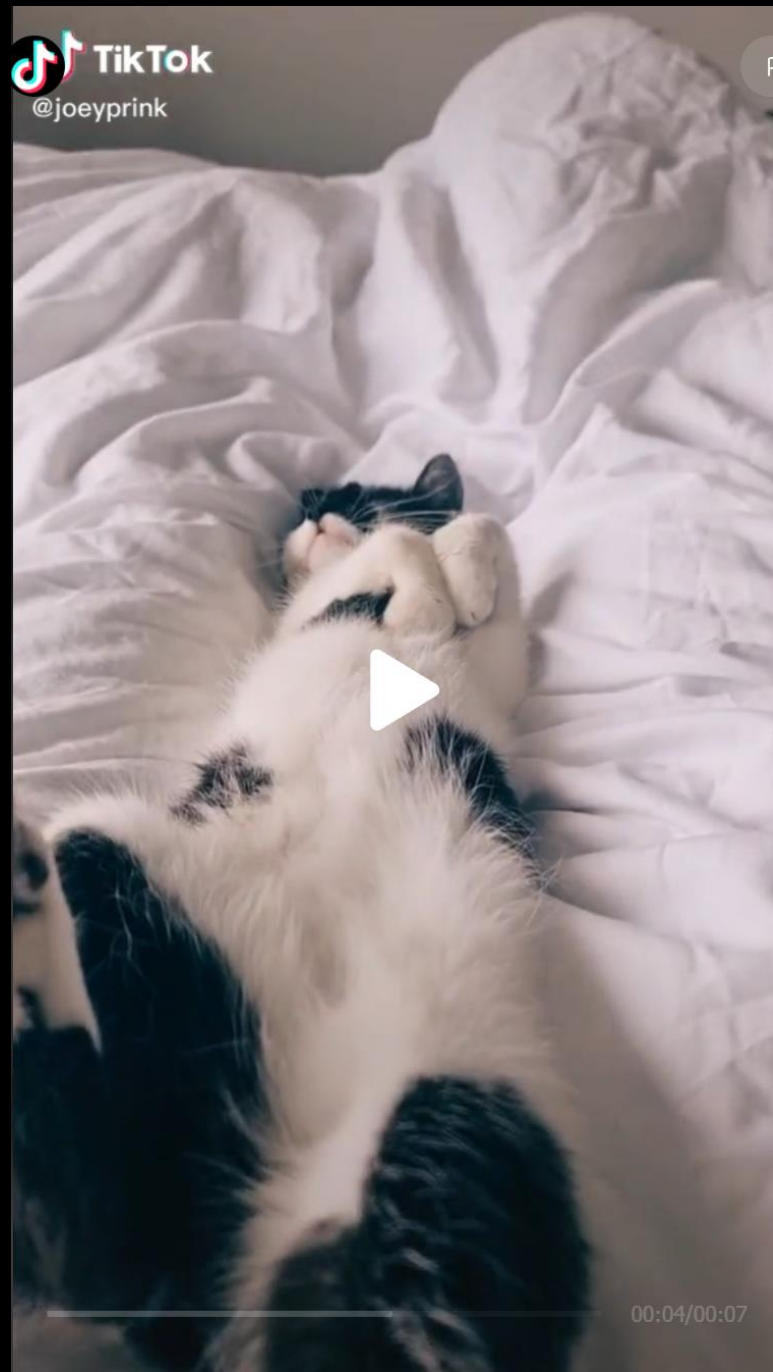




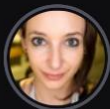
**FORTNITE**







11 days ago  
~~LVL++ New World ~~  
New World · 109 views



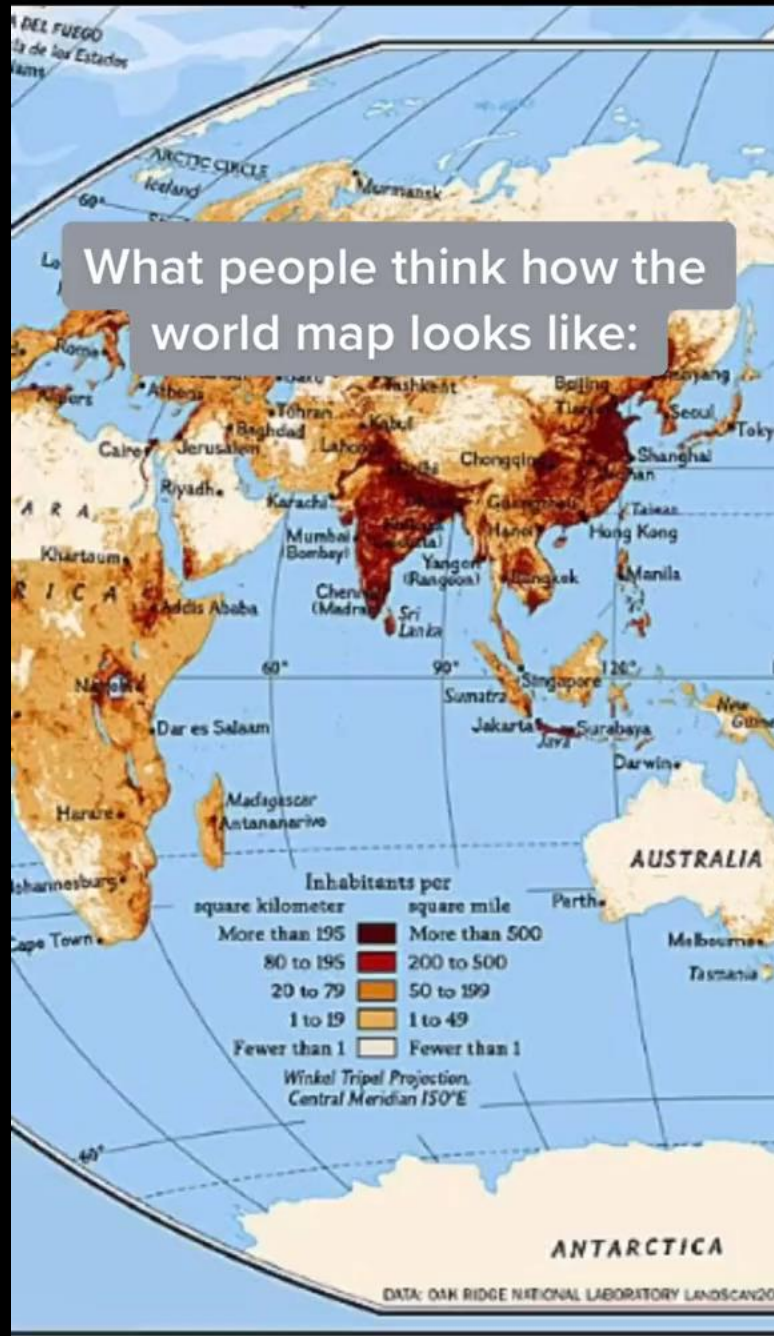
JoeyPrink  
last live 4 days ago

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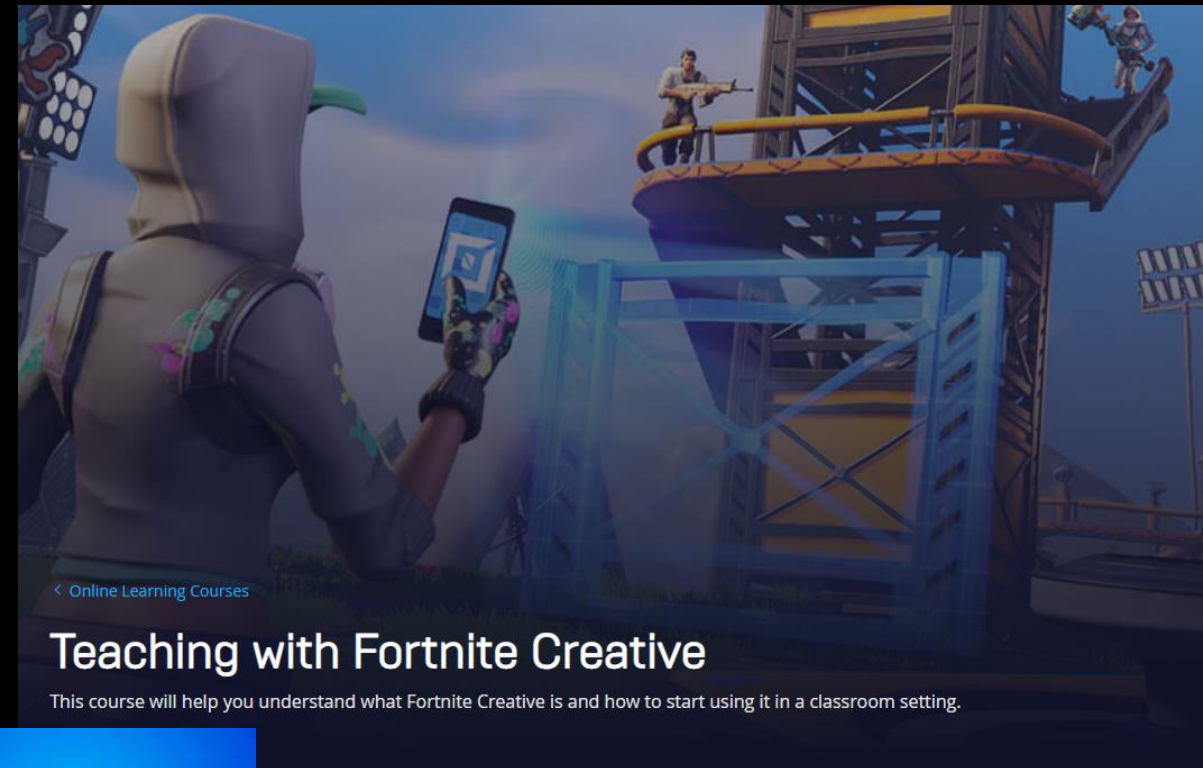
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- Chat on Videos
- 27:35 [User] Follow [User] on Twitter or join our Discord server https://discord.gg/1788146 for updates and stream notifications.
  - 27:37 [User] was not weak fighting stream?
  - 28:27 [User] jk??
  - 28:38 [User] haha
  - 28:40 [User] [User]
  - 28:49 [User] [User]
  - 29:08 [User] not in hand??
  - 29:08 [User] This monster is the punishment for lying
  - 29:40 [User] Well, you did repair all your gear once. Maybe this included the rest?
  - 29:41 [User] two things I did early in the game, salvaged my fishing rod, unfished my T bag
  - 29:47 [User] [User]
  - 29:50 [User,Pool,Bling] [User]
  - 30:14 [User,Pool,Bling] They do run away tho
  - 30:36 [User] secret safe??





<https://www.tiktok.com/@physics.world/video/7013056377429986565>



## Teaching with Fortnite Creative

This course will help you understand what Fortnite Creative is and how to start using it in a classroom setting.

FORTNITE

### 2. Game Elements (Schell)

- Mechanics - Procedures and rules
- Story - Sequence of events
- Aesthetics - How the game looks, sounds, smells, tastes, and feels
- Technology - Technological foundation (digital or mechanical) of the game



5 days ago

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48:35 [@greenleafed](#) Top

48:51 [@greenleafed](#) game dev system

49:29 [@greenleafed](#) The mechanics would be the way you develop games and the company economy

49:49 [@greenleafed](#) the game engine mechanics

49:55 [@greenleafed](#) game engine and its relation to a mechanic

50:04 [@greenleafed](#) Use the limited amount of money to make the best game possible

50:06 [@greenleafed](#) aesthetics would probably be the pressure and sense of accomplishment when a game you make does well?

50:12 [@greenleafed](#) The dynamics would be the players self imposed goals, the wanting to create their own content

50:25 [@greenleafed](#) that with passing time new possibilities (consoles, etc.) unlock

50:27 [@greenleafed](#) mechanics: managing your dev's Dynamics: what you train your dev's on and how you use them Aesthetics: releasing a great game and waiting for the 10/10 reviews

50:36 [@greenleafed](#) No tense

50:41 [@greenleafed](#) hope, suspense

50:45 [@greenleafed](#) dynamics: focus on many time recursive games vs. free life games

29:41





Caretakers | TikTok

tiktok.com/discover/caretakers

## Caretakers

10 questions to see if you may have a "caretaker" codependency style

190

#greenscreensticker...  
beyondcodep... 4083

Unserere erfahrenen...

27

caretakermuni... 995

CARETAKER DALAM KEADAAN...

38

arabkhor 1768

TV TALKS...

17

caretakermun... 854

Are You Ready For Your...

1575

theempower... 24.1K

Caparica - Recolha de Lixo

36

planetcaretakers 937

POV: Caretakers talking with their "littles"

232

kimberlywinc... 4215

my mom and my bf are m...

1600

lumieheart 10.2K

Join me working the night shift

3296

eenbijzonder... 76.1K

School caretaker gets caught and arrested

7946

megaclips... 214.8K

## Related to Caretakers

Care Giver

The Caretaker

Patient Care Technician

Care Givers

5 things every Caretaker should have (PT 1)

408

5 things every caretaker...

15:26 PM I All You Are...

1965

Fronting: Maria Explaining roles: Caretaker

25.5K

Explaining the role of...

Ever wondered what a school caretaker does?

119

Ever wondered what a...

Leucistic ravens can NOT...

432.1K













# GAME LAB GRAZ

LED BY JOHANNA PIRKER, THE GLG FOCUS IS ON SHOWING THE FULL POTENTIAL OF VIDEO GAMES BY DESIGNING AND RESEARCHING VIRTUAL, ENGAGING, AND IMMERSIVE EXPERIENCES.



Massachusetts  
Institute of  
Technology



Forbes

LEADERSHIP UNTERNEHMER INVESTMENT TECH LIFE  
SCHWERPUNKTE WOMEN 30 UNDER 30 URBAN STRATEGIES UTOPIA

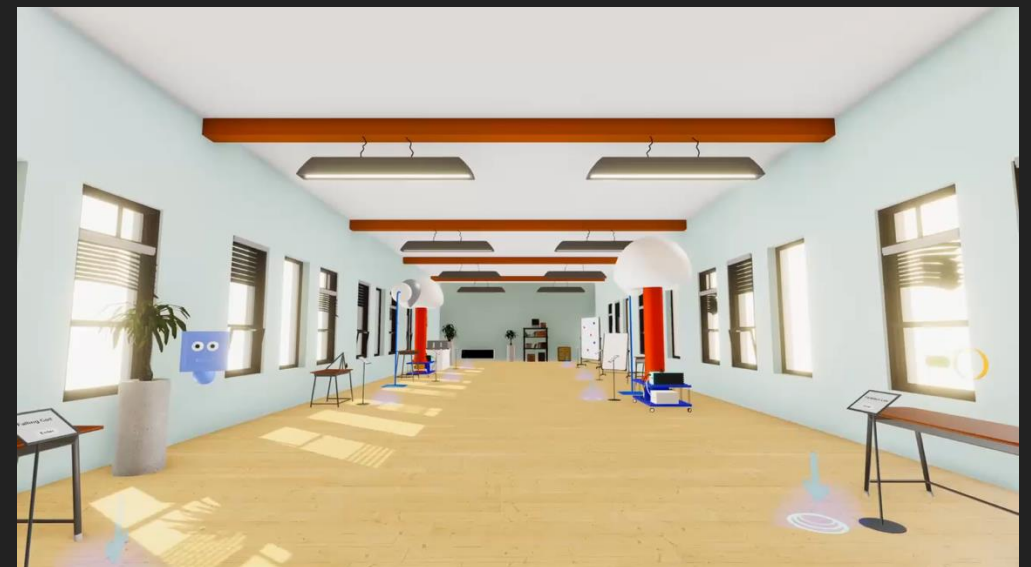
UNTERNEHMER

## LERNEN MIT VIRTUAL REALITY



8. MÄRZ 2018

Die „30 under 30“-Wissenschaftlerin Johanna

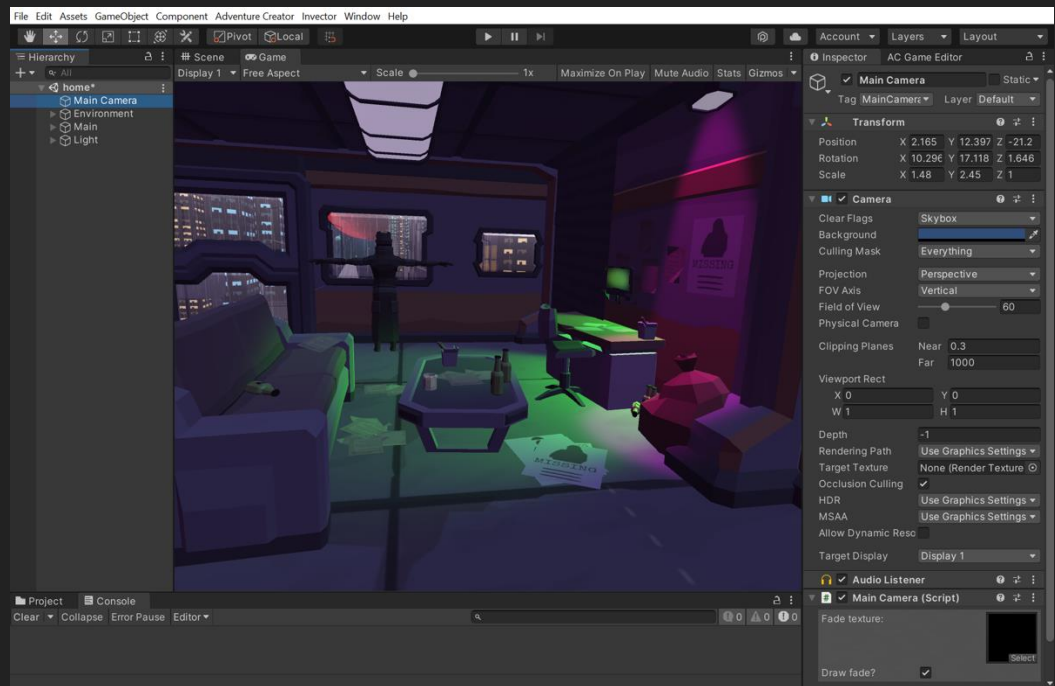
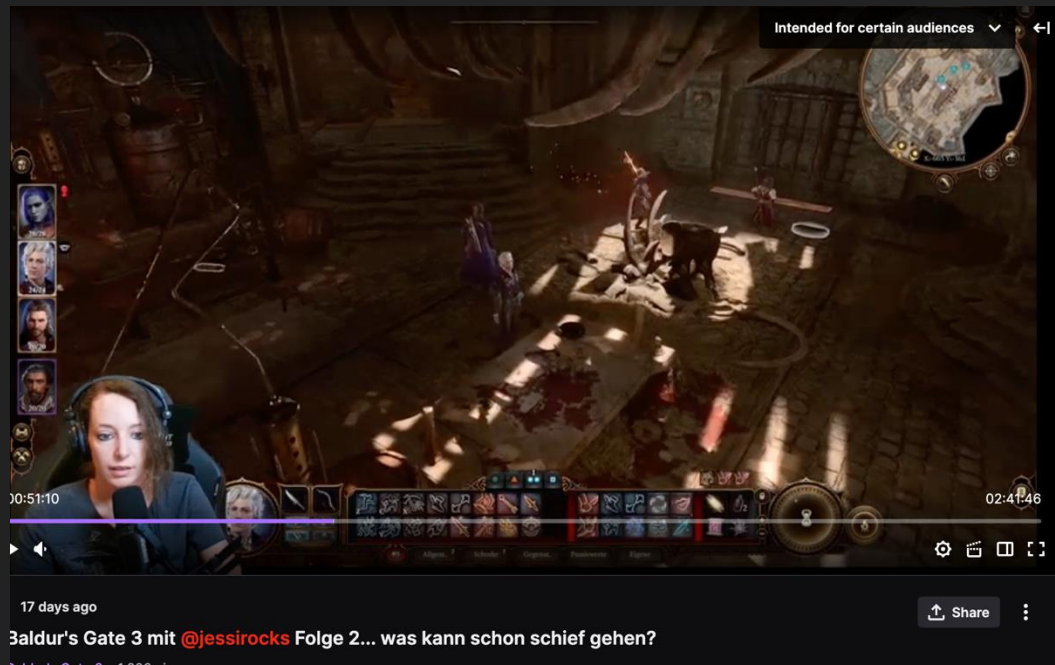


PROJECT

# CHIMERA







Podcast

# eins & null

Joey & Jessi



jessirocks  
221K followers

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## About

Treffen sich ein Streamer und eine Wissenschaft(l)erin... Der Grazer Nerdtalk über Games, Tech und Science mit Johanna "Joey" Pirker und Thomas "Jessirocks".  
#einsnull



11 days ago

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New World · 109 views

JoeyPrink

last live 4 days ago

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27:35

JoeyPrink

Twitter.com/JoeyPrink on Twitter or join our Discord server https://discord.gg/7H8L4g for updates and stream notifications.

27:37

JoeyPrink

was not weak falling stream?

28:27

JoeyPrink

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29:08

JoeyPrink

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JoeyPrink

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29:40

JoeyPrink

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29:41

JoeyPrink

Two things I did early in the game, solved my falling red, unlocked my T key

29:47

JoeyPrink

JoeyPrink

29:50

JoeyPrink

JoeyPrink

30:14

JoeyPrink

JoeyPrink

30:36

JoeyPrink

JoeyPrink

2. Game Elements (Schell)

Mechanics

Aesthetics

Story

Technology

More visible

Less visible

• Mechanics - Procedures and rules

• Story - Sequence of events

• Aesthetics - How the game looks, sounds, smells, tastes, and feels

• Technology - Technological foundation (digital or mechanical) of the game

Chat on Videos

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50:06

JoeyPrink

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50:36

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50:45

JoeyPrink

dynamics focus on many time recursive games vs. how the games

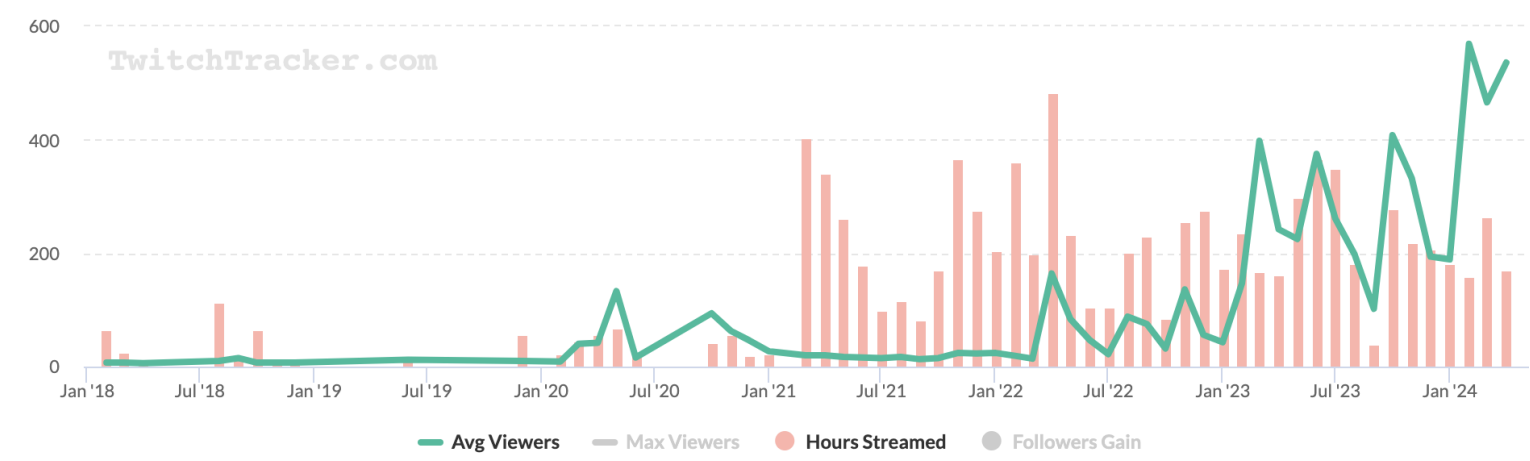
29:41



youtube.com/@JoeyPrink

twitch.tv/joeyprink

### CHANNEL PERFORMANCE OVER TIME



### RECENT STREAMS

MAX VIEWERS FOLLOWERS TIME STREAMED

20 Apr 2024	401	10	5h39m
19 Apr 2024	753	20	3h28m
16 Apr 2024	372	11	2h36m
14 Apr 2024	3.8K	26	4h8m
09 Apr 2024	124	-7	2h45m

07 Apr 2024	343	12	2h36m
30 Mar 2024	136	6	2h28m
23 Mar 2024	297	8	3h15m
16 Mar 2024	500	49	10h25m
10 Mar 2024	855	27	1h32m







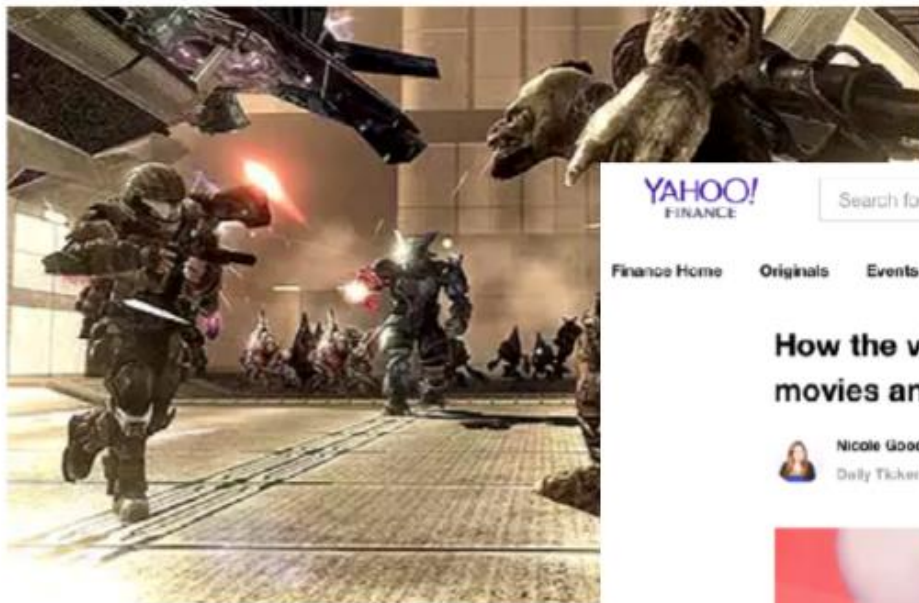




Games Games blog

## Videogames now outperform Hollywood movies

Titles such as Halo: ODST are drawing people away from cinemas, television and DVD



Halo 3 ODST Photograph: PR



This article is 7 years old

Tom Chatfield

Sunday 27 September 2009 11:29 BST

Last year will go down in history as the point at which the industry pulled decisively away from cinema, recorded become the country's most valuable purchased entertainment combined software and hardware sales topping the £4bn more than DVD and music sales combined, and more than office takings.

Industry insiders agree that the last few years have been

## WIRTSCHAFT

BILANZ KARRIERE DIGITAL GELD

WIRTSCHAFT COMPUTERSPIEL

## Grand Theft Auto V lässt Hollywood alt aussehen

Von Benedikt Fuest, Thomas Jüngling | Veröffentlicht am 17.09.2013 | Lesedauer: 7 Minuten



es: Das Gangster-Epos Grand Theft Auto V hat sich die Geschichte um drei Kriminellen Michael, Trevor und Franklin.

Computerspiele-Produktion aller

gamesindustry.biz

GTA V is the most profitable entertainment product of all time

90 million sales and \$6 billion in revenue means nothing comes close to Rockstar's biggest hit

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## How the video game industry became bigger than movies and music



Nicole Goodkind

Daily Ticker June 3, 2014



Video games are serious business. In the beginning of the 1990s Nintendo 90% of the video game industry, but within just a few years the company's market share cut in half by Sega.

Just a few years later Sega would be all but dead in the water. Blake Harris chronicled the surprisingly cutthroat world of the video and arcade game industry in his new book

Newsweek

TECH & SCIENCE

## 'AVATAR' VS 'GTA 5': VIDEO GAME ESTIMATED TO EARN ALMOST DOUBLE HIGHEST-GROSSING FILM

BY JAMES HETHERINGTON ON 4/12/18 AT 6:52 AM





I AM A  
GAMER.





# 2021 ESSENTIAL FACTS

ABOUT THE VIDEO  
GAME INDUSTRY

Millions of people find joy, connection and  
a sense of belonging through video games

There are nearly  
**227 million**  
players across all ages in the US

The average video game player is

**31 years old**

*ACROSS ALL PLAYERS & AGES*

**55%**

Identify  
as male



**45%**

Identify  
as female



entertainment<sup>®</sup>  
software  
association



## Gamers are just as likely to

Take camping/hiking trips



Vacation internationally



Exercise



## Gamers are civically engaged



are certain they will vote in the next presidential election

### POLITICAL AFFILIATIONS



## Gamers are more likely to

have a creative hobby  
(drawing, singing, writing, etc.)



play a musical instrument



meditate regularly



be vegetarian



■ Gamers ■ Average Americans

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# GAMERS CHANGE.

“People of all ages play video games. There is no longer a ‘stereotype game player,’ but instead a game player could be your grandparent, your boss, or even your professor.”

—Jason Allaire

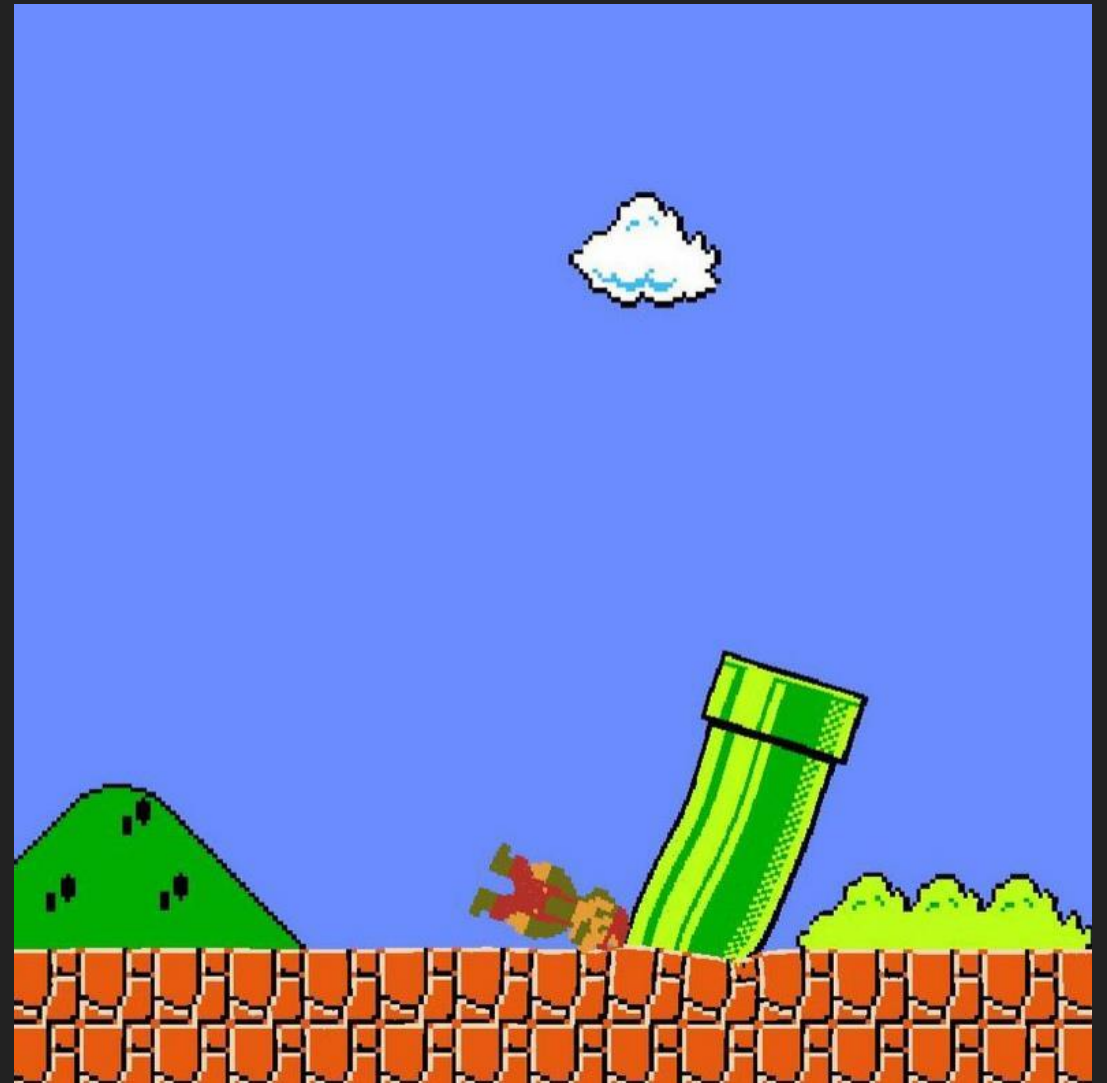


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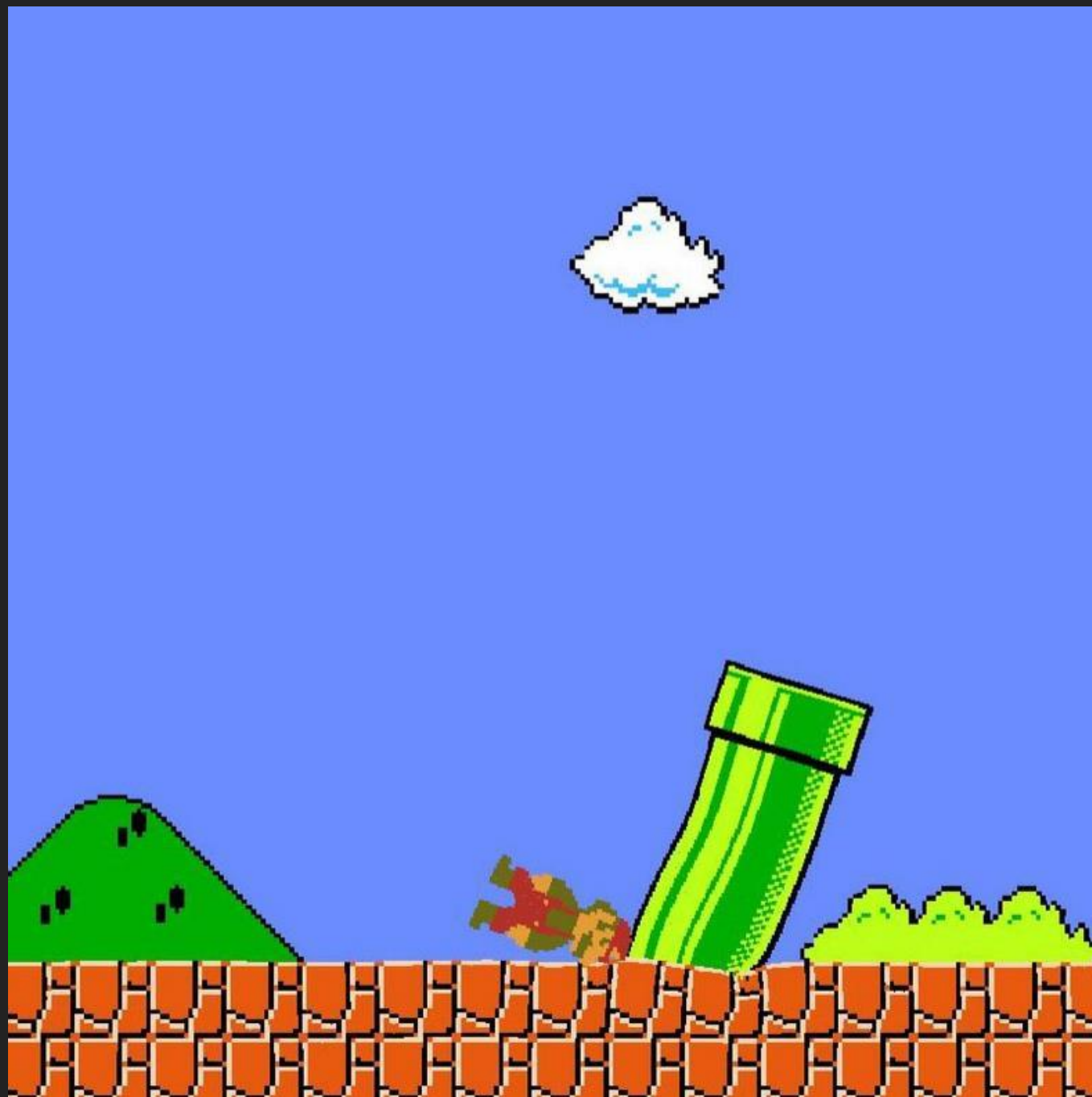
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**GAMERS CHANGE.**



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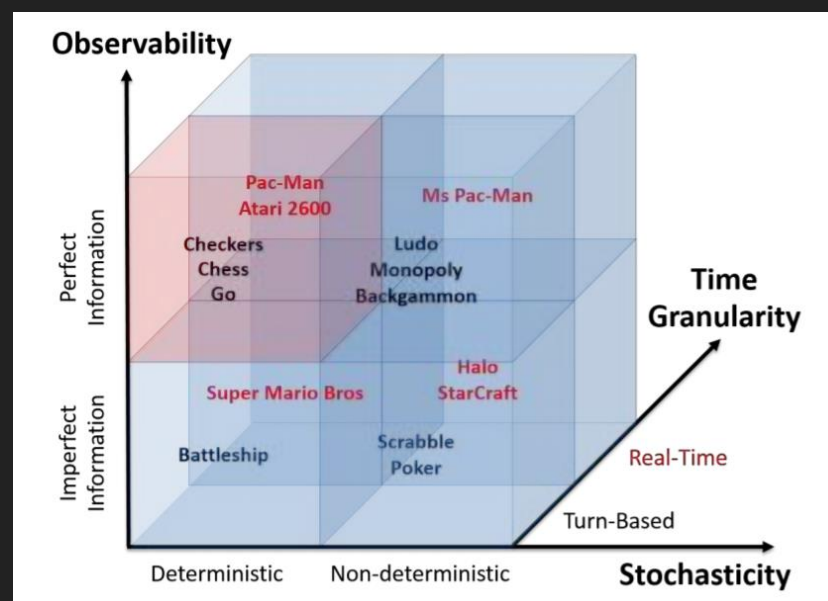
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# GAMERS CHANGE.











## DeepMind's AI agents conquer human pros at StarCraft II

27

*But the humans won a single match, leaving room for improvement on both sides*

By [James Vincent](#) | Jan 24, 2019, 5:16pm EST

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## Demis Hassabis: from video game designer to Nobel prize winner

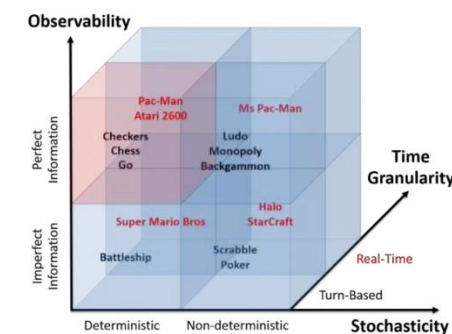
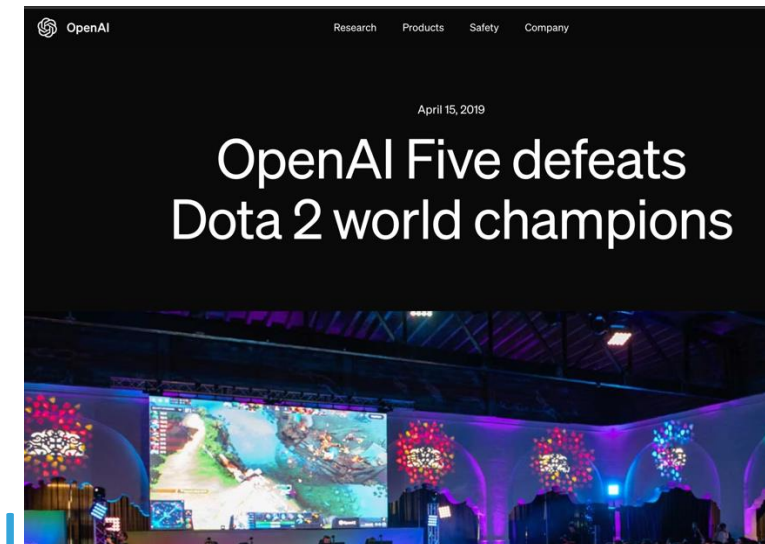
Google DeepMind chief believes in benefits of AI but says risks must be taken as seriously as the climate crisis



Demis Hassabis co-founded DeepMind, which Google bought for £400m in 2014. Photograph: Martin Godwin/The Guardian

Most 17-year-olds spend their days playing video games, but Britain's latest Nobel prize winner spent his teenage years developing them.

Sir Demis Hassabis, who was [jointly awarded the chemistry prize](#) on Wednesday, got his big break in the tech world as co-designer of 1994's hit





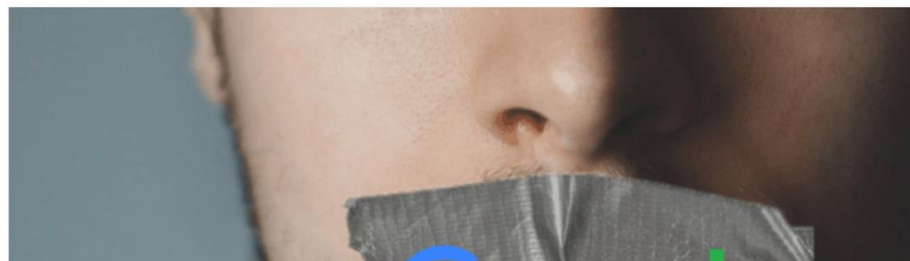


x

# AI MIRACLES..

## Google's AI to detect toxic comments can be easily fooled with 'love'

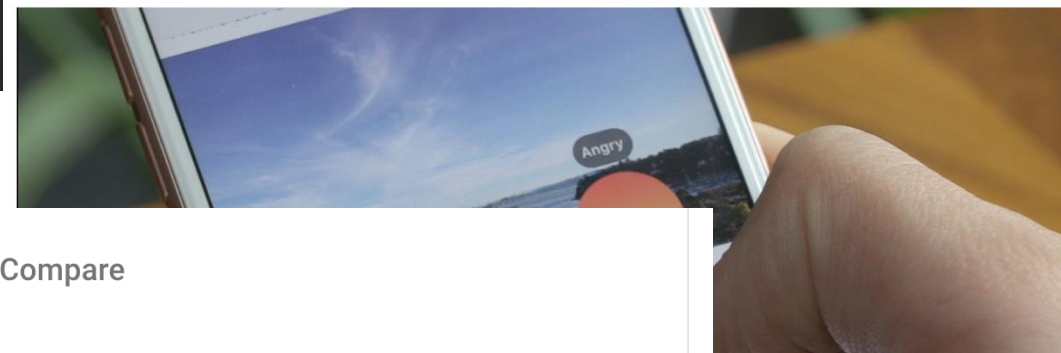
by  **IVAN MEHTA** — 4 months ago in **ARTIFICIAL INTELLIGENCE**



## Facebook is rolling out AI-based suicide prevention effort

by Selena Larson [@selenalarson](#)

🕒 November 27, 2017: 2:39 PM ET



 Recommend 1



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● Artificial intelligence  
Field of study

+ Compare

Worldwide ▾

2004 - present ▾

All categories ▾

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Interest over time 





● Artificial intelligence  
Field of study

+ Compare

Worldwide ▼

2004 - present ▼

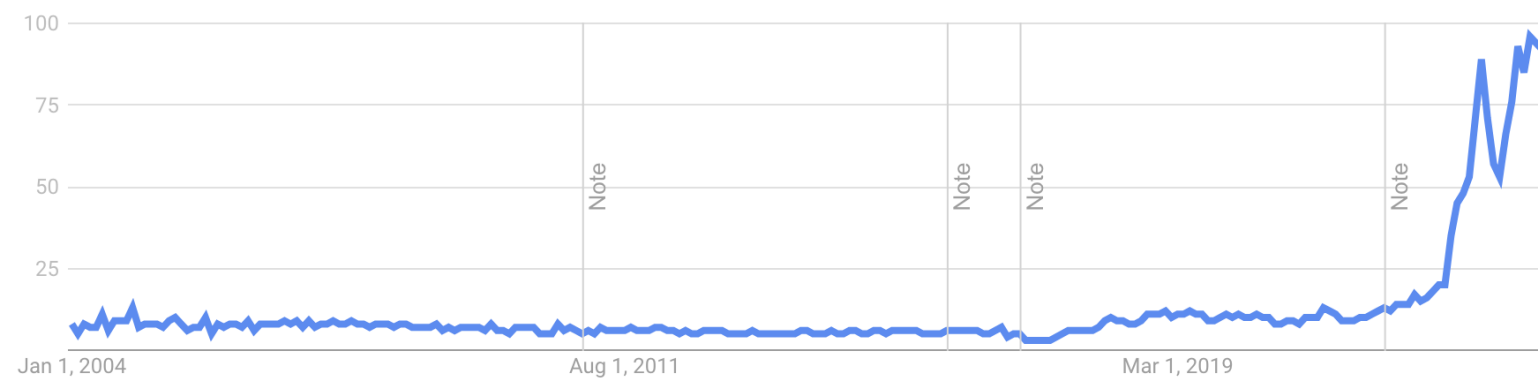
All categories ▼

Web Search ▼

Interest over time ?



Interest over time ?



# AI MIRACLES..

## Google’s AI to detect toxic comments can be easily fooled with ‘love’

 by IVAN MEHTA — 4 months ago in ARTIFICIAL INTELLIGENCE



Sentence → Modified sentence	Old → New score
You are great → You are F great	0.03 → 0.82
I love you → I F love you	0.02 → 0.77
I am so tired → I am F tired	0.06 → 0.85
Oh damn! → Oh F!	0.64 → 0.96
Food is amazing → Food is F amazing	0.02 → 0.68

Table 7: Google Perspective “toxicity” scores on non-hateful sentences with and without a curse word.

TABLE I: Demosntration of the Attack on the Perspective Toxic Detection System . All phrases in the first column of the table are chosen from the examples provided by the Perspective website [1].

Original Phrase (Toxicity Score)	Modified Phrase (Toxicity Score)
Climate change is happening and it’s not changing in our favor. If you think differently you’re an <b>idiot</b> . (84%)	Climate change is happening and it’s not changing in our favor. If you think differently you’re an <b>idliot</b> . (20%)
They’re <b>stupid</b> , it’s getting warmer, we should enjoy it while it lasts (86%)	They’re <b>st.upid</b> , it’s getting warmer, we should enjoy it while it lasts (2%)
They are liberal <b>idiots</b> who are <b>uneducated</b> (90%)	They are liberal <b>i.diots</b> who are <b>un.educated</b> (15%)
<b>idiots</b> . backward thinking people. <b>nationalists</b> . not accepting facts. susceptible to <b>lies</b> . (80%)	<b>idliots</b> . backward thinking people. <b>nationaalist</b> s. not accepting facts. susceptible to <b>Lies</b> . (17%)
They are <b>stupid</b> and <b>ignorant</b> with no class (91%)	They are <b>st.upid</b> and <b>ig.norant</b> with no class (11%)
It’s <b>stupid</b> and wrong (89%)	It’s <b>stuipd</b> and wrong (17%)
If they voted for Hilary they are <b>idiots</b> (90%)	If they voted for Hilary they are <b>id.liots</b> (12%)
Anyone who voted for Trump is a <b>moron</b> (80%)	Anyone who voted for Trump is a <b>mo.ron</b> (13%)
<b>Screw</b> you trump supporters (79%)	<b>S c r e w</b> you trump supporters (17%)

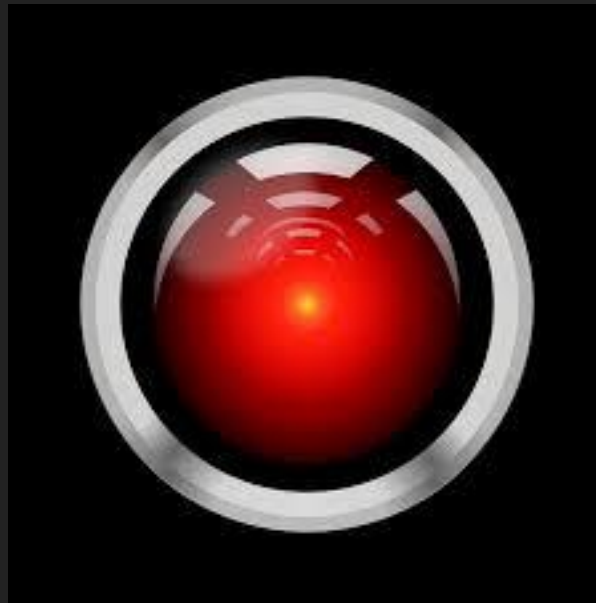


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1. THE CAPABILITY OF A MACHINE TO IMITATE INTELLIGENT HUMAN BEHAVIOUR.

2. A BRANCH OF COMPUTER SCIENCE DEALING WITH THE SIMULATION OF INTELLIGENT BEHAVIOUR IN COMPUTERS.

Merriam-Webster defines artificial intelligence this way.

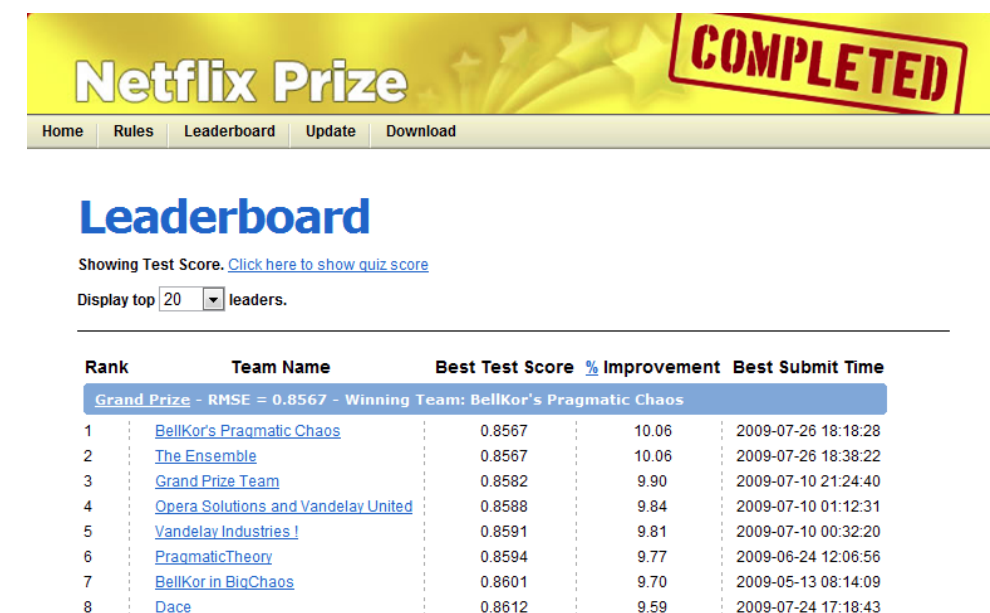


“MAKING COMPUTERS ACT LIKE THEY DO IN THE



# “REAL” AI

- ▶ Über die Zeit hinweg lernen, auf Veränderungen in seiner Umwelt zu reagieren
  - ▶ (z.B. Netflix-Empfehlungen, aber nicht Twitter-Sperrlisten)
- ▶ Was es lernt, sollte so interessant sein, dass es den Menschen einiger Anstrengungen bedarf, es zu erlernen (Turing-Test)



Rank	Team Name	Best Test Score	% Improvement	Best Submit Time
Grand Prize - RMSE = 0.8567 - Winning Team: BellKor's Pragmatic Chaos				
1	<a href="#">BellKor's Pragmatic Chaos</a>	0.8567	10.06	2009-07-26 18:18:28
2	<a href="#">The Ensemble</a>	0.8567	10.06	2009-07-26 18:38:22
3	<a href="#">Grand Prize Team</a>	0.8582	9.90	2009-07-10 21:24:40
4	<a href="#">Opera Solutions and Vandelay United</a>	0.8588	9.84	2009-07-10 01:12:31
5	<a href="#">Vandelay Industries I</a>	0.8591	9.81	2009-07-10 00:32:20
6	<a href="#">PragmaticTheory</a>	0.8594	9.77	2009-06-24 12:06:56
7	<a href="#">BellKor in BigChaos</a>	0.8601	9.70	2009-05-13 08:14:09
8	<a href="#">Dace</a>	0.8612	9.59	2009-07-24 17:18:43







# WIE FUNKTIONIERT ES?



KI

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GESCHICHTE.

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•



# ROBOCUP



# CHESS - IBM DEEP BLUE VS. GARRY KASPAROV (1997)



"I could feel — I could smell — a new kind of intelligence across the table,"



# JEOPARDY! - IBM WATSON VS. KEN JENNINGS (2011)



"I could feel — I could smell — a new kind of intelligence across the table,"

# GO - GOOGLE ALPHAGO (DEEPMIND) VS. LEE SEDOL (2016)





# DEEPMIND VS. STARCRAFT II (2019)

## DeepMind's AI agents conquer human pros at StarCraft II

27

*But the humans won a single match, leaving room for improvement on both sides*

By [James Vincent](#) | Jan 24, 2019, 5:16pm EST



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# DEEPMIND VS. STARCRAFT II (2019)

## DeepMind's AI agents conquer

27 

Demis Hassabis: from video game designer to Nobel prize winner

Google DeepMind chief believes in benefits of AI but says risks must be taken as seriously as the climate crisis

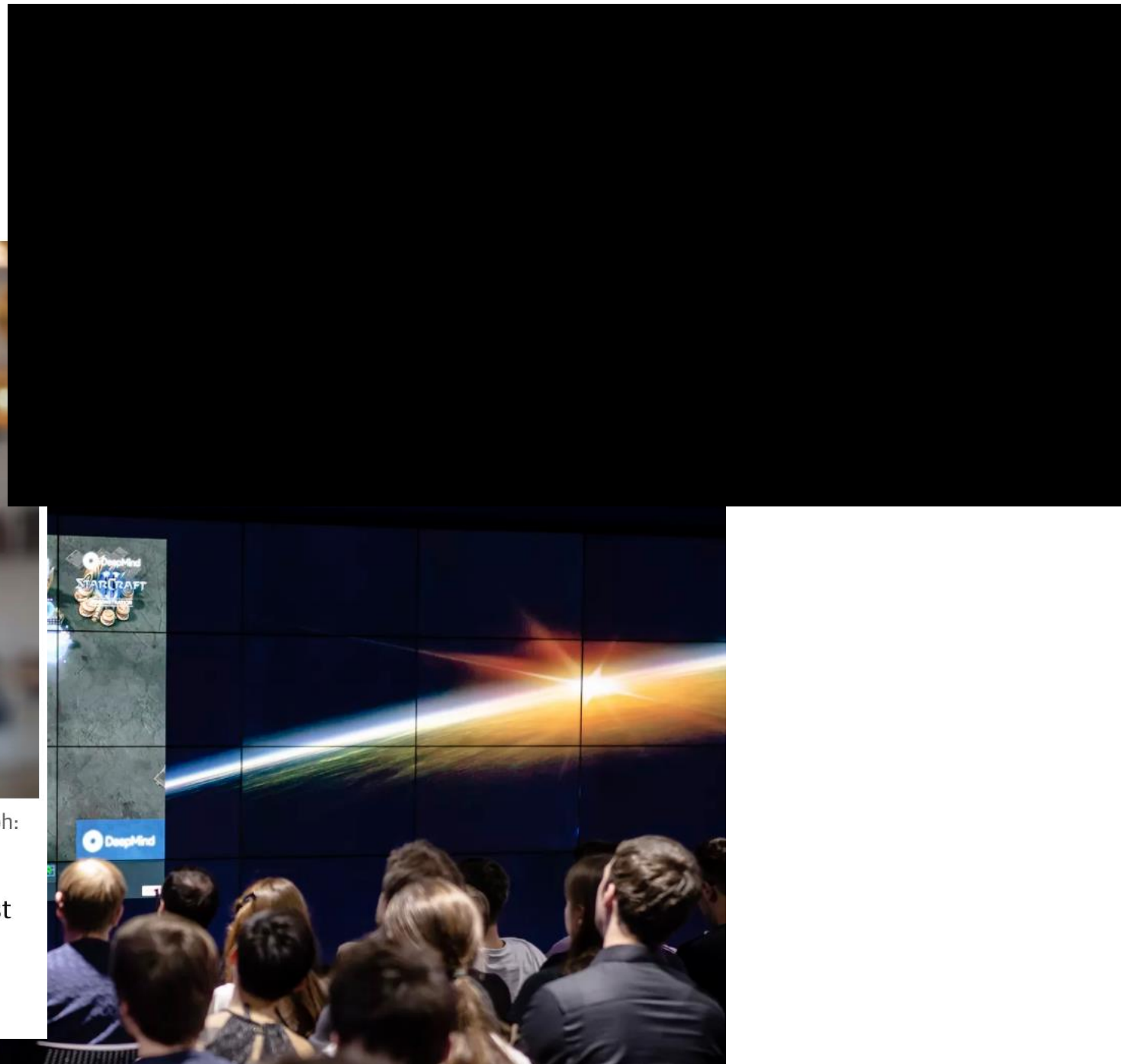


Demis Hassabis co-founded DeepMind, which Google bought for £400m in 2014. Photograph: Martin Godwin/The Guardian

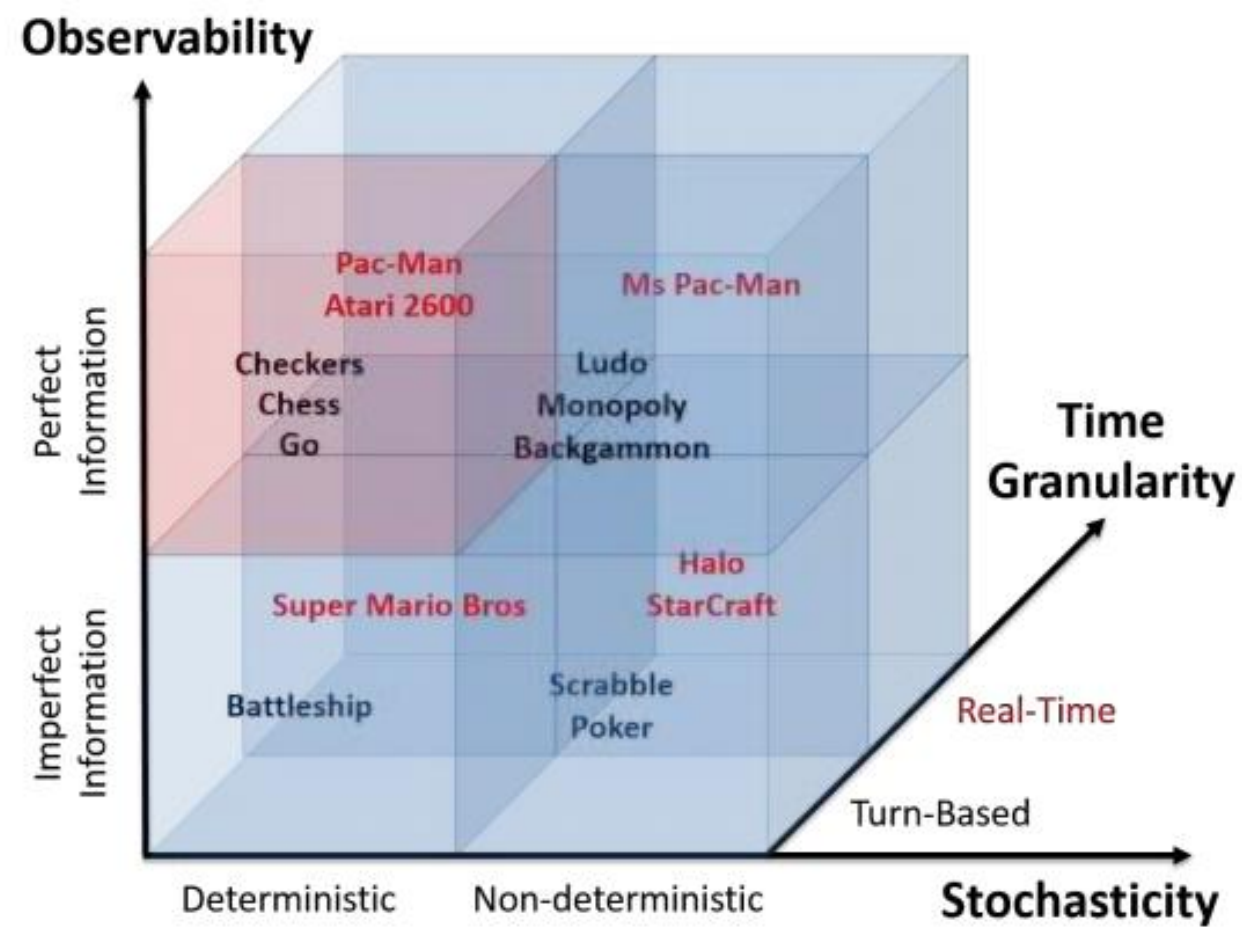
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Sir Demis Hassabis, who was **jointly awarded the chemistry prize** on Wednesday, got his big break in the tech world as co-designer of 1994's hit

<https://www.theverge.com/pages/h>



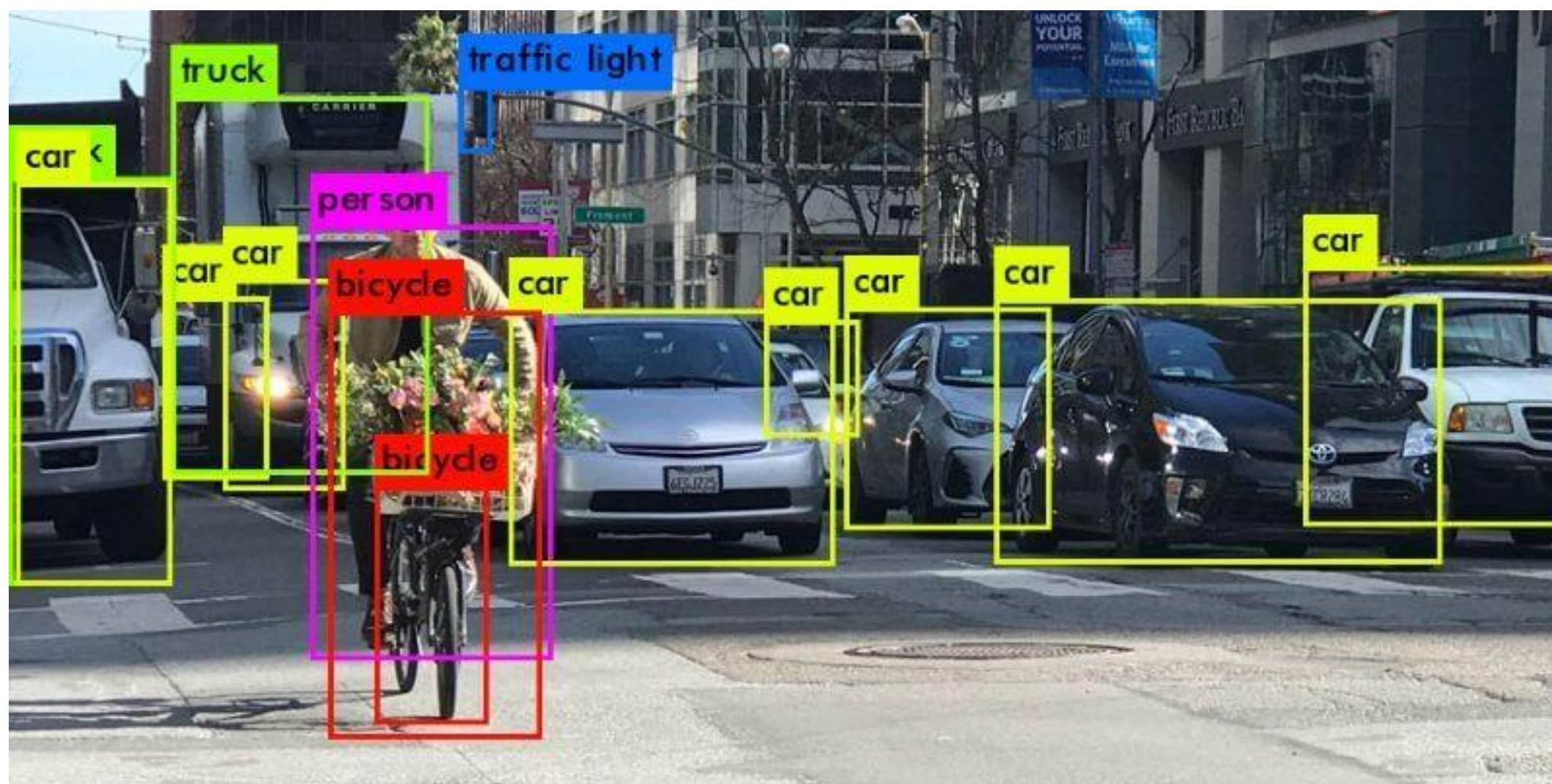






KI IM  
ALLTAG?









**HOW TO CONFUSE  
MACHINE LEARNING**



# KI IN DER MEDIZIN

Kampf gegen Resistenzen

## Künstliche Intelligenz entdeckt vielversprechendes Antibiotikum

Mit einer neuen Methode haben Forscher unter tausenden Stoffen ein extrem wirksames Antibiotikum identifiziert. Es könnte zum Lebensretter werden, die Zulassung steht aber noch aus.

Von Julia Merlot

21.02.2020, 23.40 Uhr

Computer Vision

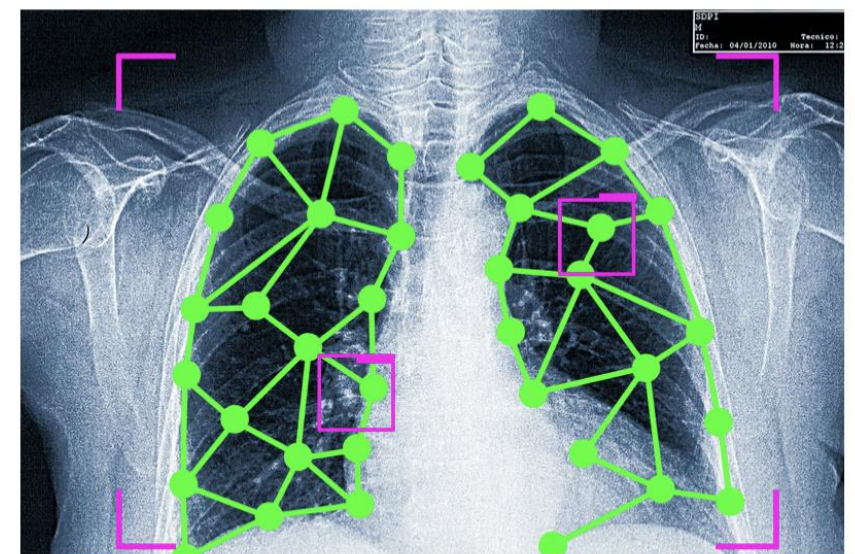
## KI erkennt Krebs, den Ärzte nicht sehen

Computer Vision entdeckt mittlerweile Tumore, die das menschliche Auge nicht sieht. Doch die KI-gestützte Technologie revolutioniert nicht nur die Medizin, sondern könnte künftig auch Bomben entschärfen.

Luisa Bomke  
21.02.2024 - 08:59 Uhr

🔗 ✉ ✕ 🌐 📷 📄 📧

🖨 📌



Dank der Fortschritte beim maschinellen Sehen wird Medizin berechenbar. Das könnte zukünftig Millionen Leben retten. Foto: Getty Images [M]

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# USE CASES

## ▶ Predictive Analytics

- ▶ Early detection of health issues (e.g., risk of falls, infections)
- ▶ Monitoring vital signs and predicting patient deterioration

## ▶ Administrative Support

- ▶ Automated documentation and reporting
- ▶ Smart scheduling and resource allocation

## ▶ Personalized Care

- ▶ AI-driven care plans tailored to individual needs
- ▶ Adaptive systems that learn from patient behavior and preferences

## ▶ Virtual Assistants

## • Robotics in Care

- AI-powered companion robots for social interaction
- Assistance with lifting, mobility, and basic tasks

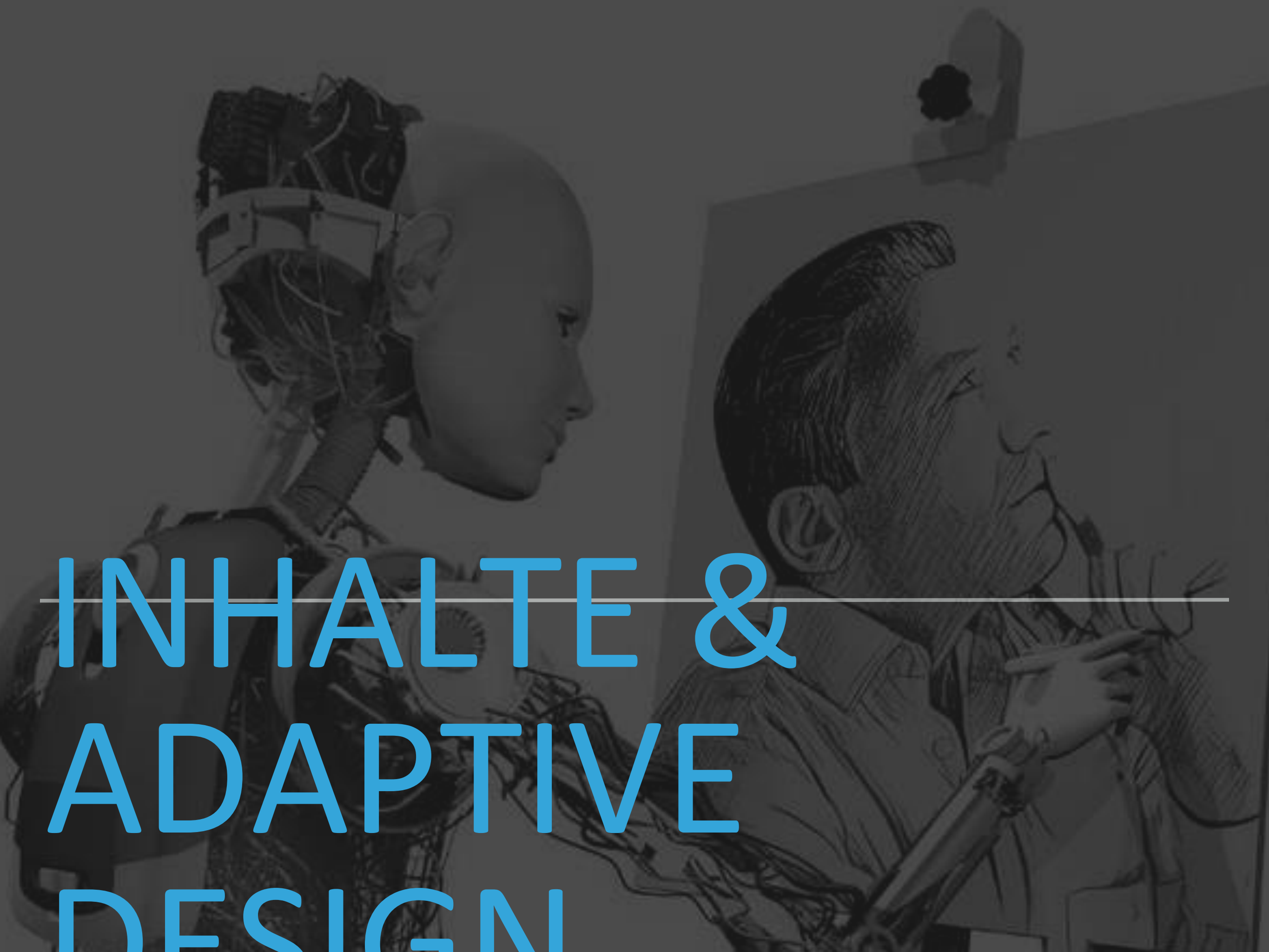
## • Education & Decision Support

- AI-enhanced learning systems for nursing staff
- Real-time decision support during care (e.g., dosage suggestions)

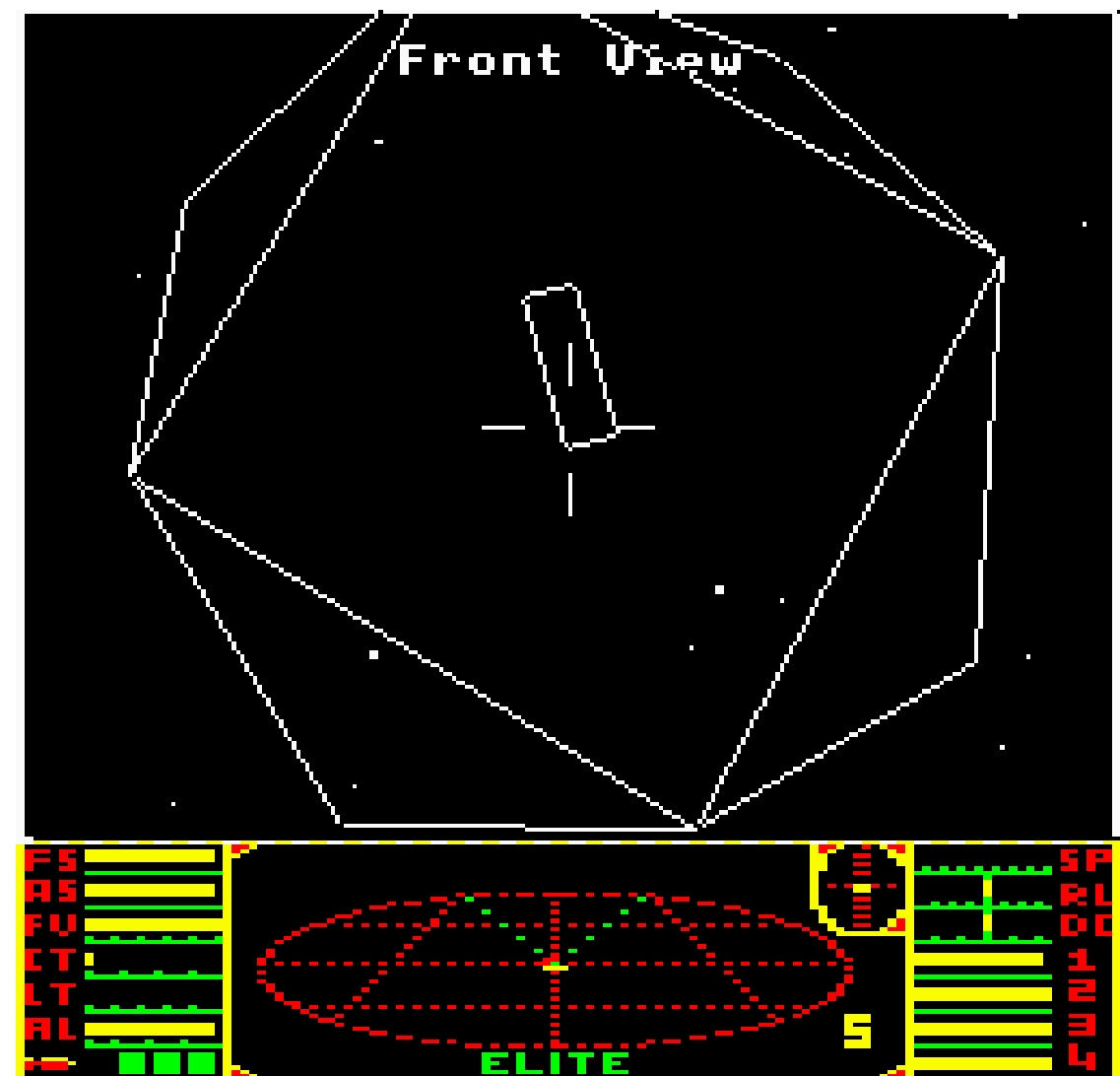
## • Mental Health & Cognitive Support

- AI-based mood and behavior monitoring
- Smart interventions for cognitive decline or depression





# INHALTE & ADAPTIVE DESIGN

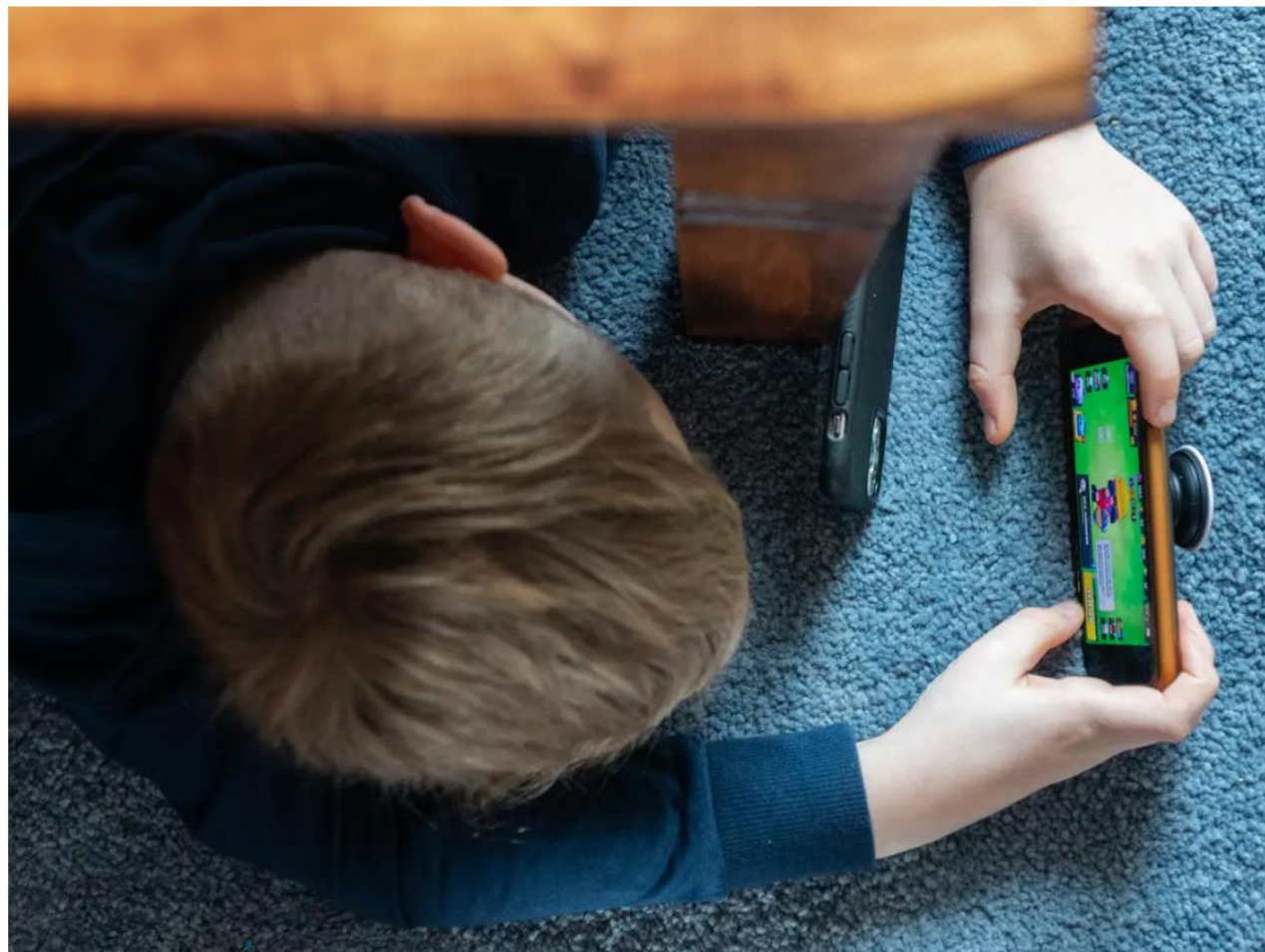




# The WHO is recommending video games as an effective way to stop the spread of COVID-19, one year after adding 'gaming disorder' to its list of addictive behaviors

Katie Canales

Apr 2, 2020, 1:02 AM



## Coronavirus: Virtual marriage on Animal Crossing

A couple whose wedding was cancelled because of the coronavirus pandemic have invited friends and family to watch them tie the knot on Nintendo's Animal Crossing.



Zack  
@Asmongold

Today we all witnessed not only the largest in-game memorial but also the largest in-game player-driven event in the history of World of Warcraft

In times like this it's easy to think of the evil that people are capable of but we can't forget the purity and kindness as well.



6:48 AM · Jul 3, 2020

80.1K

11.1K people are Tweeting about this



# THE BENEFITS OF PLAY



**77%**

play with others online or in-person at least weekly (up from 65% in 2020)



## HOURS PLAYED

Online  
with  
others

**7.5**

hours/wk  
(up from 6.6 hours  
in 2020)

In-person  
with  
others

**4.5**

hours/wk  
(up from 4.3 hours  
in 2020)

## VIDEO GAME PLAYERS PLAY WITH

**53%**

Friends

**31%**

Spouse/  
Partner

**31%**

Other family  
members

**23%**

Team/guild/  
clanmate/"online  
only" friends

**6%**

Parents

**78%**

think games introduce  
us to new friendships  
and relationships

**54%**

have met people  
through video games  
they otherwise would  
not have met

**53%**

say video games have  
helped them stay  
connected to  
friends/family

**42%**

have met a good friend,  
spouse, or significant  
other through  
video games





# THE BENEFITS OF PLAY

We use games to relax, to connect and to be entertained.  
Players are a diverse community, strengthening bonds through play.



89%

say video games can bring together different types of people (individuals of different cultures, races, ages, political affiliations, etc.)



89%

say video games can create accessible experiences for people with different abilities



Players think that video game play has a positive impact on their lives.

90%

say video games bring joy through play

87%

say video games provide mental stimulation

87%

say video games provide stress relief

81%

say video games can help build teamwork and collaboration skills

79%

say video games can inspire people



PLoS One. 2013; 8(3): e58546.

Published online 2013 Mar 13.



doi: [10.1371/journal.pone.0058546](https://doi.org/10.1371/journal.pone.0058546)

PMCID: PMC3596277





PMID: [23516504](https://pubmed.ncbi.nlm.nih.gov/23516504/)

Report

## Action Video Games Make Dyslexic Children Read Better

Sandro Franceschini<sup>1,3</sup>, Simone Gori<sup>1,2,3</sup>, Milena Ruffino<sup>2</sup>, Simona Viola<sup>1</sup>, Massimo Molteni<sup>2</sup>, Andrea Facoetti<sup>1,2,3</sup>  

Show more 

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<https://doi.org/10.1016/j.cub.2013.01.044>

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## Enhancing Cognition with Video Games: A Multiple Game Training Study

[Adam C. Oei](#)<sup>\*</sup> and [Michael D. Patterson](#)

Joy J. Geng, Editor

[▶ Author information](#) [▶ Article notes](#) [▶ Copyright info](#)

# PEDIATRIC

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Article

## A Video Game Improves Behavioral Outcomes in Adolescents and Young Adults With Cancer: A Randomized Trial



Pamela M. Kato, Steve W. Cole, Andrew S. Bradlyn and Brad H. Pollock

Pediatrics August 2008, 122 (2) e305-e317; DOI: <https://doi.org/10.1542/peds.2007-3134>



Report

## Action Video Games Make Dyslexic Children Read Better

Sandro Franceschini<sup>1,3</sup>, Simone Gori<sup>1,2,3</sup>, Milena Ruffino<sup>2</sup>, Simona Viola<sup>1</sup>, Massimo Molteni<sup>2</sup>, Andrea Facoetti<sup>1,2,3</sup>  

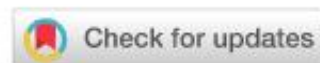
## Playing Action Video Games Improves Visuomotor Control

Li Li, Rongrong Chen, Jing Chen

First Published July 8, 2016

Research Article

[Find in PubMed](#)



<https://doi.org/10.1177/0956797616650300>



International Journal of Surgery

Volume 11, Issue 5, June 2013, Pages 365-369



Review

## Does playing video games improve laparoscopic skills?

Yanwen Ou<sup>a</sup>, Emma Rose McGlone<sup>b</sup>, Christian Fielder Camm<sup>c</sup>, Omar A. Khan<sup>d</sup>  



---

**GAMES CHANGE  
US.**





A word cloud featuring various academic and creative disciplines. The words are arranged in a dense, overlapping manner, with some words appearing larger and more prominent than others. The colors of the words include shades of blue, orange, yellow, and white, creating a vibrant contrast against the dark background.

Business  
Mathematics Visual-Arts  
Music Management Communication  
Engineering Anthropology Cinematography  
Sound-Design Project-Management  
Creative-Writing Technical-Writing  
Public-Speaking History Brainstorming  
Psychology Architecture  
Economics

I AM A LEARNER.





# THIS WAR OF MINE



# PATH OUT



# THAT DRAGON CANCER



# FOCUS ON THE SDG GOALS





# FOCUS ON THE SDG GOALS





## 3. Good Health and Wellbeing

### #StayHome Playing LoL - Analyzing Players' Activity and Social Bonds in League of Legends During Covid-19 Lockdowns

Simone Petrosino  
Institute of Interactive Systems and  
Data Science,  
Graz University of Technology  
Graz, Austria  
s.petrosino@tugraz.at

Enrica Loria  
Institute of Interactive Systems and  
Data Science,  
Graz University of Technology  
Graz, Austria  
eloria@tugraz.at

Johanna Pirker  
Institute of Interactive Systems and  
Data Science,  
Graz University of Technology  
Graz, Austria  
johanna.pirker@tugraz.at

of Legends During Covid-19 Lockdowns. In *The 16th International Con-*

#### ABSTRACT

Humans are social animals. During the Covid-19 pandemic, social distancing and lockdowns have led to a large section of the population being isolated. Online multiplayer games have become a great social incubator for individuals who have been isolated. If games fostered social bonds, people sought. In

### Virtual Reality Applications for the Treatment of Anxiety and Mental Disorders

Saeed Safikhani  
Graz University of Technology  
Graz Austria  
s.safikhani@tugraz.at

Johanna Pirker  
Graz University of Technology  
Graz Austria  
johanna.pirker@tugraz.at

Selina Christin Wriessneger  
Graz University of Technology  
Graz Austria  
s.wriessneger@tugraz.at

**Abstract**—Virtual Reality (VR) environments are computer-generated mediums that try to provide the user a sense of presence. The use of VR term in science has a long history, but an increasing number of commercial cost-effective VR devices are creating new possibilities and applications for it. Regardless of entertainment, as the most widespread market for VR, the application of VR in medicine is attracting great attention in the scientific field. VR can be used as a tool for public healthcare, as a teaching environment for medical students or to improve the skills of experts, together with a well-accepted method for physical rehabilitation and mental therapies. The focus of this

as in the treatment of anxiety disorders, rehabilitation, or pain reduction, as well as an opportunity for medical experts or students to improve their skills or learn new ones. In general, the use of VR in medical applications can be categorized according to its primary purpose:

- 1) VR as an educational and experimental environment for training experts and students in the field of medicine
  - Increase (train) speed and efficiency of experts [5]–[7]

New Results

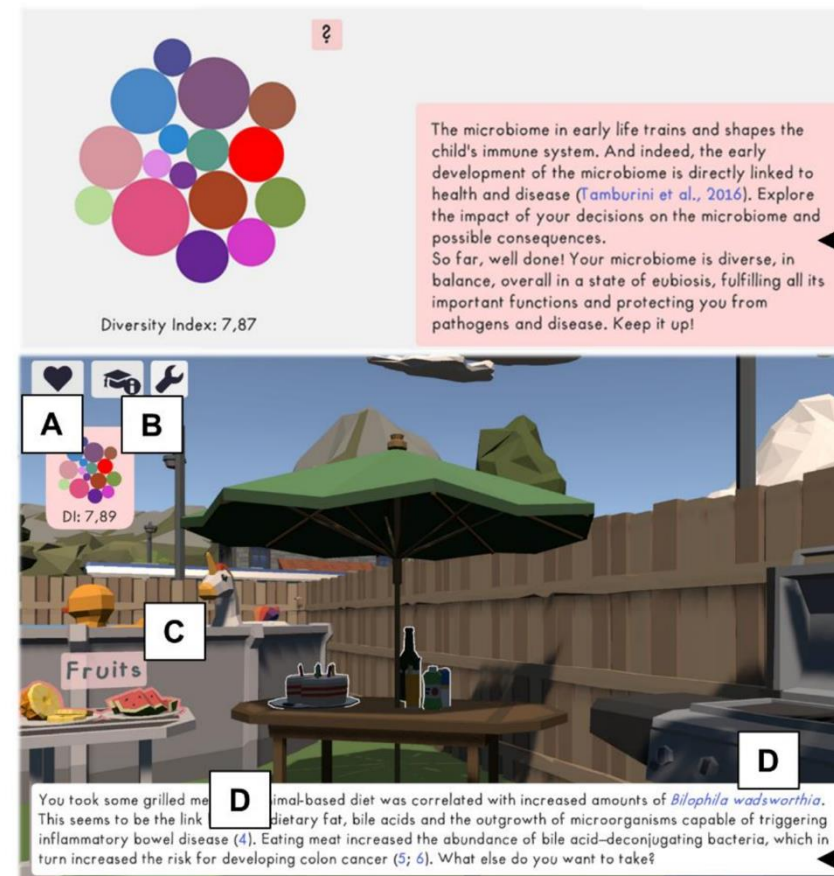
Follow this preprint

### "Tiny Biome Tales": a gamified review about the influence of lifestyle choices on the human microbiome

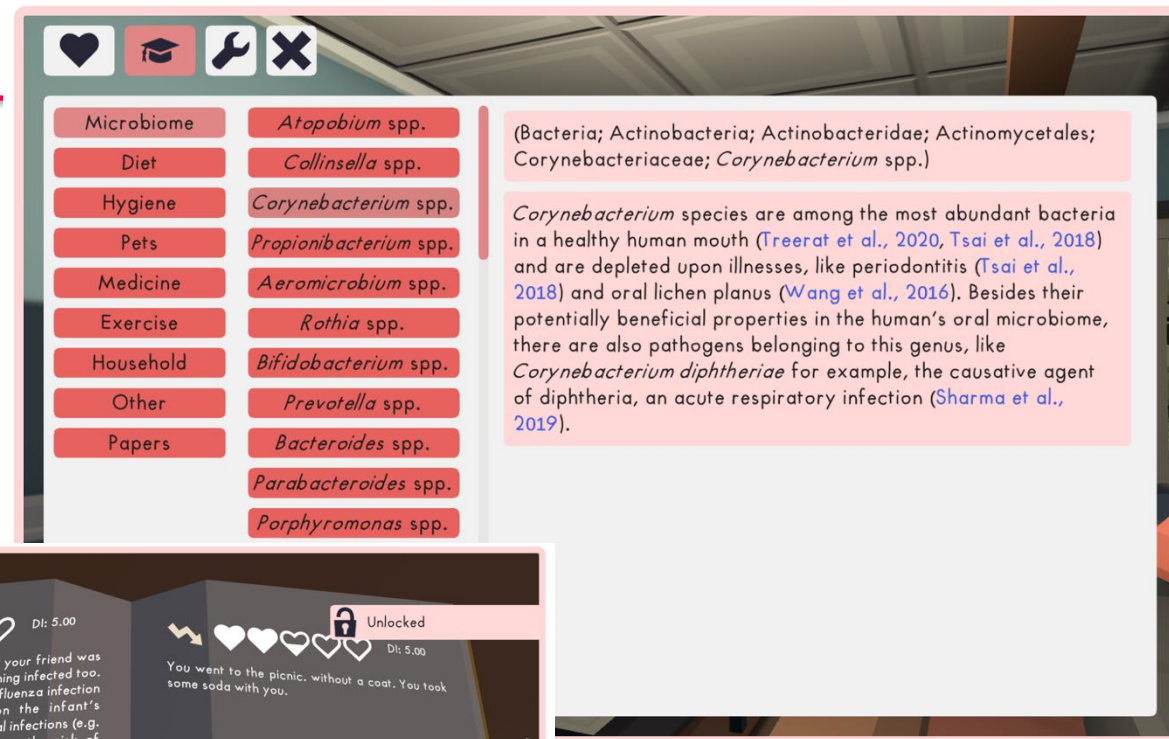
Matthias Schweitzer; Maximilian Wlasak; Birgit Wassermann; Florian Marcher; Christian Poglitsch; Johanna Pirker; Gabriele Berg

doi: <https://doi.org/10.1101/2024.06.29.601357>

This article is a preprint and has not been certified by peer review [what does this mean?].











## 4. Quality Education

### An Asymmetric Multiplayer Learning Environment for Room-Scale Virtual Reality and a Handheld Device

MICHAEL HOLLY, Graz University of Technology, Austria

SEBASTIAN RESCH, Graz University of Technology, Austria

JOHANNA PIRKER, Ludwig-Maximilians-Universität München, Germany

and Graz University of Technology, Austria

Many different digital learning environments are currently in use. In combination with virtual reality (VR) hands-on experiences. While VR environments can deeply are often not actively involved or are not even considered environments, as learning often takes place in pairs or

#### Motivational Active Learning – Engaging University Students in Computer Science Education

Johanna Pirker  
Graz University of Technology  
Institute for Information Systems and  
Computer Media  
Inffeldgasse 16c, Graz, Austria  
0043-316-8735625  
jparker@icm.edu

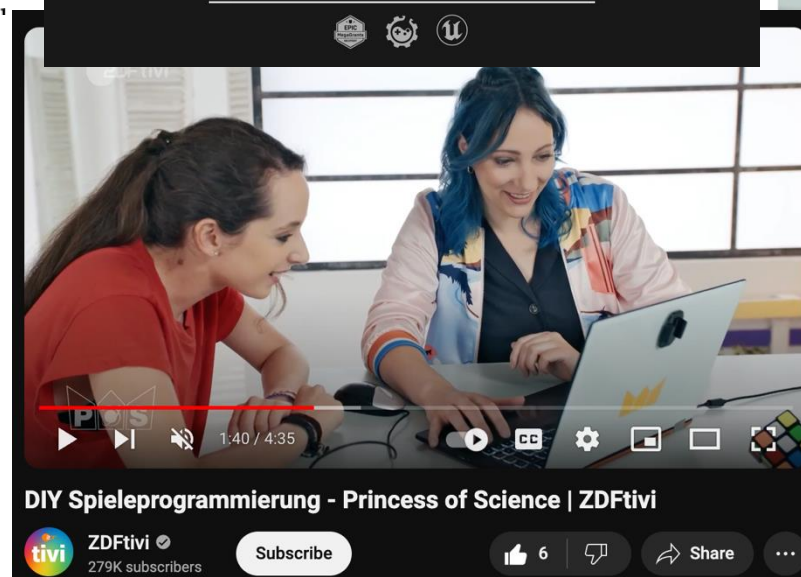
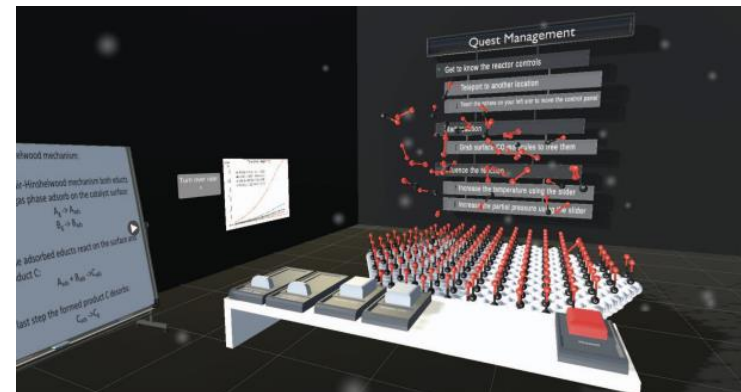
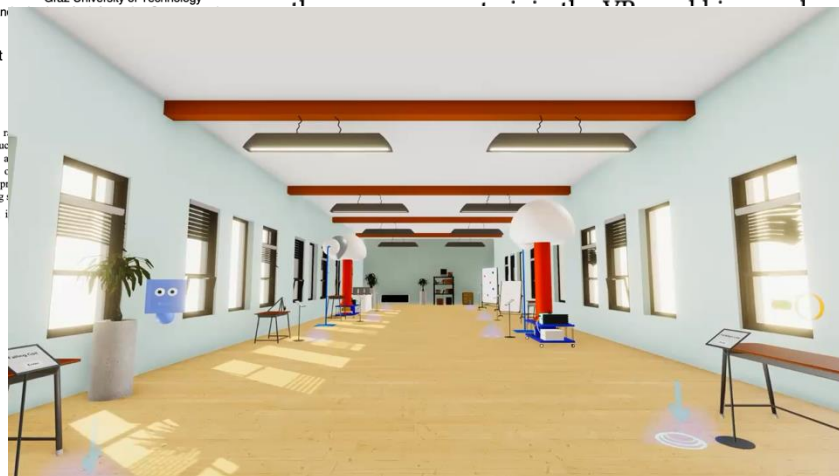
Maria Riffnaller-Schiefer  
Graz University of Technology  
Institute for Information Systems and  
Computer Media  
8010 Graz  
riffnaller@student.tugraz.at

Christian Gütl  
Graz University of Technology

#### ABSTRACT

Attracting and engaging computer science students to enhance their mathematical and algorithmic thinking skills are challenging tasks. In winter 2013 we introduced a new teaching format for a course, which combines theory in computer science with hands-on algorithmic challenges, mathematical thinking activities, and collaborative problem-solving. Therefore, we introduced the

high drop-out rate in engineering education fields, there are models based on engagement, problem-solving, and collaborative learning. One successful



8. MÄRZ 2018

**Die „30 under 30“-Wissenschaftlerin Johanna Pirker von der TU Graz will mit Videospielen das Lernen neu gestalten.**

Die Tür zu Johanna Pirkers Büro fällt unter den vielen anderen auf dem Gang des Instituts für Interaktive Systeme und Datenwissenschaften an der TU Graz dann doch ein wenig auf. Am Eingang zu ihrem Eckbüro weicht die kühle Sachlichkeit des Gebäudes eine Kombination aus Sichtbeton, Glas und Nirosta expliziter Fröhlichkeit. Bunt und dennoch wohl sortiert. Einiges vom Türdekor würden sich andere gerne im





## 5. Gender Equality

### Toxicity in Twitch Live Stream Chats: Towards Understanding the Impact of Gender, Size of Community and Game Genre

Lukas Dreier  
Graz University of Technology  
Graz, Austria

Johanna Pirker  
Ludwig-Maximilians-Universität, Germany  
& Graz University of Technology, Austria

**Abstract**—Twitch is a leading global live-streaming platform primarily focused on gaming content. However, it is evolving significantly beyond gaming, making it increasingly relevant as a social media and communication platform. Through its chat feature, thousands of streamers interact with their followers in real time. Thereby, the viewers interact with each other or the streamer through a chat. Also here, addressing toxicity and negative posts in the chat, a common challenge on social media platforms, is crucial. Twitch's fast-growing user base creates a potential breeding ground for toxic and hateful behavior. In this first study, we examine Twitch chats to better understand potential toxic behavior. By selecting a diverse group of streamers based on followers, streaming content, and gender, we offer

Our research findings have the potential to contribute to the development of interventions aimed at preventing and mitigating toxic behavior in live-streaming chats.

#### II. BACKGROUND AND RELATED WORK

**Twitch.tv** (TTV) is a prominent live-streaming platform that originated from the website Justin.tv in 2011. Initially focused on gaming content, Twitch grew steadily over the years, expanding beyond gaming to various other areas such as online lectures and tuition [1]. As a result, it has become also an intriguing subject for research. In 2014, Hamilton et



#### IT-NACHWUCHSMANGEL

### Game soll Mädchen fürs Programmieren begeistern

Web | 02.02.2024 07:26



„FemQuest“ soll bei Mädchen das Interesse am Programmieren wecken. (Bild: ISDS/TU Graz)

Der IT-Sektor leidet nach wie vor unter Nachwuchsmangel. Ein an der TU Graz entwickeltes Game soll Mädchen spielerisch fürs Programmieren begeistern. Entwickelt wurde es gemeinsam mit Jugend am Werk Steiermark, wo es bereits für die Berufsorientierung von Mädchen eingesetzt wird. Jetzt ist es auch als Download frei verfügbar.

### FemQuest - An Interactive Multiplayer Game to Engage Girls in Programming

Michael Holly<sup>i</sup>, Lisa Habich<sup>ii</sup>, Maria Seiser<sup>iii</sup>, Florian Glawogger<sup>iv</sup>, Kevin Innerebner<sup>v</sup>  
Graz University of Technology  
Graz, Austria  
Email: <sup>i</sup>michael.holly@tugraz.at, <sup>ii</sup>lisa.habich@tugraz.at, <sup>iii</sup>seiser@tugraz.at, <sup>iv</sup>glawogger@tugraz.at, <sup>v</sup>innerebner@tugraz.at

Sandra Kupsa<sup>vi</sup>, Philipp Einwallner<sup>vii</sup>  
Jugend am Werk Steiermark  
Graz, Austria  
Email: <sup>vi</sup>sandra.kupsa@jaw.or.at, <sup>vii</sup>philipp.einwallner@jaw.or.at

Johanna Pirker  
Ludwig-Maximilians-Universität München  
Munich, Germany  
jpirker@icm.edu

**Abstract**—In recent decades, computer science (CS) has undergone remarkable growth and diversification. Creating attractive, social, or hands-on games has already been identified as a possible approach to get teenagers and young adults interested in CS. However, overcoming the global gap between the interest and participation of men and women in CS is still a worldwide problem. To address this challenge, we present a multiplayer game that is used in a workshop setting to motivate girls to program through a 3D game environment. The paper aims to expand the educational landscape within computer science education by offering a motivating and engaging platform for young women to explore programming quests in a collaborative

interests. Improving the attitude of girls towards programming remains a challenge, especially because interest in these subjects drops early on [5]. To achieve a higher number of women working and being educated in STEM fields, girls' motivation needs to be encouraged and their self-confidence strengthened to approach these subjects. A diverse workforce offers the opportunity to develop better products for a broader spectrum of consumers and better understand their needs. More women working in science and technology promises to increase social equity and economic growth. In recent years,



#### PROGRAMMIEREN

### Computerspiel als Anreiz für Mädchen

Ein an der TU Graz entwickeltes Computerspiel soll bei Mädchen spielerisch das Interesse am Programmieren wecken. Alles dreht sich darin um einen boshafte Hasen, der eine Stadt verwüstet – er muss gefangen und besänftigt werden. Derzeit wird es zur Berufsorientierung eingesetzt. Es ist als Download frei verfügbar.

1. Februar 2024, 15.27 Uhr

Teil

Die Berufs- und Ausbildungswahl ist eine wichtige Entscheidung. Vorurteile und Zuschreibungen sorgen allerdings nach wie vor dafür, dass etwa viele Mädchen und junge Frauen erst gar nicht über technische Berufe und speziell Informatik als Berufsfeld nachdenken, schilderte Philipp Einwallner, Projektmanager von Jugend am Werk Steiermark.



## 7. Affordable and Clean Energy



### Project Beyond: An Escape Room Game in Virtual Reality to Teach Building Energy Simulations

Georg Arbesser-Rastburg<sup>i</sup>, Saeed Safikhani<sup>ii</sup>, Matej Gustin<sup>iii</sup>, Christina Hopfe<sup>iv</sup>, Gerald Schweiger<sup>v</sup>  
 Graz University of Technology, Graz, Austria  
 Email: <sup>i</sup>georg.arbesser-rastburg@tugraz.at, <sup>ii</sup>s.safikhani@tugraz.at, <sup>iii</sup>m.gustin@tugraz.at, <sup>iv</sup>c.j.hopfe@tugraz.at, <sup>v</sup>gerald.schweiger@tugraz.at

Johanna Pirker  
 Ludwig-Maximilians-Universität München, Munich, Germany  
 Email: jpirker@icm.edu

**Abstract**—In recent years, Virtual Reality (VR) has found its way into different fields besides pure entertainment. One of the topics that can benefit from the immersive experience of VR is education. Furthermore, using game-based approaches in education can increase user motivation and engagement. Accordingly, in this paper, we designed and developed an immersive escape room game in VR to teach building energy simulation topics. In the game, players must solve puzzles like, for instance, assembling walls using different materials. We use a player guidance system that combines educational content, puzzles, and different types of hints to educate the players about parameters that influence energy efficiency, structural resistance, and costs. To improve user onboarding, we implemented a tutorial level to teach players general interactions and locomotion.

To assess the user experience, we evaluate both the tutorial and the game with an expert study with gaming and VR experts (n=11). The participants were asked to play both the

Combining games with educational content is one way of meeting this demand for interactivity. This is done to increase the learner's engagement and motivation by evoking emotions like enjoyment or accomplishment during gameplay [2]. Such games are often called *serious games*. A serious game is a game that not only aims to entertain the players but also tries to fulfill an additional goal, such as educating them [3].

Numerous approaches to serious gaming have been taken in the past, for instance, for medical training or architecture education. Studies have shown that serious games for educational purposes positively influence user engagement and cognitive abilities while helping the players keep a positive attitude [4].

Escape room games are one possible approach to educational games. In an escape room game, players must solve







## 8. Decent Work and Economic Growth



Article

### VRChances: An Immersive Virtual Reality Experience to Support Teenagers in Their Job Choice

Michael Holly<sup>1,†,\*</sup>, Carina Weichselbraun<sup>1,†</sup>, Florian Wohlmuth<sup>1,†</sup>, Florian Glawogger<sup>1,†</sup>, Maria Seiser<sup>1,†</sup>, Philipp Einwallner<sup>2</sup> and Johanna Pirker<sup>1,3</sup>

<sup>1</sup> Graz University of Technology, Austria

<sup>2</sup> Jugend am Werk Steiermark, Austria

<sup>3</sup> Ludwig-Maximilians-Universität München, Germany

\* Correspondence: michael.holly@tugraz.at

† These authors contributed equally to this work.

**Abstract:** Choosing a career path is an important decision in a person's life and forms the basis for the future direction. It impacts the future career and influences financial stability as well as the person's well-being. Many people struggle to find out what they are interested in and talented in, making it difficult to choose a fitting career path. Therefore, the decision-making process requires careful consideration, self-reflection, and exploring numerous options. While virtual environments provide an effective way to explore different experiences, virtual reality (VR) offers users immersive interactions with simulated 3D environments. This allows the realistic exploration of different



Electrician job experience in a garage setting.



Interaction with a power socket, a wire connector, and a multimeter.



Figure 6. Cook job experience in a kitchen setting.



Figure 7. Cooking interactions: Cutting vegetables, weighing ingredients, cooking and rolling pancakes, ladling soup.





## 10. Reduced Inequalities

### UnityAccessibilityToolkit (UA11Y): Developer Tool and Roadmap to Make Games More Accessible for People with Vision Impairments

Klemens Strasser  
Graz University of Technology  
Austria

Johanna Pirker  
Graz University of Technology, Austria &  
Ludwig-Maximilians-Universität, Germany &  
jparker@tugraz.at

#### Abstract

An increasing number of game productions rely on accessibility features. Large productions like *The Last of Us* demonstrate what is possible in this area, but many games still lack essential accessibility features. Smaller productions often lack the knowledge and resources to implement different accessibility features.

In the first part of this paper, we investigate how people with vision impairments play video games and compare current accessibility features. Based on our

people worldwide live with a visual impairment, making accessibility a critical issue in game development.

While some games have shown the potential of including accessibility features for this user group, such features are still rare in mainstream game development (Atkinson et al., 2006). In this paper, we aim to explore the gameplay strategies of people with visual impairments and discuss the basic interaction forms and vision accessibility features required for video games.

Based on our research findings, we describe a

### A Qualitative Investigation to Design Empathetic Agents as Conversation Partners for People with Autism Spectrum Disorder

1<sup>st</sup> Christian Poglitsch  
ISDS - Institute of Interactive Systems and Data Science  
University of Technology Graz  
Graz, Austria  
chris.poglitsch@tugraz.at

2<sup>nd</sup> Johanna Pirker  
Media Informatics Group  
Ludwig-Maximilians-Universität München  
Munich, Germany  
johanna.pirker@ifi.lmu.de

**Abstract**—Autism Spectrum Disorder (ASD) can profoundly affect reciprocal social communication, resulting in substantial and challenging impairments. One aspect is that for people with autism ASD conversations in everyday life are challenging due to difficulties in understanding social cues, interpreting emotions, and maintaining social verbal exchanges. To address these challenges and enhance social skills, we propose the development of a learning game centered around social interaction and conversation, featuring Artificial Intelligence (AI) agents. Our initial step involves conducting expert interviews to gain insights into the requirements for empathetic and conversational agents in the field of improving social skills for people with ASD in a gamified environment. We have identified two distinct use cases: (1) Conversation partners for discussing real-life issues and (2) Training partners for experiencing various scenarios to enhance social skills. In the latter case, users will receive quests for interacting with the agent. Additionally, the agent can assign quests to the user, prompting specific conversations in real life and providing rewards for successful completion of quests.

**Index Terms**—Autism Spectrum Disorder, ASD, Game, Gamification, Generative Agents, Learning, Social Skills, Empathy

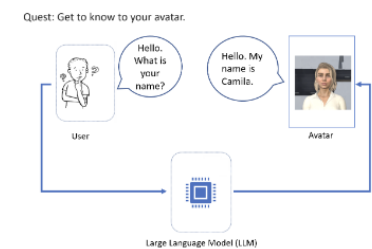


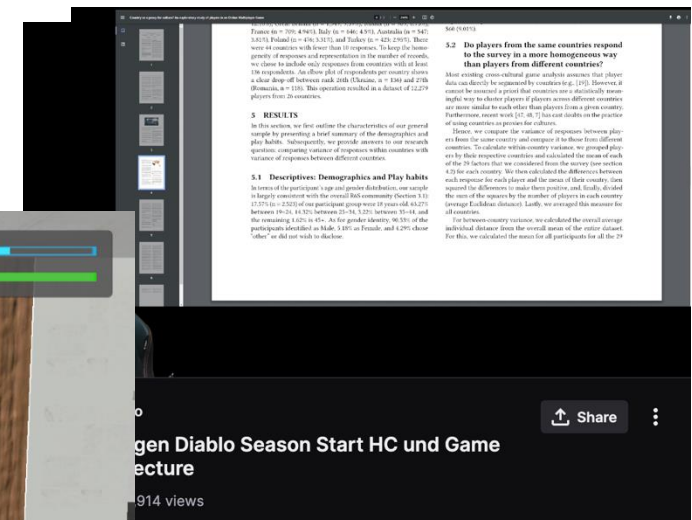
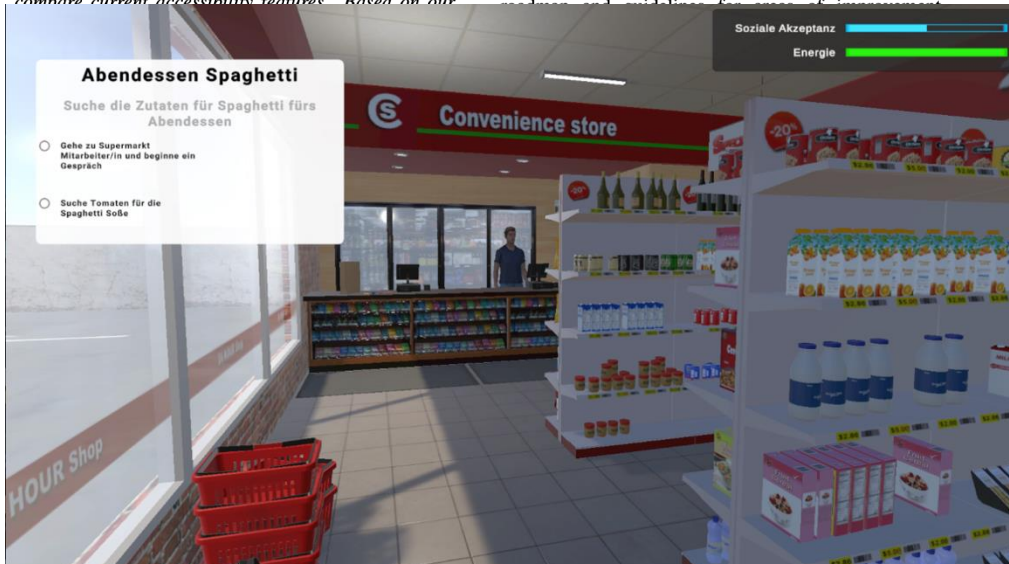
Fig. 1. Proposed framework for initiating conversations with an agent, incorporating a starting quest.

Computers & Graphics 121 (2024) 103942

Contents lists available at ScienceDirect

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journal homepage: [www.elsevier.com/locate/cag](http://www.elsevier.com/locate/cag)





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# THE POTENTIAL OF GAMES FOR THE HEALTH & CARING SECTOR

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# USE CASES

## Training & Education

- Realistic VR simulations for caregiver training
- Safe, gamified learning environments

## Therapy & Patient Support

- VR for dementia and Alzheimer's therapy
- Pain and anxiety reduction through distraction
- Cognitive and physical rehab via games

## Social Inclusion & Wellbeing

- Virtual meetups with family or peers
- Shared VR activities to reduce loneliness
- Accessible game design for all abilities

## Care Planning & Design

- VR-based room and workflow planning
- Simulating ethical decision-making scenarios

## Co-Design & Innovation

- Involving care workers in game/tool development
- Citizen science: testing and improving VR in care contexts



# The game-changing ADHD treatment

EndeavorRx is the first & only doctor-prescribed video game treatment for kids with ADHD.

TALK TO A DOCTOR NOW

Discover The Treatment

EndeavorRx should be used as part of a therapeutic program, is not a stand-alone therapeutic and is not a substitute for ADHD medication.



## PLOS ONE

OPEN ACCESS PEER-REVIEWED  
RESEARCH ARTICLE

### Playing Super Mario 64 increases hippocampal grey matter in older adults

Greg L. West, Benjamin Rich Zindel, Kyoko Konishi, Jessica Benady-Chorney, Veronique D. Bohbot, Isabelle Peretz, Sylvie Belleville

Published: December 6, 2017 • <https://doi.org/10.1371/journal.pone.0187779>

Article	Authors	Metrics	Comments	Media Coverage
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#### Abstract

1. Introduction
  2. Materials and methods
  3. Results
  4. Discussion
- Supporting Information  
References

Reader Comments  
Figures

#### Abstract

Maintaining grey matter within the hippocampus is important for healthy cognition. Playing 3D-platform video games has previously been shown to promote grey matter in the hippocampus in younger adults. In the current study, we tested the impact of 3D-platform video game training (i.e., Super Mario 64) on grey matter in the hippocampus, cerebellum, and the dorsolateral prefrontal cortex (DLPFC) of older adults. Older adults who were 55 to 75 years of age were randomized into three groups. The video game experimental group (VID;  $n = 8$ ) engaged in a 3D-platform video game training over a period of 6 months. Additionally, an active control group took a series of self-directed, computerized music (piano) lessons (MUS;  $n = 12$ ), while a no-contact control group did not engage in any intervention (CON;  $n = 13$ ). After training, a within-subject increase in grey matter within the hippocampus was significant only in the VID training group, replicating results observed in younger adults. Active control MUS training did, however, lead to a within-subject increase in the DLPFC, while both the VID and MUS training produced growth in the cerebellum. In contrast, the CON group displayed significant grey matter loss in the hippocampus, cerebellum and the DLPFC.

#### Figures



ARTICLES | AUGUST 01 2008

## A Video Game Improves Behavioral Outcomes in Adolescents and Young Adults With Cancer: A Randomized Trial

Pamela M. Kato, PhD, EdM; Steve W. Cole, PhD; Andrew S. Bradlyn, PhD; Brad H. Pollock, PhD, MPH

Address correspondence to Pamela M. Kato, PhD, EdM, University Medical Center Utrecht, Center for Patient Safety, Housepost number Q 05.4.300, PO Box 85500, 3508 GA Utrecht, Netherlands. E-mail: [pkato@umcutrecht.nl](mailto:pkato@umcutrecht.nl)

*Pediatrics* (2008) 122 (2): e305–e317.

[DOI: 10.1542/peds.2007-3134](#) Article history

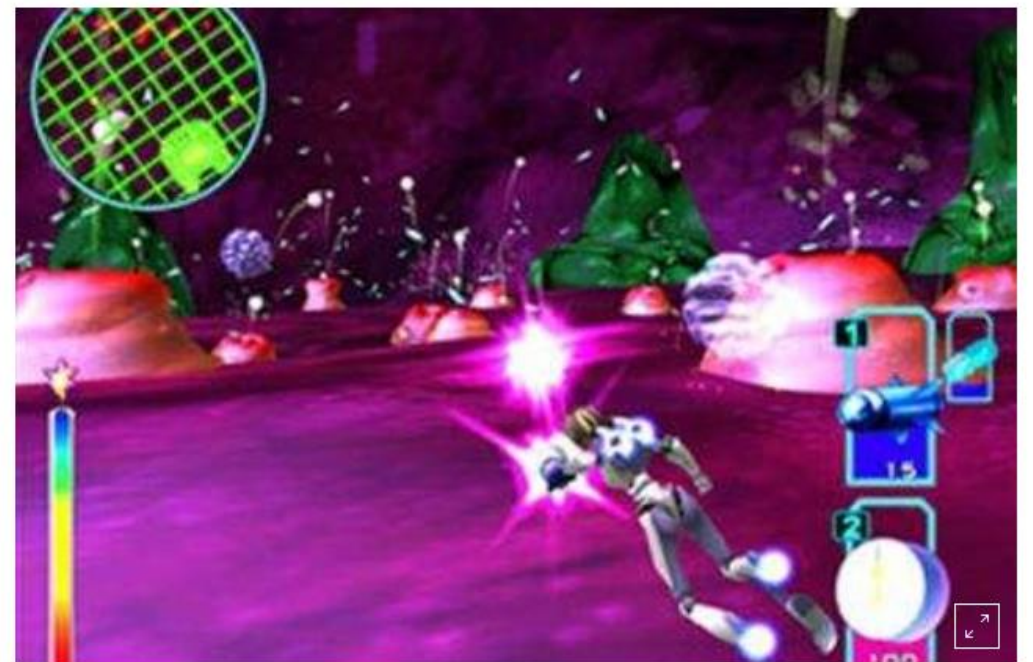
## Video game helps young cancer patients take meds

By Anne Harding, Reuters Health

3 MIN READ



NEW YORK (Reuters Health) - Playing a specially designed video game can help adolescents and young adult cancer patients adhere more closely to their prescribed treatment, according to a report in the journal *Pediatrics*.



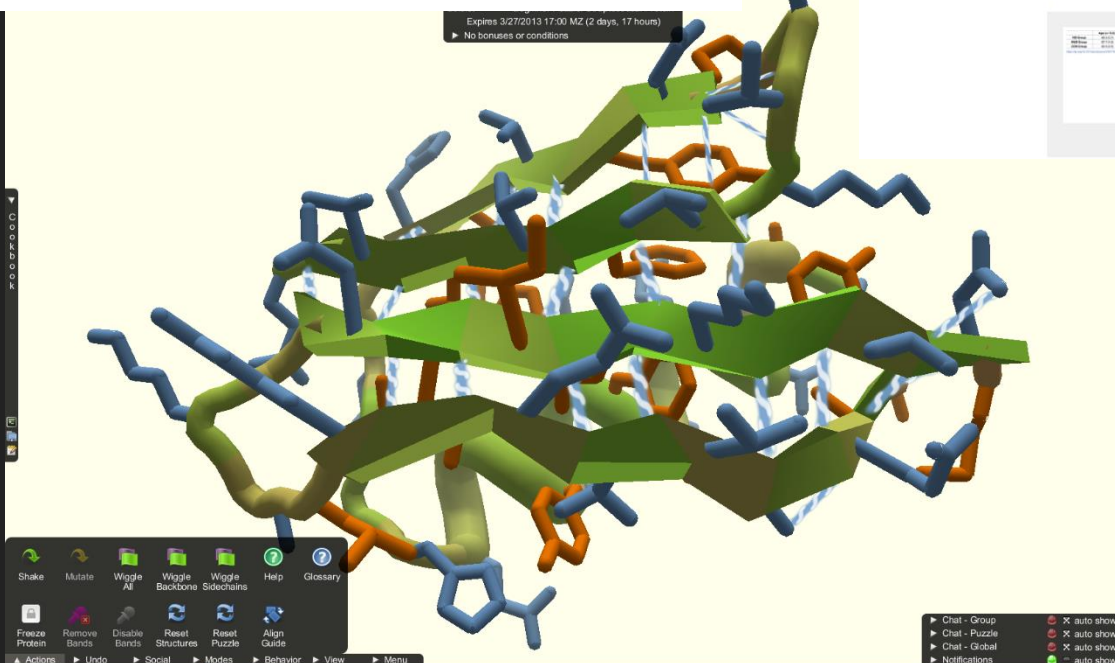
A screenshot from the video game "Re-Mission" in an image courtesy of HopeLab. Playing a specially designed video game can help adolescents and young adult cancer patients adhere more closely to their prescribed treatment, according to a report in the journal *Pediatrics*. REUTERS/Handout

Zocken für die Forschung

## Foldit: Dieses Spiel soll das Coronavirus stoppen

04.03.2020, 15:31 Uhr Ein Impfstoff gegen das Coronavirus gibt es noch nicht. Hilfe bei dessen Erforschung erhoffen sich Wissenschaftler nun ausgerechnet von einem Computerspiel!

von unserem Autor Manuel Bauer





# GAMES

## Role of Video Games in Improving Health-Related Outcomes

A Systematic Review

Brian A. Primack, MD, PhD, Mary V. Carroll, BA, Megan McNamara, MD, MSc, Mary Lou Klem, PhD, MLS, Brandy King, MLIS, Michael O. Rich, MD, MPH, Chun W. Chan, MD, MPH, and Smita Nayak, MD

### Evidence synthesis

Of 1452 articles retrieved using the current search strategy, 38 met all criteria for inclusion. Eligible studies used video games to provide physical therapy, psychological therapy, improved disease self-management, health education, distraction from discomfort, increased physical activity, and skills training for clinicians. Among the 38 studies, a total of 195 health outcomes were examined. Video games improved 69% of psychological therapy outcomes, 59% of physical therapy outcomes, 50% of physical activity outcomes, 46% of clinician skills outcomes, 42% of health education outcomes, 42% of pain distraction outcomes, and 37% of disease self-management outcomes. Study quality was generally poor; for example, two thirds (66%) of studies had follow-up periods of <12 weeks, and only 11% of studies blinded researchers.

### Conclusions

There is potential promise for video games to improve health outcomes, particularly in the areas of psychological therapy and physical therapy. RCTs with appropriate rigor will help build evidence in this emerging area.



©Oxymoron Games

educationalgames.nobelprize.org/educational/

- Blood Typing**  
What happens if you get a blood transfusion with the wrong blood type? Try to save some patients' lives and learn about human blood types!  
[Play the Blood Typing Game!](#)
- Pavlov's Dog**  
In this game you can train a dog to drool on command! It's all about conditioned learning.  
[Play the Pavlov's Dog Game!](#)
- Control of the Cell Cycle**  
The cell cycle is the series of events that take place as the cells grow and divide. Are you familiar with the different phases in the cycle?  
[Play the Control of the Cell Cycle Game!](#)
- The Red Cross Movement**  
Your mission as a camp commander is to run a prisoner of war camp without violating any human rights. You must follow the humanitarian standards outlined in the Third Geneva Convention (Geneva Convention III).  
[Play the The Prisoners of War Game!](#)

## 3 Learning Nurse

**Learning Nurse – IV Flow Rates**

Question: 1 of 15

**Question 1**

The doctor orders an IV infusion of D5W 1000 mL to infuse over the next 8 hours. The IV tubing that you are using delivers 15 gtt/min. What is the correct rate of flow?

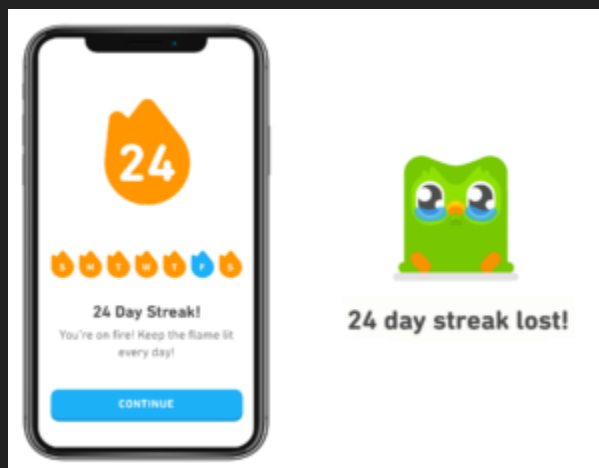
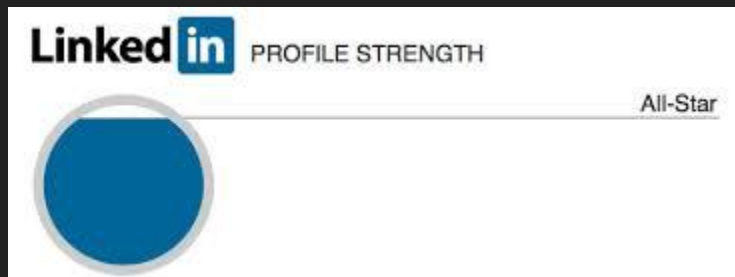
Answer tiles: 31, 42, 4, 400, 800, 125, 90, 25, 30, 21, 33, 11, 83

*Learning Nurse* has hundreds of nursing games and thousands of questions for you to practice on. The coverage is impressive as it has questions about Anatomy, Pharmacology, Histology, Diseases, Medical Abbreviations, Dosages and so on.

The site employs different strategies for the games, making learning fun and engaging at the same time. The *Learning Nurse* games are built using html5 which ensures a faster and better gaming experience on both desktop computers and



# GAMIFICATION



The use of gamification mechanics to increase employee and user engagement in participative healthcare services: A study of two cases

Wafa Hammedi, Thomas Leclercq, Allard C.R. Van Riel

Journal of Service Management

ISSN: 1757-5818

Article publication date: 21 August 2017

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DOWNLOADS ALTMETRICS

3448

3

Research article | [Open Access](#) | [Published: 31 January 2017](#)

## How can information systems provide support to nurses' hand hygiene performance? Using gamification and indoor location to improve hand hygiene awareness and reduce hospital infections

[Rita Marques](#), [João Gregório](#), [Fernando Pinheiro](#), [Pedro Póvoa](#), [Miguel Mira da Silva](#) & [Luís Velez Lapão](#) [✉](#)

*BMC Medical Informatics and Decision Making* **17**, Article number: 15 (2017) | [Cite this article](#)

**6375** Accesses | **18** Citations | **10** Altmetric | [Metrics](#)







# Maaroon

A learning experience  
based on video game technology.

Forbes F15'

TECH

## LERNEN MIT VIRTUAL REALITY



8. MÄRZ 2018

Die „30 under 30“-Wissenschaftlerin Johanna Pirker von der TU Graz will mit Videospielen das Lernen neu gestalten.







VR IS NOT THE  
FUTURE.

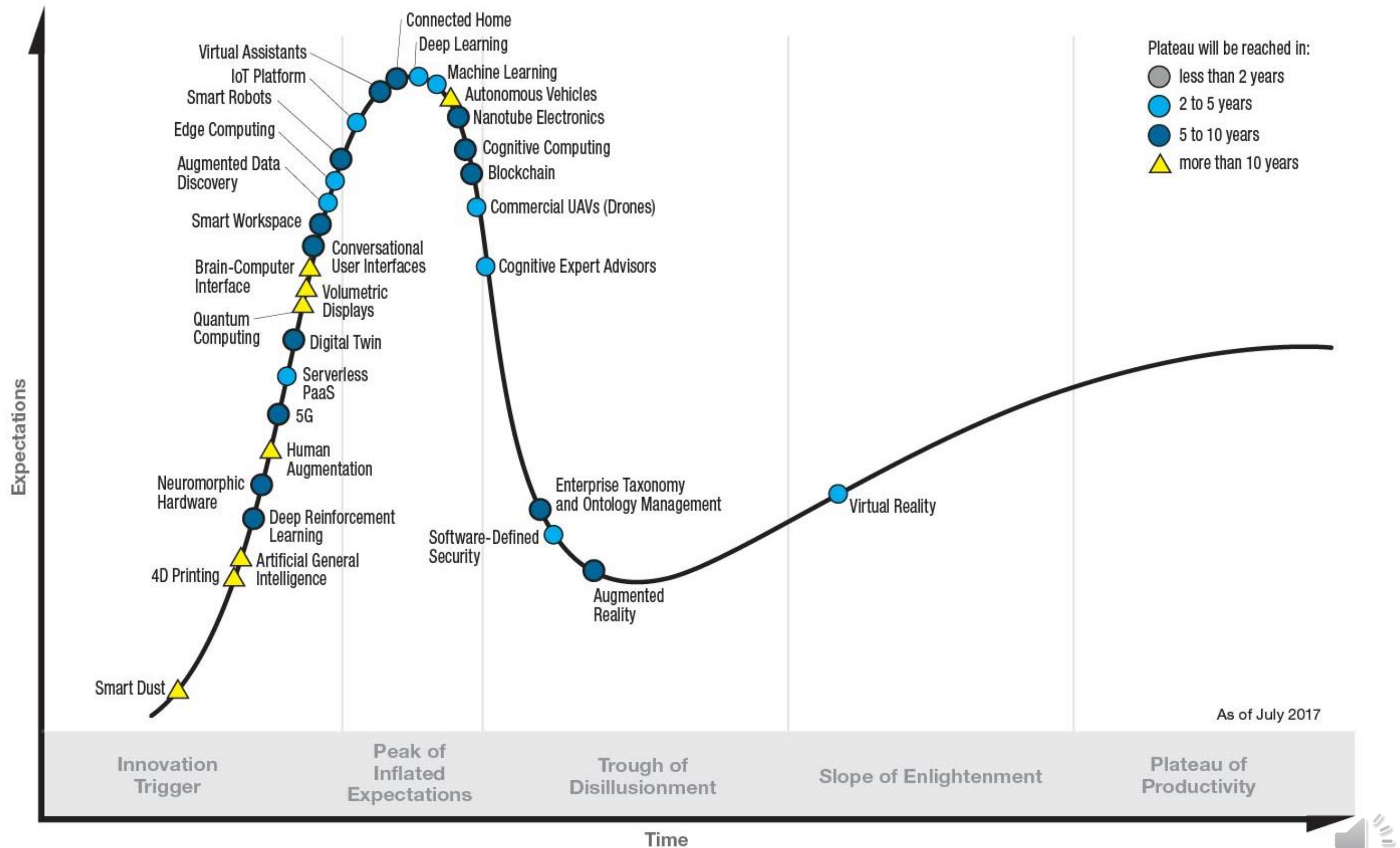


VR IS THE  
PRESENCE.





# Gartner **Hype Cycle** for Emerging Technologies, 2017



VIRTUAL REALITY SPORTS VIDEO

## This virtual reality startup is training NFL quarterbacks to be the next Tom Brady

STRIVR is changing the way athletes prepare to play the world's most physical sports.

By Kurt Wagner | Feb 3, 2017, 5:40pm EST

f t SHARE











## Study Finds Virtual Reality Can Help Reduce Severe Pain

Researchers gave patients VR devices to see if it could help make them more comfortable.



VR headsets aren't just for fun. They may be able to help with medical treatment. Getty Images

Virtual reality (VR) is quickly transforming the healthcare industry, changing the way patients and doctors receive and give care.

## Combining virtual reality and touch for surgical training

FundamentalVR is a technology company combining virtual reality and haptics, or touch interaction, to help train surgeons to perform complex procedures. Abi Millar finds out more.

By Abi Millar





# Caregivers Experience Immersive Training Through Virtual Reality

Senior1Care has been using virtual reality (VR) as part of its training program for the past four years. The VR training allows caregivers to experience the world from the perspective of someone with macular degeneration, an eye disease that causes impaired vision.

This is one of several training modules available at Senior1Care. The decision to incorporate VR into the training program was made to help caregivers process and manage the emotions that come with caring for others. By experiencing the challenges firsthand through VR, caregivers can better understand and provide personalized care without becoming overwhelmed emotionally.

The VR training is not only beneficial for employees but also for family members of patients with conditions like dementia. It allows family members to experience the world through the patient's perspective.

The VR experience aims to help caregivers understand the patient's experience. In addition to their regular training, caregivers can use VR to experience the world from the perspective of someone with macular degeneration, an eye disease that causes impaired vision.



Stable Diffusion Online  
Elderly VR Experienc...



Stable Diffusion Online  
Elderly VR Experienc...



The New York Times  
Virtual Reality Therapy Could Give ...



YouTube  
The Caretaker (Oculus Rift D...



Applewood Our House  
Dementia Care



ArborXR  
VR Therapy to Transform Senior Care ...



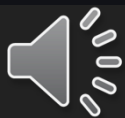
Health Europa  
Virotea: virtual reality for seniors ...



CABHI  
Virtual Reality Training for Caregiv...



Carolina Caring  
Virtual Reality Experience Enhance...



# SOME IDEAS...





# GAMING AND STREAMING EVENTS

## TWITCH STATISTICS & CHARTS

Overview

Viewers

Channels

Games

Languages

1,930,265

LIVE VIEWERS NOW

2,752,049

7-DAY AVG. VIEWERS

99,480

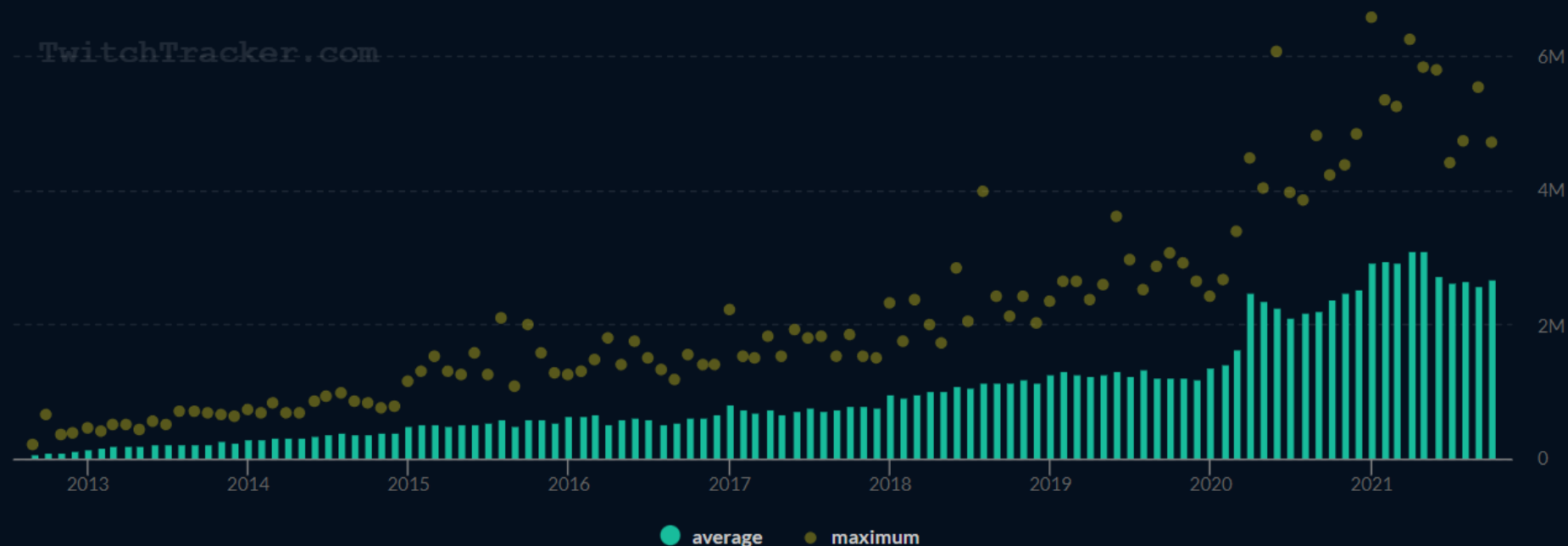
LIVE CHANNELS NOW

92,177

7-DAY AVG. CHANNELS

### TWITCH VIEWERSHIP

--TwitchTracker.com--



This chart shows the change in Twitch viewership over almost the entire time of its existence.

## Topics

Recap: Main GDD1

Selected Topics

Phases of Game Development

Photogrammetry

Story & Balancing

Puzzle Design

AI in Games

Security in Games

QA in Games

Games Research and Evaluation Methods

Data Analysis in Games



www.tugraz.at

16



00:18:47

01:11:30



2X



Lecture 1 - Game Design & Development #tugamedev • 15 days

348

Share



Chat on Videos

14:58 Xelyos\_: i think so

16:51 KirchiTV: 0

16:51 thet0ast3r: 000

16:52 1ST Rokuyomi: 0

16:52 cryptolaus: 0

16:52 Xelyos\_: 0

16:53 hofi\_10: 0

16:53 Kuchenbert: 0

16:53 callmepatii: 0

16:54 deadlybee111: ,0

16:55 nexus\_3: 1

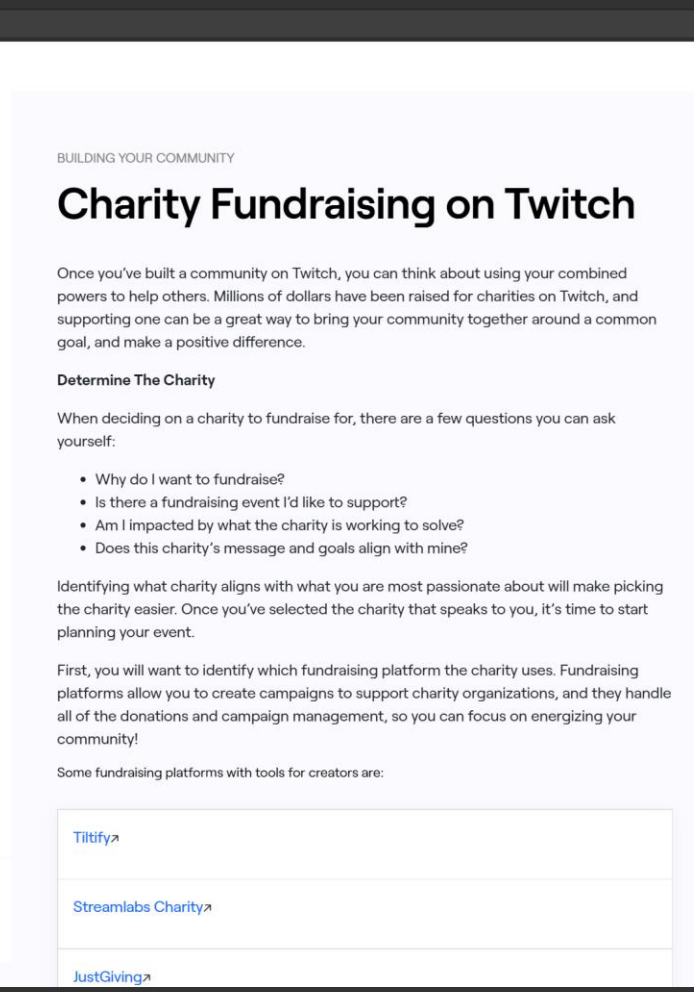
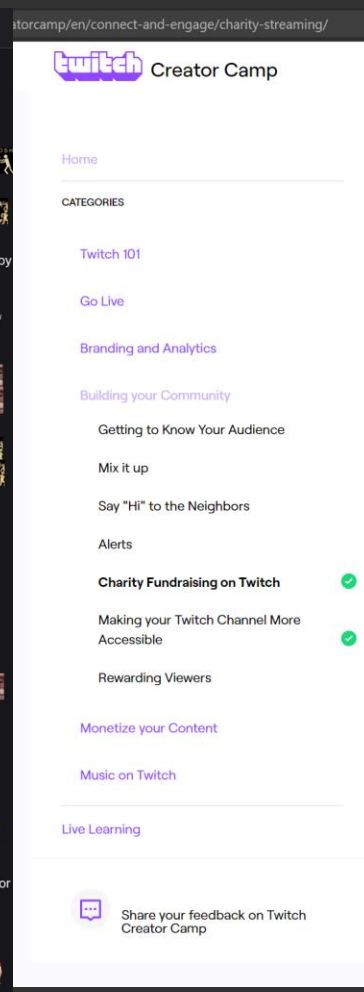
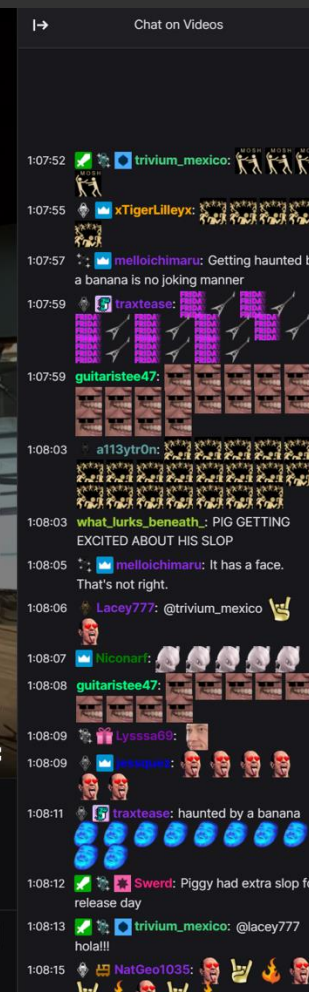
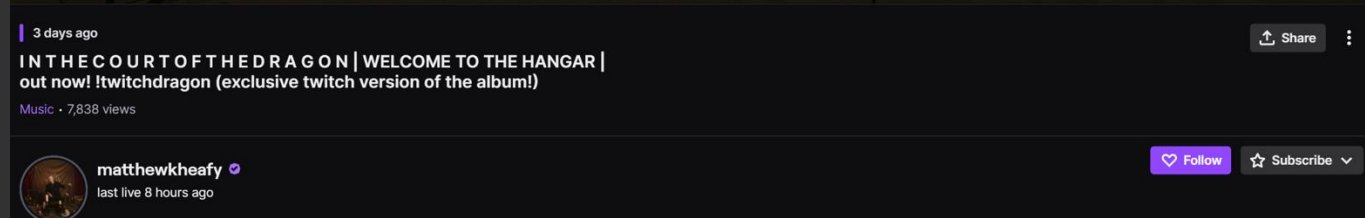
16:57 CommodoreEU: 0

17:03 Vauvenus: 0

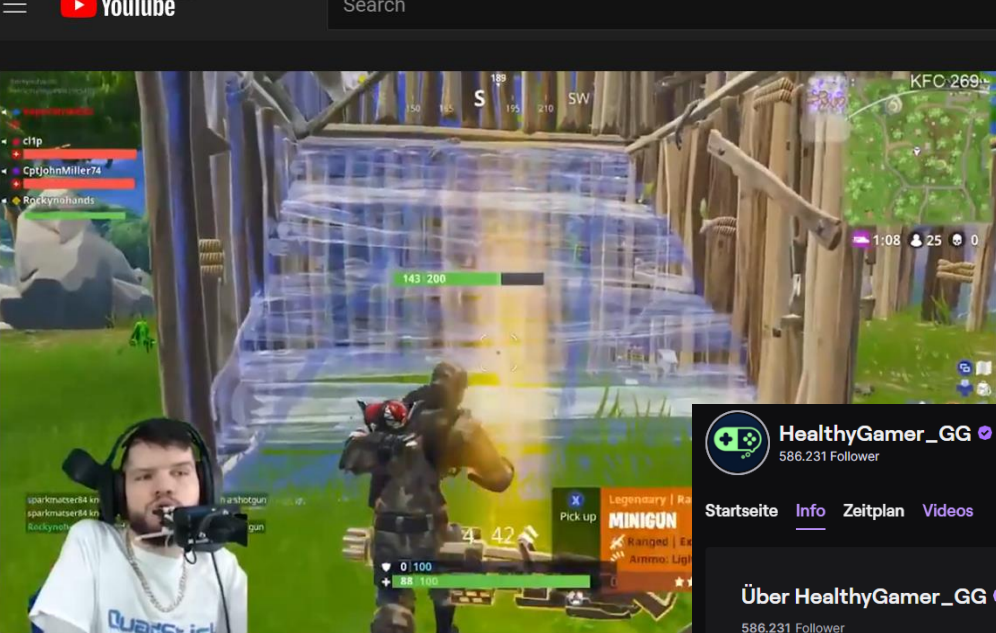
18:04 StreamElements: Thank yo



# GAMING AND STREAMING EVENTS







Disabled Gamers Who Can Beat You! (Motivational)

from last month.

Turn on Notifications

PRESS START

**onehandmostly**  
2.4K followers

Follow

Home About Schedule Videos Chat

## About onehandmostly

2.4K followers

Welcome! I am onehandmostly and I am a gamer with Cerebral Palsy. And you guessed it, I play games mostly one handed. Together we will discover a game's features and settings to uncover how accessible it is. Building a community around gaming for everyone!

Twitter  
YouTube



## ABOUT ME

Hi I am onehandmostly and I am a gamer with a disability. Born with Cerebral Palsy, I play most games using just my right hand. Creating an inclusive community focused on bringing gaming to everyone.

**Sweet\_Anita**  
1.8M followers

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Subscribe

Home About Schedule Videos Chat

**About Sweet\_Anita**

1.8M followers · Twitch Ambassadors

Hi I'm Anita, I've been streaming since 2018 and I have Tourette's syndrome. My stream is for a mature audience only, as I say a lot of inappropriate things due to my neurological disorder. I like Overwatch, Chatting, Apex, Among us, and Bwekfast

Twitter  
Facebook  
YouTube  
TikTok  
INSTAGRAM

**HealthyGamer\_GG**  
586.231 Follower

Folgen Abonnieren

Startseite Info Zeitplan Videos Chat

**Über HealthyGamer\_GG**

586.231 Follower

Healthy Gamer is a platform designed to help gamers with their mental health through coaching, community, and content. If you are interested in Healthy Gamer Coaching and what it can do for you, click the link on the right!

Subreddit  
YouTube  
Healthy Gamer Coaching  
Twitter  
HealthyGamer.GG

ly stream setup

Buy at amazon

**About Tourette's Syndrome**

Can you drive with TS? Can you suppress your tics? How does alcohol affect your condition? Do you tic during sex? Are you faking your tics? To save me repeating myself every stream I have made a youtube playlist full of answers to those questions and more, have a watch if you are curious!  
<https://www.youtube.com/playlist?list=PLJQLxTjKlq7OTP2eNFFa7QRp4fyQDh4B>



Hi I'm Anita. I'm from the UK, and I have Tourette's syndrome. This is why I am making strange sounds, whistling, popping, and swearing. My stream is for a mature audience only as I say some pretty inappropriate things about cats and Jesus. I'm a carer for my mum, I rescue wild and domestic animals in my free time. I especially love rearing baby birds and taking in abandoned bunnies. When I'm not making youtube videos, sniffing bees, or spanking strangers, I'll be here trying to make people smile.

**OFFLINE**

**Meet superblindman!**

a totally blind accessibility consultant in the video game industry. I work to entertain while educating about the...

Superblindman on Youtube  
Superblindman on Facebook

Turn on Notifications

**superblindman**  
3.1K followers

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**About superblindman**

3.1K followers · Spoc Nation

a totally blind accessibility consultant in the video game industry. I work to entertain while educating about the accessibility of the games I play. Web site: [www.brandoncole.net](http://www.brandoncole.net) Twitter: [www.twitter.com/superblindman](https://www.twitter.com/superblindman) Youtube: [www.youtube.com/superblindman](https://www.youtube.com/superblindman)

Superblindman on Youtube  
Superblindman on Facebook  
Superblindman on Instagram





“CHILDREN ARE YOUNG BECAUSE  
THEY PLAY, AND NOT VICE VERSA  
[...] MEN GROW OLD BECAUSE  
THEY STOP PLAYING, AND NOT  
CONVERSELY”,

G. STANLEY HALL, 1904

*Related Videos:*

- \* *Tackling Audience Experiences in Games, GDC 2019*
- \* *Twitch Beyond Gaming, ITICSE 2020*
- \* *Democratization of Game Development, the good, the bad, the ugly, Linuxtage 2024*

[youtube.com/@JoeyPrink](https://youtube.com/@JoeyPrink)

[twitch.tv/joeyprink](https://twitch.tv/joeyprink)

JOHANNA PIRKER, @JOEYPRINK



**JPIRKER.COM**