



PANEL #5

VENICE
FALL 2024

NexTech 2024 & SoftNet 2024

Theme

**Future Scientific Challenges - Digital
Health and User Well-being**



Contributors

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Moderator

Prof. Dr. Prof. Dr. Joshua Chukwuere, North-West University, South Africa

Panelists

- Prof. Dr. Erik Buchmann, Leipzig University, Germany
- Dr. Juan-Carlos Bennett, Naval Information Warfare Center (NIWC) Pacific, USA
- Prof. Dr. Yasutaka Uchida, Teikyo University of Science, Japan (日本)
- Norbert Doraczynski, Ministry of Health of the Republic of Poland, Poland
- Maciej Bunkowski, Ministry of Health of the Republic of Poland, Poland
- Prof. Dr. Petre Dini, IARIA, USA/EU



Moderator

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Dr Joshua Chukwuere is a PhD holder in Information Systems, MCom in Computer Science and Information Systems from the North-West University. Joshua is a senior lecturer and the Head of Department of Information Systems (IS) in the School of Economic Sciences, Faculty of Economic and Management Sciences (FEMS), North-West University, South Africa. Joshua is a researcher and have published number of articles in accredited journals, conference proceedings locally and international and book chapter. His research interest includes culture-oriented technology (culturetech), e-commerce, social media, smartpone, cyber bullying, online banking, e-learning, smart city, Internet of Things (IoT), e-health, teaching and learning and many more.



North-West University
South Africa

Fields of interest

Culture-oriented technology (culturetech) with the emphasis on technological content development, processes and the end-user product (new technology) that is driven by users' cultural attributes.

Technology in teaching and learning research which covers the role of technology in the 21st century education system and knowledge advancement.

Social media research.



Panelist Position


Venice
Oct. 2024

Future Scientific Challenges - Digital Health and User Well-being

- **How does the proliferation of AI affect the user's mental state?**
(A user finds himself in an AI-generated Ad)



Erik Buchmann
*Center for Scalable
Data Analytics and
Artificial Intelligence
Dresden/Leipzig,
Germany*

 **r/privacy** • vor 2 Monaten
HastilyRoasted

I was served an Ad that featured an AI Photo of myself on Snapchat. What can I do?

question

I do not think this is an overreaction.

I was scrolling through Snapchat stories & was served an advertisement from the website "yourdreamdegree[dot]com".

The photo that was used in the advertisement is clearly AI, however, it is very clearly me. It has my face, my hair, the clothing I wear, and even has my lamp & part of a painting on my wall in the background.

I have no idea how they got photos of me to be able to generate this ad. Was this something that I agreed to when signing Snapchat's TOS? They can just give my photos to advertisers to work into their advertisements?



Panelist Position

- **How does the proliferation of AI affect the user's mental state?**
(Gemini's recipe let toxic bacteria grow)



r/ChatGPT • vor 3 Monaten
Puzzleheaded_Spot401

Google Gemini tried to kill me.

Gone Wild

I followed these steps, but just so happened to check on my mason jar 3-4 days in and saw tiny carbonation bubbles rapidly rising throughout.

I thought that may just be part of the process but double checked with a Google search on day 7 (when there were no bubbles in the container at all).

Turns out I had just grew a botulism culture and garlic in olive oil specifically is a fairly common way to grow this bio-toxins.

Had I not checked on it 3-4 days in I'd have been none the wiser and would have Darwinned my entire family.



Can I infuse garlic into olive oil without heating it up?



Show drafts ▾ 🔊

Yes, you can infuse garlic into olive oil without heating it. It will take longer than the heating method, but the process is simple:

1. **Prepare the garlic:** Peel and lightly crush several garlic cloves. The amount depends on your desired flavor intensity.
2. **Combine with olive oil:** Place the garlic cloves in a clean glass jar or bottle and pour your desired amount of olive oil over them, ensuring they are fully submerged.
3. **Infuse:** Seal the container tightly and let it sit at room temperature for about a week. You can occasionally shake the jar to help distribute the garlic flavor.
4. **Strain:** After a week, strain the oil through a cheesecloth or fine-mesh sieve to remove the garlic pieces.
5. **Store:** Transfer the infused olive oil to a clean bottle or jar and store it in a cool, dark place. It should last for several weeks.

This method allows the garlic to slowly release its flavors into the oil without the risk of burning or altering the taste.



Panelist Position

Venice
Oct. 2024

- **How does the proliferation of AI affect the user's mental state?**
(AI-generated mushroom foraging books give deadly advice)

TECH · A.I.

Mycologists warn of 'life or death' consequences as foraging guides written with A.I. chatbots crop up on Amazon

BY **STEVE MOLLMAN**

September 4, 2023 at 12:55 AM GMT+2



Tom May, a mycology expert at the Royal Botanic Gardens in Melbourne, Australia, inspects a death cap mushroom.
WILLIAM WEST/AFP VIA GETTY IMAGES



Panelist Position

Venice
Oct. 2024

- **How does the proliferation of AI affect the user's mental state?**
(AI-based avatar is a teacher now)

The German School of Thessaloniki Presents "Anna": The First AI-Avatar Educational Institution in Greece – Premiere at TIF

Schulleben

- Top topic >
- Employment Groups >
- Counselling >
 - Mediation >
 - Trust professors >
 - Orientation of studies and career guidance >
- The lessons >
- School trips >

The German School of Thessaloniki Presents "Anna": The First AI-Avatar Educational Institution in Greece – Premiere at TIF

The German School of Thessaloniki (GSTH) proudly announces the presentation of "Anna", the first AI-Avatar representing an educational institution in Greece. This innovative initiative marks an important step towards integrating artificial intelligence into education and communication.

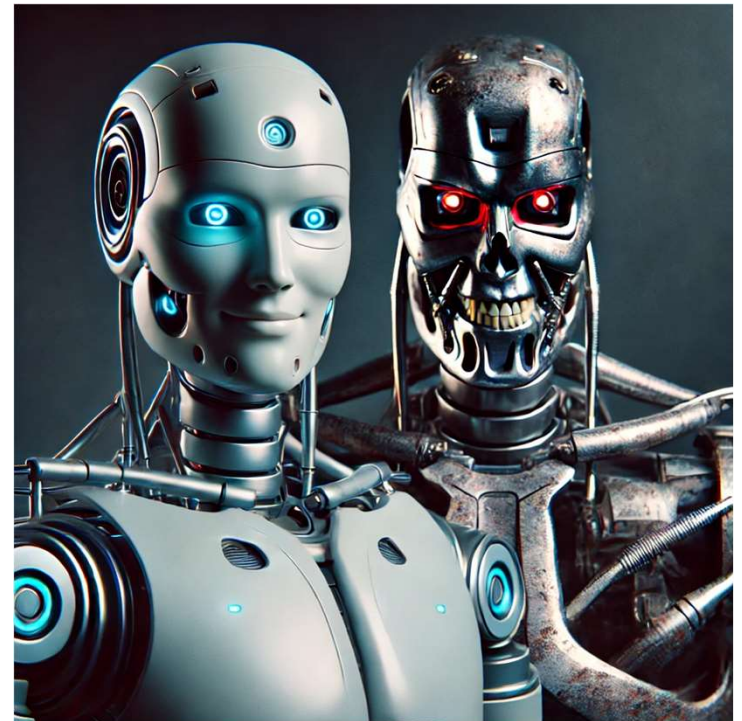


Panelist Position

Venice
Oct. 2024

- **What might be the impact on individuals and society?**

- Distrusting any public media and generally everyone?
- Being paranoid with every click on the Internet?
- Changing behavior to avoid being spied on?
- Suspecting conspiracies everywhere?
- Avoiding any complex technology?
- Reducing contact with others?
- Withdrawing from society?
- Hoarding supplies?
- ...?





Panelist Position

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AI Cyber Security and Forensic Challenges

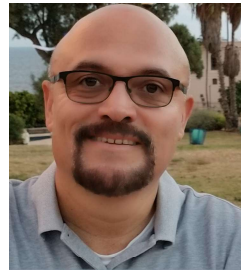
▪ Security and Forensic Issues

- Escalating nexus between AI and cybercrimes, emergent dangers posed by AI-driven malicious activities.
- Dynamic realm of AI-enabled cybercrimes facilitates data breaches, malware propagation, phishing schemes, and social engineering strategies.
- Significant shift in cybercrime from traditional physical methods to automated approaches.
- Urgent need for novel approaches in digital forensics.
- Traditional approaches to digital forensics and cybersecurity must adapt to the complexities introduced by AI-driven offenses.

▪ Social Engineering Impact

- AI-powered cyber criminals exploit deep-fake technology to create misleading videos, manipulating innocent individuals for malicious gains.
- Attackers leverage AI-based bots on popular social media platforms (e.g. Telegram) to facilitate data leaks and perpetrate face recognition scams.

Key: Think like cybercriminals (OPSEC) to adeptly act through the complexities of AI-driven cybercrimes and protect innocent individuals.



Juan Bennett
NIWC Pacific
USA



Panelist Position

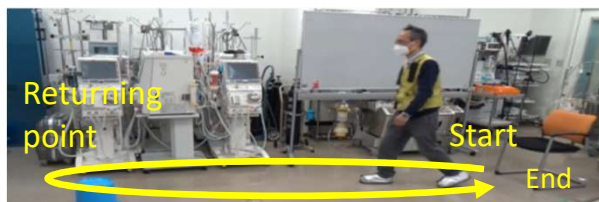
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- Our challenge : Activity Assessment from a Rehabilitation Approach Utilizing Digital Technologies through Medical-Engineering Collaboration
- our works: Gait analysis using MediaPipe's skeletal recognition technology

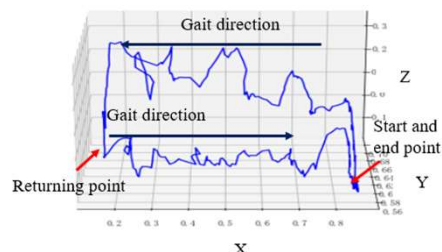


Yasutaka
Uchida
Teikyo Univ. of
Science

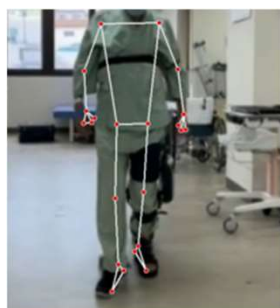
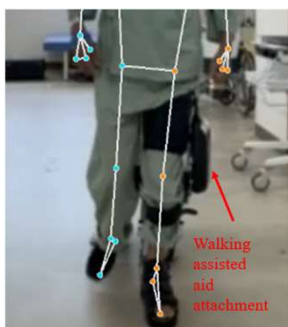
Trajectory analysis for timed up and go etc.



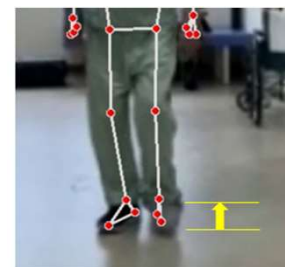
Effect of walking-assisted aid attachment



Y. Uchida et al, GLOBAL HEALTH 2023, pp. 12-17, IARIA.



Right shoulder drooping



The change in the final time of kicking the floor

Y. Uchida et al, International J. of Advances in Life science, vol.15, no 1&2, 2023, pp. 45-55 .



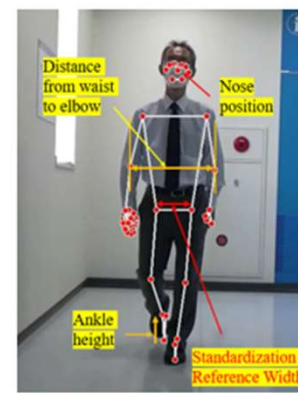
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Recovery analysis using Mediapipe

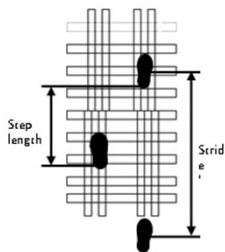
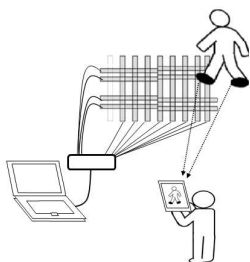
The effect of rehabilitation was verified using images taken from the forehead direction using MediaPipe. Standardization by the width of the hips reduced the influence of the distance from the camera, and the change in gait could be confirmed by determining the ankle height during walking, tilt of the left and right shoulders, width between the toes and heels, and width between the left and right elbows.

Y. Uchida et al, Global health 2024



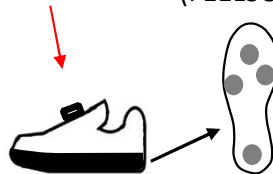
Yasutaka Uchida
Teikyo Univ. of Science

Gait analysis by floor mat and smart insole



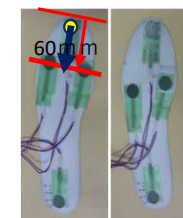
IMU sensor (ORPHE CORE®)

Smart insole (FEELSOLE®)



T. Funayama et al, International Journal on Advances in Life Sciences, vol. 15, No. 1&2, pp. 33-43, 2023

Self-made insoles



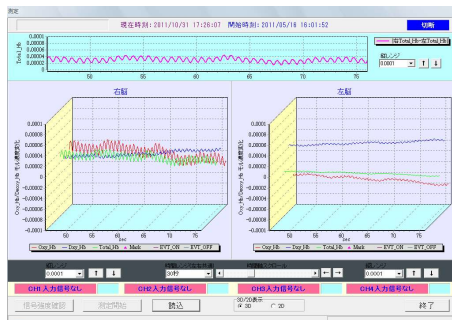
Y. Uchida et al, Sensors & Transducers Vol.263 Issue 4,2023, pp.12-20 .



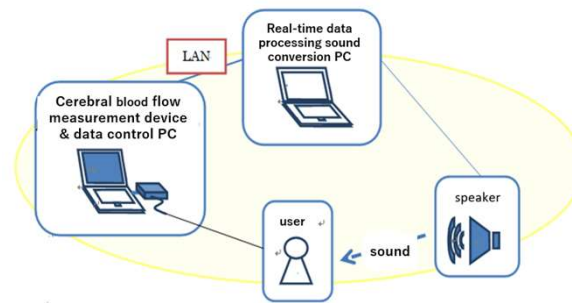
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our works: Cerebral blood flow measurement and analysis



Cerebral blood flow measurement software screen



Auditory feedback device linked to a commercially available Yes/No decision device

T. Funayama et al, Proceedings of the Human Interface Society, Vol. 20 No. 2 SIG-ACI-21, pp. .13-16, 2018 [in Japanese].



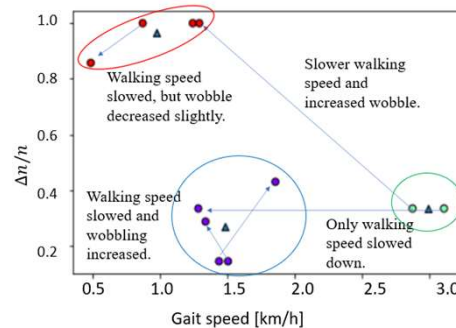
Yasutaka Uchida
Teikyo Univ. of Science

our works: Life activity evaluation



Three-axis accelerometer data (x, y, z). Heart rate. SpO2. Timestamps

T. Funayama et al, GLOBAL HEALTH 2023, pp.18-24, IARIA



Patient status classification before and after dialysis using the K-means method

Y. Uchida et al, Sensors & Transducers, Vol. 259, pp. 29-36, 2022.



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Challenges of the technology:

Sources for training the AI

- AI absorbing biases present in the source material
- AI teaching AI – development regression when human-created material stops being sufficient

Moderating the results from AI

- Evaluating results given by AI will require more skilled professionals
- Process of learning can be slowed down by the moderators

Impact on the society and politics

- AI can be used to spread misinformation or propaganda
- AI can provide the access to the information inaccessible elsewhere (e.g. regarding the commitment of a crime)



Norbert Doraczyński
Ministry of Health
Poland



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AI – Balancing Scepticism and Awe:

Critical Thinking

- We shape our tools, our tools shape us: dependence on AI stunts our development
 - The cultural impact of over-reliance on AI
 - Delegating all tasks to an LLM renders us moot

Privacy Issues

- Copyrighted material included in training data
 - Hard to verify and then get rid of without having to run the model again
 - No clear regulations as of now

Environmental Impact

- How much resources is enough?
 - Data centers require an immense amount of electricity and water, generating emissions
 - Is more computing power the answer?



Maciej Buńkowski
Ministry of Health
Poland



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Well-being in Jeopardy!

The pace is too fast for humanity: there is no time to prepare and counter the side effects

- Wireless: Health-related Radiation impact (since '90s)
- Social Platforms: Bad Influencers, Indoctrination, Fake News (META for kids)
- Meta: The Mental Health danger of (Augmented) Virtual Reality
- All-digital devices: Hidden features (privacy, 3rd party subcontractors)
- Virtualization/remoteness: virtual/remote work leads to 7/24 workload, depression, anxiety, exhaustion, etc.
- No human-based activities; less direct socialization, leading to aloofness.
- Lack of Academic Curricula and Advanced Education on Digital-fluency
- Industry 5.0: Skill gaps, Economic disparities (market monopoly), Ethics (privacy), Job loss, Over-reliance on technology
- AI: Any AI-flavor tool can be detrimental if not misunderstood and use.
- Society; over-awareness kills the confidence and truth (tobacco, media, medicine, online digital, over-exposure, over-work, etc.)



Petre Dini
IARIA



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Addiction and health side-effects

Text neck



Smartphone finger

Each hand is made of 27 bones, 35 muscles, and over 100 tendons connecting bones and muscles. Your flexor tendons bend your fingers, and tendons that straighten your fingers are called extensor tendons.



Petre Dini
IARIA

Adversities

- Becoming Mentally Lazy
- Light emitted from your mobile device's screen might just be messing up your sleep cycle
- It might affect vision (in progress studies)





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Humans Brain in Jeopardy!

- Our society changes, our behavior should, too!
- Extending our brains with technology tentacles
- We are already (SCI FI movies + Wearable & Implantable devices)
- Credits to Erik Buckman (buchmann@informatik.uni-leipzig.de)

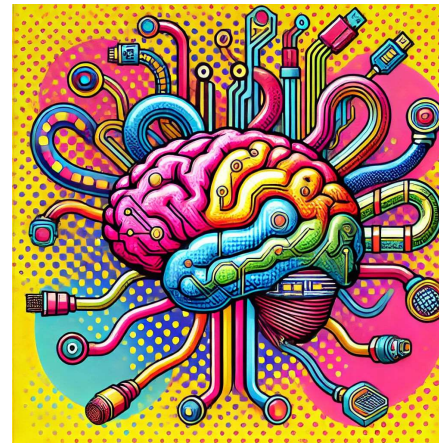


Petre Dini
IARIA

Alien movies



Pop Art style





PANEL #5

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Stage is Yours

Theme

**Future Scientific Challenges - Digital
Health and User Well-being**