SHIFT-HUB

PROCEEDINGS

SHIFT-HUB Conference 2025

SMART HEALTH & AI: DRIVING INNOVATION WITH DATA

10 October 2025

KEDEA, Aristotle University of Thessaloniki, Greece

Editors:
Evangelia Romanopoulou
Annita Varella
Panagiotis Bamidis

SHIFT-HUB Conference: Smart Health & AI: Driving Innovation with Data

10th October 2025, Thessaloniki, 14.00-19.00

Aristotle University Research Dissemination Center (KEDEA)

Conference Programme

&

Book of Abstracts

Editors

Panagiotis Bamidis, Evangelia Romanopoulou, Annita Varella

Publisher

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Table of Contents

Welcome Message

Dear Participants,

It is with great pleasure that we welcome you to the SHIFT-Hub Conference 2025, titled “Smart Health & AI: Driving Innovation with Data”, held on 10 October 2025 at the Research Dissemination Center (KEDEA) of Aristotle University of Thessaloniki.

This conference brings together researchers, innovators, entrepreneurs, healthcare professionals, and policy stakeholders from across Europe to explore how Artificial Intelligence, data-driven innovation, and smart technologies are transforming healthcare and well-being. Within the framework of the SHIFT-Hub project, this event serves as a platform for sharing insights, experiences, and results from ongoing initiatives that promote smarter, more inclusive, and more sustainable health ecosystems.

The purpose of the conference is to highlight the role of AI and data in shaping the future of health — from research and clinical applications to prevention, rehabilitation, and independent living. Participants will have the opportunity to engage in thought-provoking discussions, discover practical tools, and connect with experts advancing digital health innovation across academia, industry, and public sectors.

The program features keynote talks, interactive sessions, poster presentations, and live demonstrations showcasing emerging technologies and pilot solutions developed within SHIFT-Hub and collaborating projects. Together, these contributions illustrate how data, when used responsibly and collaboratively, can drive real impact for citizens and healthcare systems alike.

We extend our sincere gratitude to all speakers, panelists, and contributors who have enriched this event with their expertise and perspectives. Special thanks go to the SHIFT-Hub partners, the European Commission for supporting this initiative, and the Aristotle University of Thessaloniki (AUTH) for hosting the conference at its Research Dissemination Center. We also warmly thank all members of the organizing and

scientific committees for their dedication and teamwork in making this event possible.

We hope that these Conference Proceedings reflect the vibrant exchange of ideas, collaborative spirit, and commitment to innovation that define SHIFT-Hub. May they serve as a lasting resource and inspiration for future research and partnerships in the field of Smart Health and Artificial Intelligence.

On behalf of the SHIFT-Hub Consortium, we thank you for joining us and wish you an engaging, insightful, and inspiring conference experience in Thessaloniki.

Warm regards,

The Organizing Committee
SHIFT-Hub Conference 2025
Lab of Medical Physics and Digital Innovation,
Aristotle University of Thessaloniki (AUTH)

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SHIFT-HUB Conference: Smart Health & AI: Driving Innovation with Data

10th October 2025, Thessaloniki, 14.00-19.00

Aristotle University Research Dissemination Center (KEDEA)

Agenda

Time	Sessions		
13:45-14:00	**Registration**		
14:00-14:10	**Welcome**	**Professor Bamidis** *Director, Lab of Medical Physics and Digital Innovation,* Aristotle University of Thessaloniki **Professor Triaridis** *Head, School of Medicine,* Aristotle University of Thessaloniki	
14:10-14:15	**Introduction** Kick-off and overview of the SHIFT-HUB's mission and ecosystem	**Alena Bubeck,** *Steinbeis Europa Zentrum*	
14:15-14:45	**Keynote:** **AI in Healthcare - Hype or Help?**	**Christos Chatzichristos,** *Senior Researcher, Electrical Engineering Department, KU Leuven, Belgium*	
14:45-15:45	**Panel Discussion:** **Responsible AI in Health** *Compliance, ethics, governance, and practical strategies for implementing AI in health-related projects* **Moderator**: Alena Bubeck	-**Christos Chatzichristos**, *KU Leuven, Belgium (TBC)* -**George Konstantinidis**, *DataPact Project, University of Southampton* -**Evdokimos Konstantinidis,** RAISE Project -**Stylianos Kokkas,** COMFORTAGE Project, Centre for Research & Technology Hellas (CERTH) – Information Technologies Institute (ITI) -**Adamantios Koumpis**, University Hospital Cologne, Biomedical Informatics Institute -**Luminita Valcea** SHIFT-HUB Project, COPAC – Coalition of Organizations of Patients with Chronic Diseases in Romania	
15:45-16:15	Coffee Break & Networking (**Poster Session + Demonstration Booths**)		
Parallel Sessions	**Innovation Session: Driving Smart Health Innovations Through Co-creation** *Innovators/start-ups/projects to pitch their ideas (3-5' pitch + 5' feedback) to audience to gather feedback from healthcare/academic experts, patients, citizens to co-create*		**VHealthLab workshop: Science Labs Anywhere: The VHEalthLab Experience**
16:15-17:45	*Amphitheatre I* — **Moderator:** Eleftheria Vellidou		*Foyer* — **Moderator:** Eleni Dafli
	16:15-16:30	***digiGOV-innoHUB & Hellenic Society of Biomedical Technology***	**16:15-16:30**	**Welcome & Introduction** Eleni Dafli, School of Medicine, Aristotle University of Thessaloniki
	16:30-16:35	***Anthology Ventures,*** *Argyris Spyridis*	**16:30-16:45**	**Current curriculum and status in the International Hellenic University** Evgenia Lymperaki, Biomedical Sciences Department of School of Health Sciences of the International Hellenic University-IHU
	16:35-16:40	***CAPTAIN,*** *Nikos Athanasopoulos*		
	16:45-16:50	***CENEBIT,*** *Alexandros Moraitopoulos*		
	16:50-16:55	**EDIH Health Hub,** *Maria Pournari*		
	16:55-17:00	***INAB|CERTH,*** *Pantelis Natsiavas*	**16:45-17:00**	**Current needs and status in Biology** Alexandros Triantafyllidis & Konstantinos Gkagkavouzis, School of Biology, Aristotle University of Thessaloniki
	17:00-17:05	***NovelCore,*** *George Domalis* (Online)		
	17:05-17:10	***smartHEALTH,*** *Dimitrios Katehakis* (Online)		
	17:10-17:15	***Telematic Medical Applications TMA,*** (Online) *Marios Prasinos*	**17:00-17:15**	**Higher education challenges in Biological Sciences** Matoula Papoutsopoulou, Department of Biochemistry and Biotechnology, University of Thessaly
	17:15-17:20	***TeleNurse Plus,*** *Ioannis Petropoulos*	**17:15-17:35**	**Demonstrate and use the VHEalthLab platform and Virtual labs** Eleni Dafli, School of Medicine, Aristotle University of Thessaloniki
	17:20-17:25	***University of Macedonia,*** *Dimitrios Zeginis*		
	17:25-17:30	***VHealthLab,*** *Ioanna Dratsiou*		
	17:30-17:35	***Vidavo,*** *Anastasia Chasapi*	**17:35-17:45**	Closing remarks/Discussion
17:45-18:15	**Accelerating Smart Health Innovation through SHIFT-HUB** *Interactive Feedback during presentations on next steps for collaboration, replication interest, etc.*	**-The value proposition/service of the SHIFT-HUB,** *Anastasia Papachristodoulou, KiNNO* **-SHIFT-HUB Community Platform and Functions,** *Gabriele Casalini, EDSA* **-Bridging gaps for smart health innovation ecosystems,** *Leonie Fath, Steinbeis Europa Zentrum*	
18:15-18:45	**Keynote:** **Greek NHS: Leapfrogging to a Digital Healthcare System**	**George E. Dafoulas** *Digital Health Policy Expert NDC - Ministry of Digital Governance and AI*	
19:00	Closing remarks	**Panagiotis Bamidis,** *Aristotle University of Thessaloniki* **Alena Bubeck,** *Steinbeis Europa Zentrum*	
	COCKTAIL Reception Networking		

Conference Overview

Dr Alena Bubeck, *Coordinator of the EU project SHIFT-HUB, Steinbeis Europa Zentrum*

The SHIFT-HUB project aims to foster the development, promotion, and uptake of Smart Health Technologies across Europe. Funded by the European Union under the Horizon Europe scheme, SHIFT-HUB establishes a pan-European Smart Innovation Hub, paving the way towards a future federated European Health Data Space. The Hub provides services to all stakeholders in the digital health ecosystem — including patients, citizens, healthcare professionals, technology developers, and policymakers.

The Hub's service portfolio is structured around four pillars: community-building, support for technology development, patient and citizen engagement, and sustainability and policy guidance. It integrates innovative approaches, including the Living Lab methodology and a gamified e-learning journey for immersive patient and citizen engagement, an Open Innovation approach to foster collaboration among multidisciplinary stakeholders, and a technical platform pilot comprising a Health Data Hub, a Smart Health Apps Repository, and an online Marketplace.

These pillars collectively reflect three key user values: build & boost innovation, connect & thrive collaborations, and learn & grow through knowledge and best practices. Through these integrated services, SHIFT-HUB fosters a holistic, inclusive, and sustainable European Smart Health ecosystem, enabling stakeholders to collaborate, innovate, and drive the adoption of impactful digital health solutions.

Keynote Abstracts

AI in Healthcare. Hype or Help?

Christos Chatzichristos, *Senior Researcher, Electrical Engineering Department, KU Leuven, Belgium, christos.chatzichristos@kuleuven.be*

Healthcare is experiencing profound change driven by digital innovation, with artificial intelligence (AI) emerging as one of the most transformative forces. Already, AI supports clinicians in diagnosis, decision-making, and workflow optimization, while also enabling new directions in medical research. Yet with this promise come challenges: evaluating what AI can and cannot do, understanding its technical foundations, and addressing the ethical and regulatory responsibilities that accompany its use.

This talk introduces participants to the principles and applications of AI in healthcare, balancing perspectives from both the healthcare professional and the developer. For professionals and scholars, it offers tools to critically assess the benefits, limitations, and pitfalls of working with AI technologies in practice and research. For developers, it highlights the importance of contextual awareness, robust algorithm design, and validation within clinical environments. By combining these viewpoints, the session provides a foundation for thoughtful, responsible adoption of AI, preparing attendees to navigate and contribute to the future of healthcare in the AI era.

Greek NHS: Leapfrogging to a Digital Healthcare System

Dr George E. Dafoulas, Digital Health Policy Expert NDC - Ministry of Digital Governance and AI

The digital transformation strategy for the Greek National Health System (NHS), overseen by the Ministry of Digital Governance and AI and the Ministry of Health, implemented by IDIKA S.A agency., involves several key initiatives, including expanding the Personal Electronic Health Record (PEHR), modernizing medical imaging with a centralized repository, developing telemedicine, and creating various e-health services like e-prescriptions and e-referrals. Driven by the need to improve efficiency, focus on citizen-centric services, and leverage emerging technologies like AI and big data, the strategy also includes upgrading digital infrastructure and developing a Business Intelligence system for operational and financial insights.

Panel Discussion Summaries

Responsible AI in Health

Moderator: Alena Bubeck

Panelists:

Christos Chatzichristos, KU Leuven, Belgium

George Konstantinidis, University of Southampton

Evdokimos Konstantinidis, Medical Physics and Digital Innovation Laboratory, Aristotle University of Thessaloniki

Stylianos Kokkas, Centre for Research & Technology Hellas (CERTH) – Information Technologies Institute (ITI)

Adamantios Koumpis, University Hospital Cologne, Biomedical Informatics Institute

Luminița Vâlcea, COPAC – Coalition of Organizations of Patients with Chronic Diseases in Romania

Responsible AI in Health: FAIR-by-Design Data Governance and Trustworthy Ecosystems

Dr Evdokimos Konstantinidis, Medical Physics and Digital Innovation Lab, Aristotle University of Thessaloniki (AUTH)

The mission of RAISE Suite is to develop a one-stop-shop infrastructure utilizing unified Machine-Actionable Data Management Plans (ma-DMPs) to deliver FAIR-by-design services across the entire data lifecycle — from collection to automatic processing. By embedding these principles into every layer of data handling, RAISE Suite acts as a key ambassador for FAIR principles, advocating their adoption across research communities, academia, and industry. To achieve this, RAISE Suite builds upon the infrastructure of the EOSC RAISE Horizon Europe project, a distributed crowdsourced data processing system that transforms open data from merely downloadable to directly processable. This shift enables secure, privacy-preserving, and ethically governed AI analytics, where algorithms are sent to the data instead of moving sensitive datasets. In the context of healthcare, this approach fosters trustworthy AI, ensuring that innovation in diagnosis, prediction, and patient monitoring is guided by ethical compliance, governance-by-design, and transparency, bridging the gap between responsibility and real-world impact.

Patient-Centric Digital Twins: Enabling Data-Driven Personalised Care in Smart Health

Stylianos Kokkas, Centre for Research & Technology Hellas (CERTH) – Information Technologies Institute (ITI)

Digital health is entering a new era where data, AI, and patient participation converge to transform prevention and care. The COMFORTage project pioneers a Patient Digital Twin (PDT) platform that integrates clinical, behavioural, and environmental data to generate real-time, personalised care pathways for older adults at risk of cognitive decline or frailty. By combining advanced analytics, privacy-preserving data governance, and opt-in engagement tools, COMFORTage demonstrates how digital twins can bridge hospital, home, and community settings. My perspective will highlight key lessons from deploying PDTs across European pilot sites: the technical and ethical challenges of multi-modal data integration, strategies for patient empowerment, and the potential for cross-sector interoperability under EU

frameworks such as GAIA-X and the European Health Data Space. This talk will explore how data-driven twins can shift healthcare from reactive treatment to proactive, personalised health management, while ensuring trust and inclusivity.

Embedding Consent, Compliance, and Trust into Data-Driven Workflows

George Konstantinidis, University of Southampton

AI in healthcare offers transformative potential but also raises pressing challenges around consent, compliance, and trust. In this talk, we will explore practical strategies for embedding ethical and legal safeguards directly into data and AI workflows — from fine-grained consent and privacy preferences management to trust and reputation systems, to compliance-by-design approaches. Drawing on recent research and projects, we explore how responsible AI can be implemented in practice to support innovation in health while protecting patients' rights and ensuring regulatory alignment.

Practical barriers when integrating AI solutions into existing health systems, and how can we ensure that these technologies are implemented responsibly

Dr Adamantios Koumpis, University Hospital Cologne, Biomedical Informatics Institute

Integration of AI into existing health systems is less a technological hurdle and more a challenge of organizational physics. Legacy infrastructure, deeply entrenched workflows, and human factors often create more friction than the complexity of the algorithm itself. Indicatively we mention only two:

- Legacy Interoperability: Most hospitals rely on disconnected systems (PACS for images, EHR for patient history). AI models need clean, consolidated data streams to function effectively. Getting these disparate systems to talk to the AI without error is a massive barrier, often consuming more than 90% of deployment time.

- Loss of Control: When an AI gives a score but doesn't show its rationale, it creates professional inertia. Clinicians fear delegating cognitive work to a system they cannot audit or challenge. This is particularly acute in high-risk areas like surgery planning or oncology.

Empowering Patients' Voices in the Age of AI-Driven Healthcare

Luminița Vâlcea, COPAC – Coalition of Organizations of Patients with Chronic Diseases in Romania

The integration of artificial intelligence in healthcare offers unprecedented opportunities for improving prevention, diagnosis, and treatment. However, for AI to be truly responsible and equitable, it must reflect the real needs, values, and lived experiences of patients. From the perspective of patients with chronic conditions, key concerns relate to data privacy and security, algorithmic transparency, accountability for AI-driven decisions, potential bias, and the preservation of the human connection between doctors and patients. Drawing on experiences from patient organizations and European health initiatives, as well as on findings from a recent patient-community survey exploring attitudes, concerns, and expectations regarding AI in healthcare, the session will examine mechanisms for building and maintaining trust in AI systems. These include the early involvement of patients in design and evaluation processes, transparent communication and consent frameworks, and clear governance and compliance standards. Emphasis will be placed on continuous evaluation, fairness, and multi-stakeholder collaboration to ensure that AI development in healthcare remains ethical, inclusive, and human-centered.

Innovation Session Abstracts

Innovation Session: Driving Smart Health Innovations Through Co-creation

Moderator: Yiannis Giannarakis

Contributors:

digiGOV-innoHUB & Hellenic Society of Biomedical Technology

Anthology Ventures, Argyris Spyridis

CAPTAIN, Nikos Athanasopoulos

CENEBIT, Alexandros Moraitopoulos

EDIH Health Hub, Maria Pournari

INAB|CERTH, Pantelis Natsiavas

NovelCore, George Domalis

smartHEALTH, Dimitrios Katehakis

Telematic Medical Applications TMA, Marios Prasinos

TeleNurse Plus, Ioannis Petropoulos

University of Macedonia, Dimitrios Zeginis

VHealthLab, Ioanna Dratsiou

Vidavo, Anastasia Chasapi

European Digital Innovation Hub for Digital Governance – GR digiGOV-innoHUB

The European Digital Innovation Hub for Digital Governance – GR digiGOV-innoHUB supports the development of a new generation of public services based on advanced digital technologies (AI, ML, IoT, Blockchain, HPC), with open source, open data and open standards. GR digiGOV-innoHUB is coordinated by GRNET.

GR digiGOV-innoHUB aims to develop an ecosystem of digital transformation actors by promoting innovation in Public Administration through the National Digital Portal for Public Services gov.gr. All GR digiGOV-innoHUB pilot projects will be implemented using open software and open standards, while the source code of the projects with all documentation will be available under the European Union Public License (EUPL) on the European Commission's Joinup platform for open-digital governance practitioners.

GR digiGOV-innoHUB objectives are aligned with the Digital Europe Programme, Greece's Digital Transformation Strategy 2020-2025, as well as with other European and national policies, such as the OECD Framework for Innovation in the Public Sector.

- Advancing public services with cutting edge digital technologies
- Fostering regional and international cooperation in Open Government initiatives
- Empowering Greek SMEs and civil servants: enhancing digital skills for innovative public services
- Building a collaborative ecosystem for digital transformation in Public Administration
- Driving innovation in public administration via pre-commercial procurements
- Leveraging digital technologies with open software , open standards and open data

Hellenic Society of Biomedical Technology (ELEVIT)

The Hellenic Society of Biomedical Technology (ELEVIT) is a scientific society and the main national organization in the field of Biomedical Technology. Its mission is to enhance research, promote education, and enhance the scientific and professional landscape in the areas of Health Technology, Biomedical and Clinical Engineering, and related disciplines. Four years ago, ELEVIT established the Clinical Engineering Chapter within its company in order to more effectively monitor and engage with developments in this specific field. ELEVIT is strongly represented at global level as a member of the European Alliance for Medical and Biological Engineering & Sciences (EAMBES) and the International Federation of Medical and Biological Engineering (IFMBE) and engages strongly in its Clinical Engineering and Healthcare Technology Assessment departments. It is also a founding member of the Global Clinical Engineering Alliance (GCEA), the most significant international initiative towards coordination and promotion of Clinical Engineering as a special and essential discipline in Biomedical Technology. ELEVIT has recently been awarded the hosting of the IUPESM World Congress on Medical Physics and Biomedical Engineering 2031 in Athens, Greece. This prestigious event — the largest global gathering in the fields of Medical Physics, Biomedical Engineering, and Health Technology — marks a significant recognition of ELEVIT's longstanding dedication to advancing of biomedical technology and clinical engineering, both nationally and internationally.

Barriers and Enablers for Early-Stage Investment Cases in the Health Sector

Argyrios Spyridis, CEO, Anthology Ventures

The steps a Health/Med Tech startup takes toward TRL advancement require a significant period to allow for commercialization. Various barriers and increased early risks often discourage early-stage investors and contribute to founder fatigue. Let's identify and decrypt critical elements and address the strategies that can tip the scale in the pathway to the market.

CAPTAIN Box: A Smart Home Hub for Empowering Healthy Aging

Nikos Athanasopoulos, Technical Product Manager CAPTAIN Coach P.C. Thessaloniki, Greece

The mission of CAPTAIN envisions a future where older adults live independently while staying connected to their health and care network. At the heart of this vision lies the CAPTAIN Box, a discreet smart home device designed to promote wellbeing through personalized social, cognitive, physical, and nutritional guidance. This current work explores an advanced role for the CAPTAIN Box as a central hub for gathering vital signs from older adults using connected sensors and wearables. By integrating real time data such as heart rate, blood pressure, oxygen saturation, and body temperature, the system enables healthcare professionals to remotely monitor health trends and identify early risks. The framework prioritizes security, interoperability, and user privacy, ensuring trustworthy data exchange between home and clinical environments. Through this innovative approach, the CAPTAIN Box transforms everyday living spaces into intelligent health allies, fostering proactive care, autonomy, and a safer aging experience.

CENEBIT Bridges Minds to Markets: Turning Academic Ideas into Real-World Solutions

Alexandros Moraitopoulos, Center for Neurosciences & Biomedical Technology (CENEBIT)

The Center for Neurosciences & Biomedical Technology (CENEBIT) is a startup company from Thessaloniki, Greece that focuses on developing user-centered biomedical devices & solutions, from the workbench and development phases to real-world marketable solutions. Our team includes scientists, engineers, and doctors from multiple disciplines, who collaborate with innovators to ensure research

findings and ideas are translated into validated, scalable technologies. The CENEBIT team offers experience from academic research and expertise in medical physics, digital health, and data-driven technologies. We are actively engaged in fostering collaborations between academic and industrial institutions, and in building partnerships with healthcare organizations and the private sector. Our portfolio includes neurorehabilitation projects (HEROES, ThessRoboGlove, OptiPulse), dermatological diagnosis supportive devices (DermaSense), assistive devices for independent living (HYGEIA), brain-computer interfaces (BCI), bio-neurofeedback and more. Moreover, we offer a podium for academic students that want to advance their projects, and we support lifelong learning, neuroscience and biomedical engineering education and organize events to educate, raise awareness and expand our network.

OHDSI-GR: The Greek branch of an international community working on secondary health data use

Dr Pantelis Natsiavas, Researcher/Software Engineer, eHealth Lab @ Institute of Applied Biosciences, Centre for Research and Technology Hellas (INAB|CERTH)

The Observational Health Data Sciences and Informatics (OHDSI) initiative is an open initiative launched in the U.S. that has as its primary goal the facilitation of "Real-World" data analytics. It is important to emphasize that this is an open ecosystem, in which people from all over the world participate and with many capacities (research organizations, universities, regulatory bodies, pharmaceutical industry, IT companies, etc.). On a technical level, within the framework of OHDSI, a set of open-source tools is developed and maintained, which have as a cornerstone a reference data model, the so-called "OMOP Common Data Model" (OMOP-CDM). The basic logic is that all the bodies participating in the initiative form a "research network" in the context of which any research question is formulated based on OMOP-CDM. Since each partner has its data in a OMOP-CDM compliant format, the query is sent to each partner and the results of the queries executed locally are aggregated and analyzed centrally, without necessarily sharing the original data. The eHealth lab of INEB|CERTH operates as the National Hub of the OHDSI/EHDEN network in Greece. To date (2025) the OHDSI-GR network has succeeded in leveraging the data of

Papageorgiou General Hospital with data on more than 1.5 million patients, including within the DARWIN network of the European Medicines Agency.

EDIH Health Hub: a one-stop-shop based solely on collaboration and co-creation

Maria Pournari, International Growth Manager, JOIST/ *COO EDIH Health Hub,* iED

The European Digital Innovation Hub Health Hub acts as Greece's national entry point for digital health transformation. Established under the European Commission's EDIH initiative, it is coordinated by the Institute of Entrepreneurship Development, with its HQs at JOIST Innovation Park, the only innovation park in Greece. Health Hub brings together hospitals, research centres, startups, and policymakers to co-create and scale data-driven solutions in healthcare and pharma. In this short talk, Health Hub will present how co-creation—the joint development of digital solutions by clinicians, technologists, and end-users—drives the adoption of AI, data, and emerging technologies in real-world healthcare settings. Examples will highlight how startups are supported to test, validate, and commercialize digital tools in collaboration with health providers, ensuring impact and sustainability. As part of the European EDIH network and holding the Presidency of the SouthEast European Tech Parks Alliance (SEE Alliance), Health Hub is building bridges across innovation ecosystems to advance Europe's smart health agenda through openness, data, and collaboration.

Deliberate: Shaping tomorrow's decision together

Georgios Domalis, NovelCore Co-founder

Novelcore is a dynamic Research & Innovation SME founded in 2019, specializing in the design and development of advanced information systems. Our team of 27 researchers and developers excels in transforming cutting-edge research into real-world applications. With a strong focus on AI, semantic technologies, and knowledge management, we have secured €3.12M in funding and are actively participating in 14 European and national research projects. Our expertise is demonstrated through our technical coordination roles in high-profile EU initiatives and a project approval rate of 12.5%, significantly above the EU average dlbrt (Deliberate), an AI-augmented platform designed to revolutionize public deliberation and enhance digital

democracy. dblrt addresses the disconnect between citizens and policymakers by providing a structured and transparent space for meaningful dialogue. Leveraging sophisticated AI for argument mining, sentiment analysis, and data summarization, the platform transforms complex discussions into actionable insights. Dblrt empowers governments, NGOs, and other organizations to foster constructive engagement, build trust, and co-create solutions for a more inclusive and responsive society

Shaping Smart Health Innovations Through Digital Transformation

Dimitrios Katehakis, Head, Center for eHealth Applications and Services, FORTH, Institute of Computer Science

smartHEALTH EDIH is a European Digital Innovation Hub dedicated to advancing digital transformation in healthcare and public services. Acting as a one-stop shop, it supports SMEs, startups, and public bodies, in adopting cutting-edge digital technologies. Its services include test-before-invest, advanced skills and training programs, funding support, and ecosystem networking. By offering access to expertise in AI, Cybersecurity, HPC for precision medicine, medical imaging, telehealth, and data science, smartHEALTH helps organizations pilot innovations, reduce risk, and adapt solutions to real-world health needs. This accelerates the uptake of digital tools, from AI-based diagnostics to interoperable care systems, while also strengthening regional and national digital health capacity. Since its launch, smartHEALTH has engaged with over 100 organizations in Greece, delivering consulting and testing services, while raising awareness of digital transformation's potential. Challenges remain, especially in scaling public sector adoption, bridging digital maturity gaps, and ensuring sustainability. By being part of the EU continent AI action plan, it shapes the future of health innovation through co-creation, empowering stakeholders to build smarter, more personalized, patient-centered, and trustworthy processes, products, and services.

Shaping the Future of eHealth

Marios Prasinos, Director of Innovative EU Projects at Telematic Medical Applications Ltd

Telematic Medical Applications (TMA), headquartered in Piraeus, Greece, is a leading innovator in the field of eHealth and telemedicine solutions, leveraging over 25 years of expertise in healthcare technology integration. TMA's comprehensive approach combines advanced Health Information Systems (HIS), cutting-edge medical equipment, telemedicine platforms, and artificial intelligence (AI) to transform healthcare delivery, particularly in remote and underserved areas. Key solutions include the ePokratis MedAiConnect app, offering secure cloud-based personal health records, contactless vital sign monitoring via AI, and teleconsultation services. Their No.A.H. (Ark of Health) Portable Telemedicine Kit, certified by INMARSAT, facilitates comprehensive medical assessments in isolated environments, like maritime and rural settings. The TMA MediStation and Epione AI Nurse Assistant further exemplify the company's commitment to seamless, efficient, and patient-centered digital healthcare. TMA has successfully deployed nationwide telemedicine networks and eHealth solutions for Greece's National Health System, including digitalizing Syros General Hospital, connecting healthcare centers on remote islands, and enhancing the quality of care in maritime environments. Certified with multiple ISO standards, TMA ensures secure, high-quality, and regulatory-compliant implementations of healthcare technologies. TMA is not just shaping the future of healthcare; we are actively creating it.

Driving Patient-Centered Care with TeleNurse plus: Innovative Tele-Nursing Solutions

Ioannis Petropoulos, digiGOV-innoHUB

TeleNurse plus is an advanced tele-nursing company enabling continuous remote patient monitoring, video consultations, and personalized care plans. Utilizing real-time biometric data from wearable devices and home monitoring equipment, TeleNurse plus empowers nurses to track vital signs such as heart rate, blood pressure, and oxygen levels, ensuring timely interventions and enhanced patient outcomes. The platform supports secure video conferencing, chat consultations, image and video sharing, and nurse-to-nurse peer support. Integrations with electronic health records (EHR) facilitate cohesive care coordination. By fostering co-creation among healthcare professionals, patients, and caregivers, TeleNurse plus

drives innovative, patient-centric approaches to home healthcare, reducing hospital visits and improving chronic disease management.

Teaching AI the Language of the Heart

Evangelos Kalampokis, University of Macedonia,

Artificial intelligence has the potential to transform cardiovascular care, yet current AI tools often lack transparency, domain grounding, and population-specific accuracy. This project explores two complementary approaches to enhance clinical decision support. First, we adapt Large Language Models (LLMs) to answer complex cardiology questions with evidence-based precision. Baseline LLMs are compared to Retrieval- Augmented Generation (RAG) models that dynamically access authoritative textbooks and guidelines, aiming to create AI assistants that reason, reference evidence, and provide contextually grounded insights for clinicians. Second, we focus on atrial fibrillation (AF) prediction, where early detection is critical to prevent strokes and complications. We fine-tune Harvard's open, ECG-based deep learning model using real-world patient data from Ippokrateio Hospital in Greece, addressing the limitations of U.S.-trained models for local populations. By combining reasoning, knowledge retrieval, and population-aware adaptation, this work aims to develop open, transparent, and clinically robust AI systems that support early intervention, improve prediction accuracy, and empower healthcare professionals with trustworthy, evidence-grounded cardiovascular intelligence.

From Labs to Virtual Labs: Digital Transformation in Action

Ioanna Dratsiou, PhD Student, Research Associate, Lab of Medical Physics and Digital Innovation, School of Medicine, Aristotle University of Thessaloniki

The COVID-19 pandemic accelerated a global shift toward open, blended, and distance education, profoundly impacting how STEM and Health Sciences are taught and learned. Laboratory-based courses—such as Biology—faced unprecedented challenges in maintaining experiential, skills-based learning without physical lab access. The VHEalthLab project responds to this need by developing one of the first open-access e-learning platforms offering Virtual Labs (VLs) in Biology for Higher Education. These interactive, multilingual resources enable authentic

experimentation in digital environments, fostering inquiry-based learning (IBL) and co-creation between students and educators. Beyond ensuring academic continuity, VHEalthLab promotes digital transformation in Higher Education by equipping educators with innovative, technology-enhanced teaching tools and supporting students in developing essential 21st-century skills—critical thinking, creativity, collaboration, and digital literacy. The project's approach demonstrates how VLs can enhance engagement, inclusivity, and pedagogical innovation, aligning European policy priorities for digital resilience and open education.

VIDAVO: Healthcare Anytime Anywhere

Dr. Anastasia Chasapi, VIDAVO S.A.

VIDAVO is a Greek digital health company dedicated to helping people live healthier, safer, and more independent lives. Since 2005, it has developed the Vida24 ecosystem, a certified set of telemedicine and remote care tools that connect patients, doctors, and caregivers in real time. Through simple digital applications and connected medical devices, VIDAVO enables continuous health monitoring, early detection of risks, and timely communication between citizens and healthcare professionals. Designed for ease of use and reliability, the Vida24 ecosystem supports chronic disease management, home care, and wellness promotion. Today, VIDAVO contributes to a more human-centered, accessible, and preventive healthcare model in Greece and beyond.

Accelerating Smart Health Innovation through SHIFT-HUB

The value proposition/service of the SHIFT-HUB

Anastasia Papachristodoulou, KiNNO Innovation Intermediaries Ltd.

SHIFT-HUB project aims to establish a pan-EU Smart Health Innovation Hub bringing together a rich network of stakeholders across the dimensions of the quadruple helix. In this direction, a complete services offer has been developed and tested with the community, integrating networking and matchmaking, identification and support of partners, guidance for access to funding, research infrastructures and scientific expertise. The present talk presents the services offer with its starting point by providing the reason of existence. The interconnections among the services and the outcomes of services design and implementation in numbers are also presented, in order to foster the holistic character of the designed methodology and visualize the multitude of different activities. Finally, potential opportunities and the value proposition of SHIFT-HUB are highlighted to present the exploitation potential and the long-term sustainability. By providing more details regarding the steps for development of SHIFT-HUB value proposition and the implementation stages of SHIFT-HUB Business Plan, a clear picture is created. In conclusion, the main focus will be on the SHIFT-HUB value proposition and the promotion of SHIFT-HUB outcomes to the broader innovation ecosystem to enhance the collaboration potentials and the broader dissemination of the services offer.

SHIFT-HUB Community Platform and Functions

Gabriele Casalini, European DIGITAL SME Alliance

SHIFT-HUB has built a collaborative ecosystem to support the uptake of Smart Health technologies and services across Europe. At its core is the SHIFT-HUB Community Platform, designed to connect healthcare, digital, and innovation stakeholders. The platform offers members access to international events proposed by the project, including those focused on EU funding and matchmaking, alongside interactive functionalities for 1-to-1 meetings and direct messaging to foster members' cooperation. Through the e-Health Community, organisations and innovators can be

active in this ecosystem, showcase their solutions, research, or business models, increasing visibility and engagement with peers. A central feature is the SHIFT-HUB Marketplace, which enables members to present products and services, identify needs, and explore opportunities for both commercial collaboration and EU-funded projects. This presentation will introduce the SHIFT-HUB Community, highlighting how its features empower stakeholders to connect, collaborate, and drive the digital transformation of healthcare.

Bridging gaps for smart health innovation ecosystems

Leonie Fath, Steinbeis Europa Zentrum

Smart health ecosystems are key enablers of Europe's digital health transformation, fostering innovation that enhances patient outcomes, healthcare efficiency, and regional competitiveness. However, these ecosystems often encounter shared barriers such as funding limitations, regulatory complexity, and fragmented infrastructures that hinder progress. This talk presents the outcomes of the SHIFT-HUB Policy Brief, developed within the EU-funded SHIFT-HUB project. The brief synthesises insights from three regional workshops conducted in Central Macedonia (Greece), Northern Portugal (Portugal), and Baden-Württemberg (Germany), representing Eastern, Western, and Northern Europe. By examining these diverse contexts, the policy brief identifies both regional strengths and systemic challenges, offering comparative perspectives across Europe. Based on this analysis, the talk will present evidence-based recommendations aimed at enabling more coherent and effective policymaking at regional, national, and EU levels. These recommendations aim to strengthen collaboration, streamline regulatory pathways, and enhance resource alignment, ultimately supporting the sustainable growth of smart health ecosystems across Europe.

Student e-Poster Session

Development of an Innovative Application for Training and Self-Management in Epilepsy

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Background: Epilepsy affects over 50 million people worldwide, often accompanied by psychological burden and limited access to educational interventions. Digital health tools can enhance self-management and quality of life, yet few target people with epilepsy and their caregivers.

Objectives: To design, develop, and evaluate a digital application aimed at improving knowledge, self-management, self-efficacy, quality of life, and mental health among individuals with epilepsy and their caregivers.

Methods: The study included three phases: needs assessment through literature review and semi-structured interviews; design and development of a scenario-based educational app; and a two-week intervention with 31 participants (29 completed). Pre–post assessments included validated instruments for knowledge (EKP-G), self-management (ESMS), self-efficacy (CSES-8), quality of life (QOLIE-31, WHOQOL-BREF), anxiety (brEASI, ZBI-12), and depression (PHQ-9).

Results: Participants demonstrated significant improvements in epilepsy knowledge, self-management, and quality of life, along with reductions in anxiety and depressive symptoms. Trends suggested that higher social knowledge was linked to greater self-efficacy among caregivers and better lifestyle management among patients. The app received excellent usability ratings (SUS).

Conclusions: The intervention effectively enhanced users' understanding and self-management of epilepsy, highlighting the importance of integrating educational, psychosocial, and technological components to support both patients and caregivers.

From Clinician to ChatGPT: Comparative Design of Cardiology Virtual Patient Scenarios

Marios G. Bantidos[1,2,3], Eleni Dafli[1], Athina Nasoufidou[3], Efstratios Karagiannidis[2], Barbara Fyntanidou[2], Panagiotis D. Bamidis[1]

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Background: Virtual Patients (VPs) enhance diagnostic reasoning but are time-intensive to create, especially in Cardiology where authenticity relies on synchronized data and time-critical decisions. Large language models (LLMs) such as GPT-4 may accelerate scenario development, but structured methods for ensuring accuracy and educational integrity are limited.

Methods: Two VP cardiology cases were developed on the MobiVip web platform, a VP platform specially designed for mobile devices, supporting branching decisions, integrated images, and automated feedback. One scenario was clinician authored. The other was GPT-4–generated with minimal prompting to specify intended complexity, educational goals, and target learner level. Both followed a shared blueprint defining the presentation, timeline, and key decision points. Clinician reviewers checked the AI-generated draft for factual accuracy, coherence, and guideline adherence, without major content changes.

Results: GPT-4 reduced initial authoring time by approximately 90% and produced coherent, educationally aligned cases. Expert revisions were mainly required for nuanced clinical reasoning, data realism, and phrasing. The workflow demonstrated consistency and efficiency in mixed human–AI authorship.

Conclusions: A structured, expert-supervised LLM workflow can produce authentic and instructionally robust cardiology Virtual Patients, offering a scalable model for efficient VP case-based learning design.

NAVISENSE: A WEARABLE NAVIGATION-ASSISTANCE DEVICE PROVIDING INTUITIVE TACTILE FEEDBACK TO VISUALLY IMPAIRED PEOPLE

Konstantinos Chaitas[1], Menelaos Karamichalis[1], Alexander Astaras[1]

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As of 2023, at least 2.2 billion people worldwide were estimated to have a visual impairment that significantly affects their everyday quality of life. This work presents a wearable-computing prototype designed to assist visually impaired individuals in navigating their environment through the use of ultrasonic sensing and tactile feedback. The system is based on a portable, power-autonomous microcontroller and consists of two main components: a hat equipped with ultrasonic sensors and a stereo speaker, and a vibration-actuation belt which provides dynamic obstacle-detection tactile feedback and houses the microcontroller board and battery. During the system's evaluation and validation experiments promising conclusions were drawn based on data acquired regarding the useability and performance characteristics of the prototype device, indicating a reasonable learning curve for first-time users and potential for further adaptation and improvement over time.

Real World Data Processing with analytical methods for remote health monitoring of patients with chronic diseases and elderly people

Konstantinos Fourtounis[1]

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The increasing number of elderly cancer patients, as well as their special needs, raises the issue of upgrading their monitoring and care to improve their quality of life. In this thesis, a simple and unobtrusive sensing system, using motion sensors, is presented for remote monitoring of elderly cancer patients. The setup of this system, as well as the data recordings, were made within the LifeChamps project and provided for the needs of the thesis. Through these sensor recordings, certain characteristics are extracted that capture the daily habits of the patients. The main objective of this work is to investigate whether there is a correlation between the patients' lifestyle and their health status, as captured using various self-assessment questionnaires. In addition, machine learning models are used to assess the patients' health status based on the extracted characteristics. The method of separating the classes (Labeling), for which an assessment will be made, is presented. The criteria for the selection of suitable models and the way of finding the optimal hyperparameters are discussed. Finally, the methodology followed to train the models is presented, considering the specificities of the dataset.

Integrating Occupational Therapy Expertise in Service Design: A Rapid Systematic Review of Digital Service Co-Design

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Background: Industry 4.0 is driving innovative changes in Occupational Therapy (OT) practice. OT theory alignment with Design Thinking principles positions OT as an essential stakeholder of digital health services co-design. However, there is a gap regarding the overall OTs' unique role in the co-design process and professional development opportunities.

Objectives: To explore and describe OTs' role in digital services co-design and identify related professional development opportunities.

Methods: A qualitative rapid systematic review was conducted according to PRISMA 2020 guidelines. Studies were included if: 1) published in English, 2) published within the last 5 years, 3) accessible, 4) including OT, 5) including digital services co-design, 6) peer-reviewed, 7) methodologically appropriate. PubMed, Scopus, and ScienceDirect databases were searched. Quality was assessed through CASP, MMAT, QATSDD, and JBI critical appraisal tools. Qualitative content analysis and thematic synthesis are ongoing.

Results: Preliminary findings from 28 studies indicate key OT roles: 1) assessing care needs, 2) facilitating accessibility, adaptability, and usability, and 3) promoting positive user experience. Professional development opportunities are identified in assistive device fabrication via 3D printing technology, remote care development, and continuous training through co-interaction.

Conclusion: The final synthesis will clarify OTs' role in digital services co-design and OT professional development opportunities.

Towards a Soft Robotic Glove for Physical Rehabilitation Aid Featuring Adjustable Agonist/Antagonist Muscle Support

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Stroke affects around 750,000 people annually, with 60-80% of survivors left with unilateral weakness in their extremities. Accidents and diseases also contribute to limited mobility and paralysis for millions of patients worldwide. This paper covers the process of designing a wearable glove that has capability to curl, extend and resist finger movement by providing forces similar to those produced by agonist and antagonist muscles. The aim of the device is to assist with physical rehabilitation, while also providing haptic feedback to the patient. This is achieved by utilizing a pneumatic soft robotic actuation system to provide the curling force (agonistic movement) and a tendon based pulley system to provide the opposing force (antagonistic movement). This technological choice allows for flexibility as well as a gentle, soft feeling of the device, reducing the chances of injury during the rehabilitation process. The design aims to enrich existing physical rehabilitation repetitive motion training routines, utilizing haptic feedback and limiting the range of finger curling utilizing simulated tendons.

A novel wearable gyroscopic stabilizer for mobility Impairments

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Mobility impairments often compromise balance and stability. Traditional aids such as canes or exoskeletons can be restrictive or unsuitable for dynamic environments. Recent research explores wearable gyroscopic stabilizers which adapt spacecraft inertial attitude-control principles to human balance, offering hands-free, joint-free support while preserving natural gait. This project aims to develop a wearable gyroscopic stabilizer, named Sentinel, which assists with human trunk balance using on-board torque forces without relying on joint bracing or external contact. The system integrates a BLDC-driven reaction flywheel module, inertial sensing via an onboard IMU and a real-time controller to generate corrective torque. Housed in a lightweight backpack-style enclosure, the device is designed for rapid response, quiet operation, and user comfort. Its operation follows the principle of conservation of angular momentum: accelerating or braking the flywheel yields equal-and-opposite torque on the device housing, which is strapped on the human trunk providing stabilization assistance. The device is currently in the proof-of-concept phase. Prototype development and bench testing are underway, including inverted pendulum trials and surrogate evaluations. These tests focus on sway metrics, control latency, power consumption and autonomy as well as overall wearability and comfort. Preliminary engineering results are promising but full performance validation is pending. The project aims to deliver a low-cost, wearable balance aid for individuals with disabilities and balance difficulties. Future work will focus on personalization, safety, comfort, and small-scale trials to support clinical readiness.

IroraX: A Pain Neuroscience Education Chatbot for Patients with Chronic Low Back Pain-Design and Development

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Background: Chronic pain is one of the leading causes of reduced quality of life. It profoundly affects physical, emotional, and social well-being, often persisting despite medical intervention. Pain neuroscience education and the use of multifactorial therapeutic approaches are integral to contemporary management of chronic low back pain (CLBP). Chatbots are increasingly being implemented in healthcare, offering interactive and personalized support.

Objectives: The aim of the study was to present the design and development process of "IroraX", a web-based application for personalized pain neuroscience education for patients with chronic low back pain.

Methods: The core component, Irora, is an AI-powered chatbot created to deliver scientifically grounded, individualized education. The system was developed collaboratively by physiotherapists with clinical experience in CLBP management. The backend, built in Python with FastAPI, uses a Retrieval-Augmented Generation (RAG) framework that retrieves relevant segments from scientific sources and generates responses though OpenAI's GPT-4 model. Before initiating the chat, users complete a brief structured history form. The prototype was tested repeatedly to ensure content relevance and conversational coherence.

Conclusions: IroraX demonstrates the potential of AI-driven tools in enhancing patient education and engagement in pain rehabilitation. Its modular design enables future clinical integration and further research into its impact on patient understanding and self-management.

The Effects of Digital Cognitive Training on Cognitive and Language Abilities in Older Adults with Mild Cognitive Impairment (MCI)

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Background: Mild Cognitive Impairment is associated with increased risk of progression to dementia, though outcomes vary considerably among individuals. Given that a substantial proportion of individuals with MCI eventually develop major neurocognitive disorder, early intervention represents a critical clinical opportunity. While memory and attention have been extensively targeted in cognitive interventions for individuals with MCI, other cognitive domains, including language functions, remain largely unexplored. Digital cognitive training platforms, such as BrainHQ, offer non-pharmacological interventions that can be delivered remotely, providing easily accessible and performance-adjusted tasks for cognitive rehabilitation.

Objectives: This randomized controlled study examines BrainHQ's efficacy on language and cognitive performance in older adults with MCI and language deficits. Objectives include: (1) quantifying post-intervention changes in linguistic and cognitive domains, compared to healthy controls, (2) identifying responsive subdomains, (3) comparing linguistic and cognitive gains, (4) determining participant characteristics associated with greater responsiveness to BrainHQ, and (5) evaluating platform usability and acceptability.

Methods: Twenty participants (≥ 60 years) with MCI and language deficits will be randomly allocated to intervention (n=10) or control (n=10) groups. The intervention involves 6-8 weeks of BrainHQ cognitive training (2-4 sessions/week, 40 minutes). Pre- and post-intervention assessments will evaluate broader language functions, including naming and verbal fluency, as well as global cognition, verbal learning, working memory, and executive functions. Data analyses will include descriptive statistics, within- and between-group comparisons, as well as correlational and regression analyses to examine predictors of intervention response.

Expected Results: We expect that the intervention group will show greater language and cognitive gains than the control group, with domain-specific effects. Findings from this study may contribute to evidence-based recommendations for the use of digital cognitive training in MCI populations.

Scenario-based learning through mobile devices for older adults to promote well-being

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Background / Purpose: Virtual Patients (VPs) scenarios are extensively used by healthcare providers to support learning and decision-making skills, encourage action, interaction, and self-assessment. They have also been used in vulnerable population groups, helping them to cultivate skills and develop strategies to better cope with their illness. Considering the positive results from the application of virtual patient scenarios both to medical students and to the general population, this research was undertaken considering that older adults could also acquire knowledge and improve their well-being after using that technological tool.

Objectives: The objectives of this study are to evaluate the effectiveness of Virtual Patients scenarios in enhancing knowledge related to well-being, to assess the usability of the application to be utilized, and to identify and propose topics for scenario development that reflect the interests of older adults.

Methods: The material for this pilot study is 6 VPs scenarios. The data collection will be conducted using two closed-ended questionnaires (eViP toolkit and SUS) as well as open-ended questions regarding the improvement of the scenarios or suggestions of topics that would interest them.

Participants: Older adults 65+ that will assign an informed consent form.

Approach: The intervention and data collection will be conducted in person. Firstly, each participant will be informed about the purposes of the research and the process and will sign an informed consent form. Secondly, they will be asked to choose from the six scenarios the topic that interests them most. Then they will be given enough time to interact with the scenario and at the end they will answer the eViP toolkit and the SUS.

Expected outcomes: We expect that by using Virtual Patients scenario older adults will gain knowledge on prevention of various health conditions contributing to the improvement of their well-being.

Predicting the Result of a Computerized Cognitive Training Program in People with Multiple Sclerosis

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Cognitive impairment affects up to 65% of people with multiple sclerosis (PwMS). Digital health interventions may help preserve or enhance cognitive functioning, improving quality of life. Machine learning (ML) models trained on Fitbit-derived daily-life features can predict patient response to computerized cognitive training (CCT). This study evaluated the effectiveness of ML-based classification models in distinguishing PwMS likely to respond to CCT from non-responders. Five algorithms—XGBoost, Random Forest, Linear SVM, SVM RBF, and Logistic Regression—were trained on data from 39 PwMS (7 males; 26 RRMS; age 44.44±10.88). Features were derived from descriptive statistics across five time-windows of Fitbit measurements. The target variable was defined using three neuropsychological tests (SDMT, GVLT, BVMT), with standardized regression-based equations (90% CI) and a majority voting procedure assigning two class labels. Due to the limited dataset, 40 training repetitions were performed with random shuffling into stratified training and test sets (25% test). Feature importance was assessed

using SHAP. Linear SVM achieved the highest balanced accuracy (0.661±0.180) for the W1+W2 window. Discrepancies between training and test sets indicated overfitting. The most influential features were “cardio_counts_MEAN” and “deep_sleep_count_MEAN”. These findings demonstrate the potential to predict CCT response within the initial weeks, supporting more personalized interventions.

Digital Twin for Predicting Brain Tumor Progression using Artificial Intelligence

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Recent advances in artificial intelligence and data-driven modeling are accelerating the transition toward personalized and predictive healthcare. Digital Twins offer a computational framework for simulating disease dynamics and supporting clinical decision-making. In light of this potential, this study explores the development of a Digital Twin framework for forecasting glioblastoma progression using longitudinal magnetic resonance imaging (MRI) data. A deep learning architecture with spatiotemporal feature extraction was trained to predict future tumor states from prior imaging sequences. Preliminary results indicate that the model generates realistic predictions of tumor growth and demonstrate its potential for integration into personalized treatment planning workflows. The proposed framework highlights the role of combining medical imaging, artificial intelligence and Digital Twins technologies in advancing predictive healthcare and data-driven clinical support. Future research will extend this framework using generative models to improve robustness, interpretability and clinical applicability.

A Comparative Study of Participants' Responses to Questions – Answer Interactions with Humans and Large Languages Models

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Background: The rapid advancement of artificial intelligence (AI) has blurred the boundaries between human and machine cognition, raising new questions about how intelligence should be evaluated. Revisiting the classic Turing Test through a modern neuroscientific lens offers a novel opportunity to assess human-machine interaction objectively.

Objectives: By integrating electroencephalography (EEG) recordings and stimuli designed with PsychoPy, this approach aims to pride a comprehensive and interactive framework for distinguishing human from artificial intelligence.

Methods: Visual and auditory stimuli were created using PsychoPy and presents to human participants, while EEF activity was recorded. The data were preprocessed to remove artifacts and analyzed to identify neural patterns related to responses to human and AI-generated stimuli.

Results: Preliminary EEG data indicate neural activation for human versus AI-generated questions, highlighting brain regions involved in processing human communication and supporting the feasibility of the proposed experimental framework.

Conclusions: The results suggest that neural data can provide valuable insights into human-machine interaction.

Assessment of walking patterns in chronic disease patients through wearable insoles

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Background: Gait disturbances are common across chronic diseases and can serve as valuable indicators for diagnosis, monitoring, and rehabilitation. Wearable insoles offer objective, real-world gait assessment.

Objectives: To identify and describe disease-specific walking patterns in adults with chronic cardiometabolic and neurological conditions, such as cardiovascular disease (CVD), Parkinson's disease (PD), multiple sclerosis (MS), and healthy older adults using DigitsolePro insoles, and to explore potential digital biomarkers that may differentiate these groups and help outline clear, disease-specific gait profiles.

Methods: A cross-sectional observational study will be conducted. Participants will complete short, standardized walking tasks wearing DigitsolePro insoles. Extracted parameters will include spatiotemporal (speed, cadence, stride length, cycle/stance/swing time, double support), kinematic (toe clearance, propulsion angle, circumduction, step progression angle, steppage), and symmetry-related measures (symmetry, propulsion ratio, digital gait line). Analyses will be descriptive, with group summaries and optional exploratory pattern exploration if sample size allows. Repeat within-session trials may be used to assess metric consistency.

Conclusions: Wearable insole data will be used to outline disease-specific gait profiles in chronic conditions (e.g., CVD, PD, MS) and identify candidate digital biomarkers for future validation, supporting objective clinical assessment and personalized rehabilitation planning.

Preliminary Results on Assessing Researchers' Attitudes Towards Open Science

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The RAISE platform advances open, transparent, and reproducible biomedical research by enabling secure processing of sensitive datasets through remote script execution. Instead of transferring raw data, only processed outputs are returned, while every analytical action is recorded on a blockchain-based audit trail, ensuring traceability, accountability, and reproducibility across all research activities. RAISE seeks to foster a trusted and transparent research ecosystem where communities can collaborate seamlessly. By shifting from the traditional concept of data sharing to data visiting, researchers can bring algorithms directly to the data, preserving privacy, reducing time-to-result, and enhancing productivity. This approach promotes the FAIR (Findable, Accessible, Interoperable, Reusable) principles and advances the adoption of Open Science and responsible AI practices in the biomedical domain. To explore whether such an infrastructure can influence researchers' openness and engagement with Open Science, an Open Science Attitude Questionnaire (OSAQ) was conducted with 116 participants, assessing their awareness, beliefs, and behaviors toward open research practices such as data sharing, pre-registration, and open access publishing. The dataset was analyzed directly through the RAISE Platform, and preliminary results are available at https://doi.org/21.T15999/raise/140. In upcoming phases, RAISE partners will re-evaluate these indicators to measure the platform's impact on advancing Open Science within the European Open Science Cloud (EOSC) ecosystem.

Artificial Intelligence in Arrhythmia Prediction: A Scoping Review of Current Models and Future Directions

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Introduction/Background: Artificial intelligence (AI) is reshaping cardiovascular medicine, providing powerful tools for arrhythmia detection, risk stratification, and outcome prediction. Innovative data sources emerging that include electrocardiograms (ECGs) and cardiac imaging, patient-facing wearables, and large electronic health records. AI-driven models are increasingly being embedded into clinical workflows to operationalize precision cardiology.

Objective: The scoping review aims to delineate AI-enabled arrhythmia prediction strategies, assessing their methodologies, clinical significance, performance measures, and limits.

Methods: The PRISMA-ScR guidelines were utilised to search published studies between 2010-2025 that applied AI, machine learning (ML), deep learning (DL) in predicting arrhythmia. Studies were considered eligible if they were original research papers and clinical trials.

Results: Eleven studies were included, covering modalities like ECG waveform analysis, cardiac CT/MRI, wearable sensors, and biomarker monitoring. AI models showed strong performance, with AUCs up to 0.83 for AF prediction, F1 scores up to 0.82 for ECG abnormality detection, and sensitivity/specificity above 90% in wearable AF screening. Traditional risk scores (e.g. CHA_2DS_2-VASc, TTR) were outscored in clinical workflows and edge devices.

Conclusion: AI-prediction models for arrhythmia risk have immense clinical promise, enhancing screening, diagnosis, and person-focused risk stratification. Key

emphasis of future efforts should be external validation, multimodal data integration, and equitable system roll-out across health systems.

Reimagining Physical Assessment Through Exergaming and Depth-Sensing Motion Tracking

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Background: The aging population presents growing challenges for healthcare and rehabilitation systems worldwide. Maintaining mobility, balance, and strength is essential for older adults' independence and quality of life. Traditional assessment methods often lack engagement and real-time feedback. Interactive movement-based digital gaming, or exergaming, offers a potential solution for increasing motivation, accuracy, and access in physical assessment.

Objectives: This study presents the development of a digital exergaming platform with a mission to enhance physical assessment in older adults and vulnerable groups by integrating motion tracking, real-time feedback, and gamification. The aim is to support user adherence, offer objective data to clinicians, and facilitate healthy aging and rehabilitation.

Methods: A high-quality depth sensor was employed as the main sensing unit and the exergaming platform was developed using C# and Unity. The platform includes five gamified exercises (arm curls, chair stand, balance on one knee, foot-up-and-go and the two-minute step test) which were selected as the most prominent exercises to assess static strength, balance and mobility. Four healthy participants (2 males, 2 females from18-54 years) were initially enrolled to validate the platform's responsiveness and accuracy and the overall user experience interacting with the system. Validation experiments took place in the Thess-A-Hall Living Lab of Aristotle University of Thessaloniki (AUTH), and the participants were assessed on all exercises.

Results: Results from the validation experiments were analyzed using mean errors and standard deviations. Preliminary findings indicate a mean error of 10% on angle measurements and mean error of 14% on distance measurements. Oral feedback

from users indicated high engagement and confidence due to real-time feedback and gamified features. For caregivers and physiotherapists, automated data capture simplified assessment and provided objective biomechanical data.

Conclusions: The proposed exergame platform is currently in development phase. Preliminary results indicate strong correlation between system and baseline measurements. A series of validation experiments is scheduled to further validate the platform's robustness and reliability.

Author Index

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