Novelitics Group LLC
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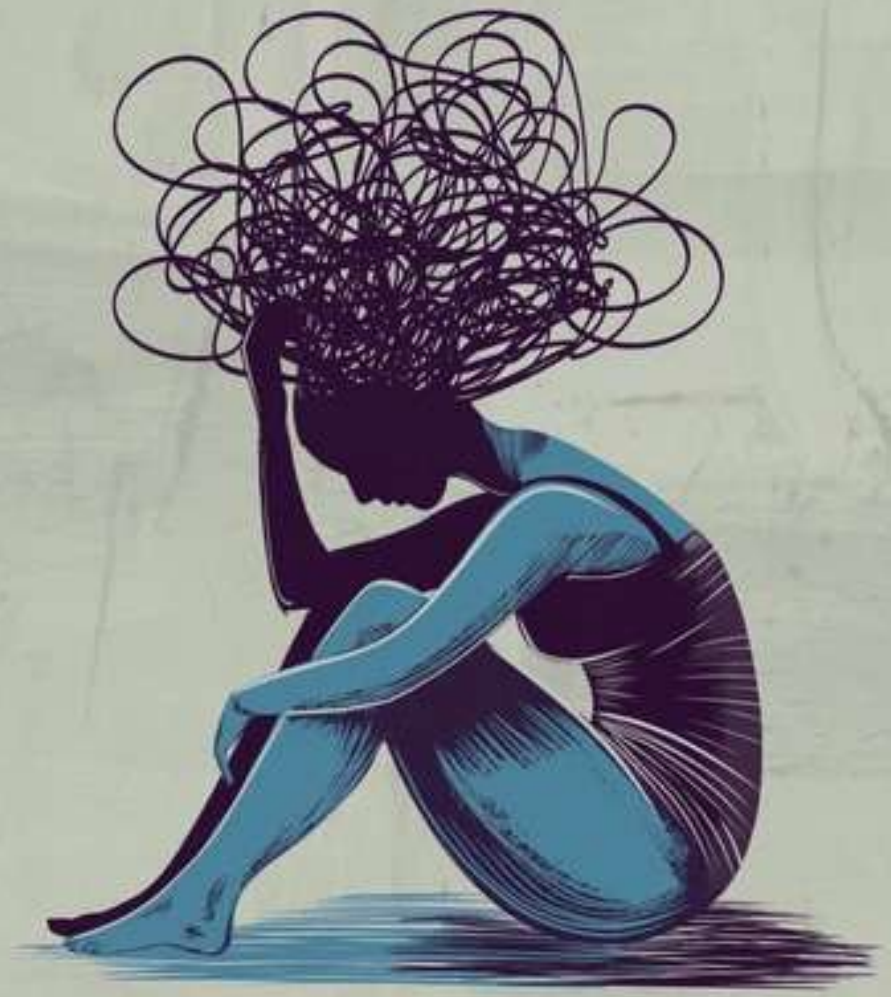
2nd International Conference on

MENTAL HEALTH AND HUMAN RESILIENCE

July 21-22, 2025 | London, UK



Theme: Mindfulness in Action: Cultivating Holistic Wellness

SCIENTIFIC PROGRAM

DAY 1 JULY 21, 2025	
Registration Desk Opens	
Opening Ceremony & Inaugural Address	
KEYNOTE FORUM	
09:30-10:00	**Richard Carter,** *Proximie, UK* Title: AI in healthcare: Enhancing human expertise with real-time intelligence
10:00-10:30	**Rachel Yarcony,** *myAir Stressless Routine, Israel* Title: Managing stress with terpene-based functional bars: An open-label observational study
10:30-11:00	**Deborah Zelinsky,** *Mind-Eye Institute, USA* Title: Harnessing retinal activity to alter and help mind-eye connections
COFFEE BREAK | 11:00-11:15	
11:15-11:45	**Ibrahim El Bayoumy,** *Consultant of Public Health-Ministry of Health, Kuwait* Title: Psychiatric disorders in adolescents with Type 1 diabetes: A case-control study
11:45-12:15	**Michael Stark,** *The New European Surgical Academy, Germany* Title: Is AI guided surgical robotics a realistic option?
Sessions: Mental Health | Deep Learning & Neural Networks | Natural Language Processing | Computer Vision | Ethics, Fairness, and AI Policy | Reinforcement Learning (RL) | Edge AI and IoT Applications | AI in Healthcare	
Chair: Ibrahim El Bayoumy, *Consultant of Public Health-Ministry of Health, Kuwait*	
12:15-12:35	**David John Wortley**, *IORMA, UK* Title: AI and storytelling
12:35-12:55	**Clara Meehan,** *HSE West Northwest, Ireland* Title: Enhancing family engagement: Building positive relationships in mental health
GROUP PHOTO & LUNCH BREAK | 12:55-14:00	
14:00-14:20	**Anupa Devi,** *Root to Resilience, UK* Title: The 4Rs to resilience: Strengthening mental health through inner leadership
14:20-14:40	**Martina Billichova,** *Slovak University of Technology in Bratislava, Slovakia* Title: Improving early prediction of conversion to mild cognitive impairment via personalised uncertainty

14:40-15:00	**Nazime Tuncay,** *Cyprus* Title: Beyond the timeline: Exploring public attitudes on digital legacy and AI-driven immortality
15:00-15:20	**Rajdeep Singh Khanuja,** *National Institute of Fashion Technology, India* Title: Intelligent manufacturing meets intelligent marketing: AI applications in fashion & textile industry 4.0
15:20-15:40	**Yang Wenyi,** *Jiangsu Provincial Center for Disease Control and Prevention, China* Title: A cross-sectional study on the prevalence of depressive symptoms among left-behind children in Jiangsu, China
15:40-16:00	**Jie Yang,** *Jiangsu Provincial Center for Disease Control and Prevention, China* Title: A multi-dimensional cross-sectional study of adolescent depressive symptoms
16:00-16:15 | COFFEE BREAK	
16:15- 16:35	**Shakil Akhtar,** *Clayton State University Morrow, USA* Title: Cancer detection and treatment using visual transformer deep learning techniques
16:35- 16:55	**Haroon Haider,** *COMSATS University, Pakistan* Title: An adaptive loss function for enhanced image segmentation
YOUNG RESEARCHERS FORUM	
16:55- 17:10	**Geonyoung Kim,** *Seoul National University, South Korea* Title: Reinforcement learning-based topology optimization for shimming-aware design of a 3 T MRI magnet
17:10- 17:25	**Martyna Ławniczak,** *Adam Mickiewicz University in Poznań, Poland* Title: Application of machine learning for training load analysis and physical development assessment in elite women's football
17:25- 17:40	**Tomasz Kuczyński,** *Adam Mickiewicz University in Poznań, Poland* Title: Analysis and modeling of player movements-distance, speed, and dynamic acceleration changes using IMU sensors in the JustWin smartband
17:40-17:55	**Piotr Andrzejewski,** *Adam Mickiewicz University in Poznań, Poland* Title: Machine learning-driven near-infrared spectroscopy for multidimensional coffee quality assessment
NETWORKING & B2B MEETINGS	
END OF DAY 1	

DAY-2 | JULY 22, 2025	
Registration Desk Opens	
	Opening Ceremony & Inaugural Address
10:00-10:20	**Domenico Desiato,** *University of Bari Aldo Moro, Italy* Title: Enhancing the sharing and the management of personal data in cybersecurity landscape
Sessions: Mental Health | Deep Learning & Neural Networks | Natural Language Processing | Computer Vision | Ethics, Fairness, and AI Policy | Reinforcement Learning (RL) | Edge AI and IoT Applications | AI in Healthcare	
10:20-10:40	**Damilare Daramola,** *Federal University of Technology Akure, Nigeria* Title: Predicting hypertension risk using machine learning technique with a web application interface
10:40-11:00	**Shakil Akhtar,** *Clayton State University Morrow, USA* Title: Cancer detection and treatment using visual transformer deep learning techniques
11:00-11:20	**Deborah Zelinsky,** *Mind-Eye Institute, USA* Title: Harnessing retinal activity to alter and help mind-eye connections
11:20-11:40	**Mustafa Eisa Misri,** *Ventois Inc., USA* Title: Optimizing compliance and efficiency: How opentext exstream enhances consumer communication management
11:40-12:00	**Shivani Kumawat,** *Indian Institute of Technology, India* Title: Strain-modulated electronic properties of graphene and MoS2 -based heterostructures
12:00-12:20	**Abdul Malik,** *University of Management and Technology, Pakistan* Title: The Future of Artificial Intelligence in Academic Research
12:20-12:40	**Nidhin Pallikkara Kuttyadan,** *UK* Title: Adult's interpersonal relationships and resilience during work from home in COVID-19: An exploratory study
12:40-13:00	**Athulya Sreekumary,** *UK* Title: Back to School, But Not Back to Normal: Teachers' Mental Health in the COVID-19 Era
13:15- 14:00 | LUNCH BREAK	
14:00-14:20	**Moataz Nady Elhelaly,** *Hassan's Optician Co., Kuwait* Title: Management of higher-order aberrations vision of irregular cornea with specialty lenses
14:20-14:40	**Saroj Dubey,** *Consultant Gastroenterologist at Kailash Hospital Noida, India* Title: Alchemy of presence

14:40-15:00	**Gideon M Adogbo,** *Didi Esther Walson-Jack Office of the Head of the Civil Service of the Federation, Nigeria* "Title: The productivity paradox: A longitudinal study of generative AI adoption and its socio-technical barriers in the Nigerian public sector"
15:00-15:20	**Sandeep Kumar Singh,** *National Institute of Technology, India* Title: Assessing mechanical and fracture damage mitigation by polydopamine functionalized milled GO in epoxy nanocomposites
COFFEE BREAK | 16:00-16:30	
Awards &Closing Ceremony	

Keynote Forum

DAY 1

2nd International Conference on

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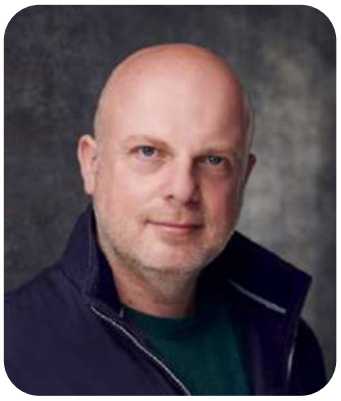

AI in healthcare: Enhancing human expertise with real-time intelligence

Richard Carter
Proximie, UK

This talk will explore how AI is transforming surgery not by replacing surgeons, but by enhancing their capabilities in real time. Surgical care quality often depends on geography, limiting access to timely, high-quality treatment. While fully autonomous AI-driven surgery remains a distant future, AI today can play a critical role in improving efficiency, decision-making, and collaboration.

Using Proximie as a case study, we'll examine how real-time AI-powered telepresence and data processing can optimize workflows, reduce surgical delays, and support surgeons with intelligent, voice-activated assistance. We'll also discuss the challenges of responsible AI integration in healthcare, ensuring data security, and setting the stage for future AI-driven medical innovations.

Biography

Richard Carter has a strong background in technology and engineering roles within the financial services industry. Richard currently holds the position of VP of Engineering at Proximie since May 2021. Prior to this, Richard served as the Chief Technology Officer at Bubble® from September 2019 to May 2021. Richard also worked at American Express as an Engineering Director from November 2016 to August 2019, and as a Software Engineer from April 2016 to November 2016. Richard's earlier experience includes a role as an Executive Director at J.P. Morgan from June 2010 to April 2016. Before that, they held positions at Royal Bank of Scotland and Bank of America as well, where they served as a Vice President. Richard's career started at Deutsche Bank as a Developer in Emerging Markets Technology from 1996 to 1999.

Richard Carter attended Gravesend Grammar School, but no degree or field of study information is given. From 1991 to 1995, they studied at Keele University where they earned a Bachelor of Arts (Hons) degree in Law and Computer Science. Following this, in 1995-1996, they attended the Inns of Court School of Law (Lincolns Inn), where they obtained a Barrister at Law degree in the field of Law.

Managing stress with terpene-based functional bars: An open-label observational study

Rachel Yarcony[1*], Gil Lewitus[2], Dovev Goldstein[3] and Eddie Garber[3]

[1]ESG, France
[2]Technion University, Israel
[3]Tel-Aviv University, Israel

Chronic stress is a leading contributor to long-term health issues and work-related absenteeism, manifesting in physical, emotional, cognitive, and behavioral symptoms. Traditional pharmaceutical interventions often carry side effects and lack personalized efficacy, while natural alternatives such as herbal extracts and terpenes have shown promise in stress management. This study evaluated the effects of consuming functional nutrition bars infused with proprietary terpene and botanical blends on stress levels, as measured by Garmin wearable devices and the in-house myAir evaluation tool.

A total of 408 participants aged 21–67 were screened. After applying inclusion criteria such as having complete Garmin stress data over baseline and treatment phases 146 participants were included in the final analysis. Each participant completed the myAir stress evaluation tool, which categorized them into one or more of six stress symptom domains: sleep disturbance, lack of calm, tension, lack of focus, low energy, and discomfort. Based on their stress profiles, participants received customized combinations of two functional bars designed to alleviate their top stress symptoms, which they consumed daily for five days.

The results showed a statistically significant reduction in overall stress duration, particularly in low-level stress, with a trend toward reduction in high-stress episodes. No significant change was observed in the maximum stress level. High compliance with the functional bars was reported, and the data were validated through GC-MS analysis to ensure consistency of terpene content across products.

These findings suggest that personalized, terpene-infused nutritional interventions may offer an effective, scalable, and user-friendly approach to reducing chronic stress. Further randomized controlled trials are recommended to strengthen these initial results.

Keywords: Stress management, functional nutrition, terpenes, wearable devices, personalized wellness, adaptogens, Garmin, anxiety, sleep, HRV, phytochemicals, myAir, chronic stress, behavioral intervention, and natural remedies.

Biography

Rachel Yarcony has a profound leadership background with 20+ years of hands-on experience managing companies, leading strategic processes of products in FMCG and pharmaceutical markets, and bringing new products to fruition in leading companies. She served as VP of Global Marketing at Teva Pharmaceuticals and as Business Manager at Nestlé.

Drawing from her experience with chronic stress in a demanding career, Rachel recognized the challenge of fostering sustainable wellness habits. Grounded in the understanding that nutrition is central to health, she envisioned a platform for stress reduction that integrates functional nutrition with personalized insights. Together with leading researchers from UC Berkeley, Stanford, Tel Aviv University, and Haifa University, they developed a platform that uses personalized plant-based functional nutrition and insights drawn from physiological (smartwatch-based) and psychological (cognitive questionnaire-based) metrics to help users balance their minds and bodies.

She holds a B.A. in Psychology from Tel Aviv University and an MBA (with honors) from ESG France. She is also a mentor and lecturer at Columbia and Tel-Aviv universities.

Harnessing retinal activity to alter and help mind-eye connections

Deborah Zelinsky
Mind-Eye Institute, USA

Visual processing issues often mimic mental health problems, leading to misdiagnoses that can take patients down an inefficient or ineffective treatment path. For instance, having anxiety disorder or post-traumatic stress disorder might just be related to disrupted visual processing. Being in a prolonged fight-or-flight state can influence adrenoceptors in the retina, changing peripheral eyesight due to constriction of blood flow when stressed [1]. Studies have demonstrated correlations between mental health problems and visual inefficiencies in both the aging and developing populations [2-4]. Also, the interdependent reward and stress systems are each linked to visual processing, so when the body is strained, calming visual inputs allow for an easier recovery. [5]

Visual processing relies partially on retinal inputs. The retina is an extension of brain tissue and an overlooked part of the central nervous system [6]. Each of its 126 million photoreceptors has close to 900 discs, which in turn house approximately 50,000 molecules, each responding to a photon of light. Those billions of sensors reacting to light [7] trigger chemical reactions and a cascade of changes, leading to a funneling of signals through various retinal layers down from the 126 million rods and cones to 1.2 million ganglion cell axons leaving the eyeball as the optic nerve. Those neurons travel to the visual cortex for eyesight and other brain structures, including non-image-forming regions in the brainstem and limbic system, influencing motor, endocrine, and autonomic signaling through retinal neuromodulation.

Standard 20/20 assessments are insufficient for some patients; additional testing, including peripheral eyesight and sensory integration, is needed. This emerging field of the eye being a biomarker for brain and body diseases is called oculomics. Optometrists trained in advanced analysis can influence mind-eye connections in positive ways by collaborating with mental health specialists in the overall health care arena.

References:

1. Ruan, Y., et al., The Role of Adrenoceptors in the Retina. Cells, 2020. 9(12).
2. Babak, K.V., et al., [Visual and acoustic interventions for improving mental health in advanced age.]. Adv Gerontol, 2022. 35(4): p. 559–568.
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thalmol, 2024. 18: p. 953–980.
5. Gallo, L.M.H., et al., Covid-19 and Mental Health: Could Visual Art Exposure Help? Front Psychol, 2021. 12: p. 650314.
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Biography

Deborah Zelinsky, is an optometrist noted worldwide for her work using retinal processing to change sound perception. She founded The Mind-Eye Institute, located near Chicago, serving as its executive director of research. As a clinician, she and her team are prescribing Mind-Eye Brainwear™ (using her patented Z-Bell Test℠) to balance eye-ear disconnects. The Mind-Eye Institute's tagline of "Connecting Optometry with Neuroscience" fits with her vision of training other eye care professionals to use her patented methods, with a shorter-term goal of having accredited optometrists practicing in most major population centers globally. An ever-growing number of scientific studies show evidence that the retina reflects the condition of the brain and body. Continuing advancements in understanding the role of retinal signaling as a significant component of overall brain function may one day make optometrists the go-to professionals for many mental and physical disorders. This emerging field is called "ocluomics."

Psychiatric disorders in adolescents with Type 1 diabetes: A case-control study

Ibrahim El Bayoumy
Consultant of Public Health-Ministry of Health, Kuwait

Objectives: To study the prevalence of psychiatric disorders in adolescents with and without type 1 diabetes, the factors associated with its presence, and to test the reliability of a screening tool for use in clinical settings.

Methods: 115 adolescents were enrolled in this case-control study, including 60 diabetic participants with type 1 diabetes mellitus and 55 non-diabetic controls.

Clinical and sociodemographic data were collected, and psychiatric symptoms and diagnoses were obtained from adolescents and their parents using a screening tool (Strengths & Difficulties Questionnaire) and a semi-structured interview (Development and Well-Being Assessment).

Results: Psychiatric disorders were identified in 25% of the type 1 diabetic patients. Overweight (body mass index percentile X 85) was the only factor associated with psychiatric disorder (OR = 3.07; 95% CI 1.03-9.14; p = 0.04). Compared to the semi-structured interview, the screening instrument showed 80% sensitivity, 96% specificity, 88.9% positive predictive value, and 92.3% negative predictive value for the presence of psychiatric diagnoses in adolescents.

Conclusion: Psychiatric morbidity was high in this sample of adolescents, especially among those with diabetes. Routine use of the Strengths and Difficulties Questionnaire can help with early detection of psychiatric disorders in this at-risk group.

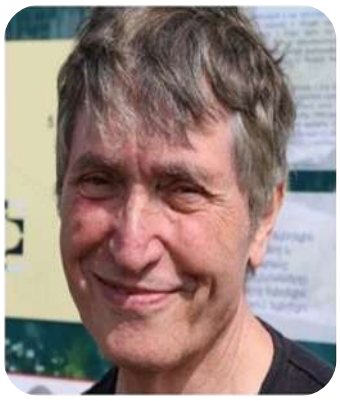
Keywords: Adolescent; Epidemiology; Child Psychiatry; Diabetes Mellitus; Type 1

Biography

Ibrahim El-Bayoumy holds a bachelor of medicine and surgery (Tanta Faculty of Medicine, Egypt, 1989); then he earned his master's degree in public health, preventive and social medicine (Tanta Faculty of Medicine, Egypt, 1996), and an MD, PhD in public health, preventive and social medicine in 2003 from Tanta Faculty of Medicine, Egypt, and McGill Faculty of Medicine, Montreal, Canada, in the division of clinical epidemiology at Royal Victoria Hospital through a double-channel system as a scholarship from the Ministry of Education, Egypt. He has been a full professor of public health and community medicine at the Tanta Faculty of Medicine in Egypt since November 2016.

Now he is working in the Ministry of Health in Kuwait as a consultant of public health and preventive medicine. He has been a lecturer of public health for postgraduate diplomas and master's degrees in public health at the University of South Wales, UK, since March 2021. He is also an adjunct professor of public health in the School of Public Health at Texila American University, Guyana, South America, and has supervised 24 PhD projects since 2018.

He had published many research works in international journals. He is interested in research in the epidemiology of infectious diseases like HIV, tuberculosis, brucellosis, and infectious hepatitis. He is interested in the epidemiology of chronic diseases like diabetes mellitus and its health economics, obesity, cancer, and pharmacoepidemiology. He is a reviewer of many national and international journals. He has obtained a postgraduate master's degree in diabetes care and education from the Dundee Faculty of Medicine, Scotland, UK, in October 2015. He was an invited speaker at many international conferences in China. South Korea. Japan, Hong Kong, Malaysia, Dubai, and Kuwait. New Delhi, USA. Paris, France, and Rome, Italy.



Is AI guided surgical robotics a realistic option? opportunities and challenges

Michael Stark
The New European Surgical Academy, Germany

The ongoing evolution of surgery has witnessed significant milestones: Open surgery dominated the 19th century, endoscopy and later robotics the 20th, and natural orifice surgery has emerged in the 21st century. The integration of robotics and Artificial Intelligence (AI) into surgical procedures promises to initiate a new era. While current robotic surgical systems operate under supervision, the prospect of fully autonomous robotic surgeries offers possible transformation potential. The current advances in machine learning and real-time data analysis might prepare the way for robots capable of performing surgical procedures with minimal or even no intervention from surgeons.

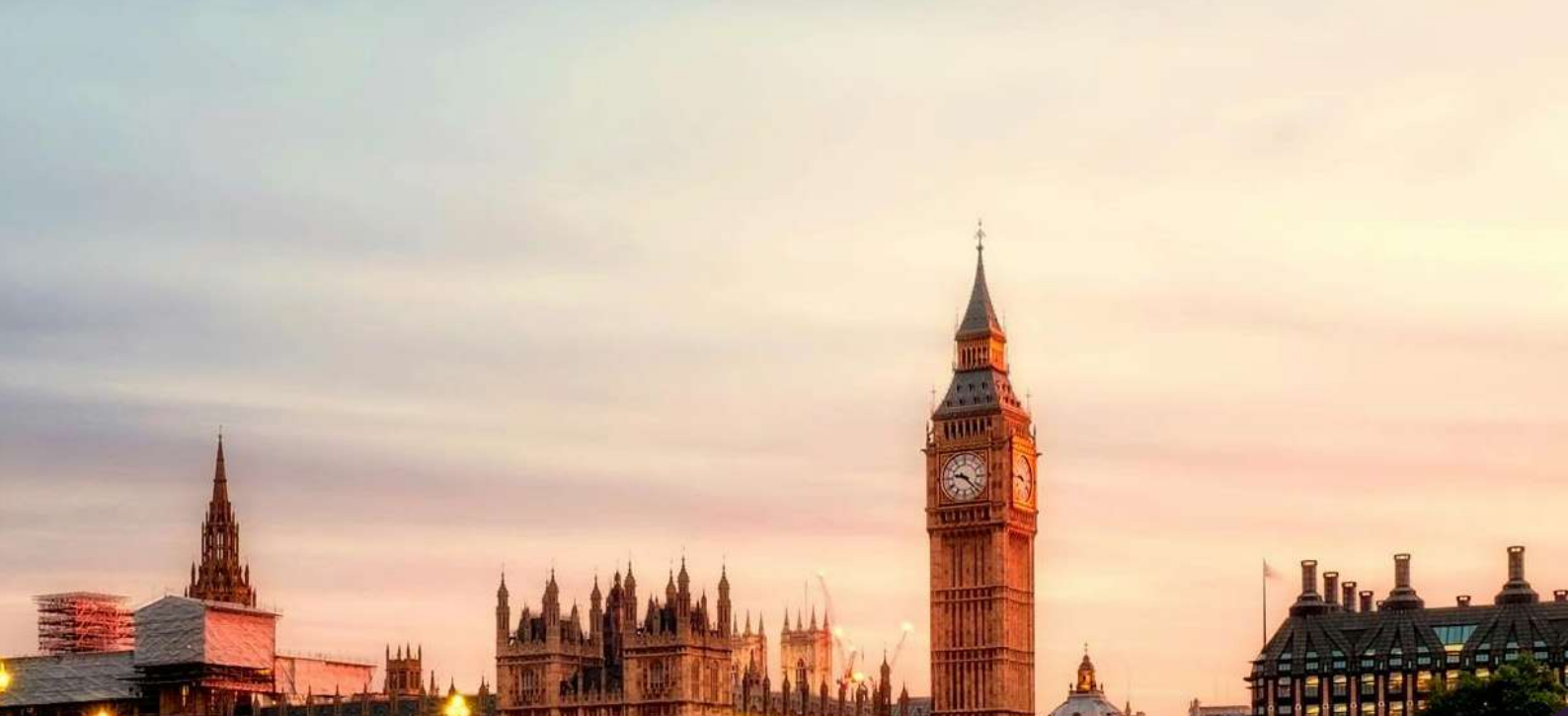
However, this transition requires substantial technical, ethical, and regulatory challenges. These systems must be capable of adapting to possible complications and of accommodating unexpected anatomical variations. For this, huge databases are needed to ensure safety.

Ethical and regulatory concerns might complicate this transition, as significant ethical questions about accountability are being asked, which will need new legal and regulatory frameworks, and needless to add, the needed acceptance among the medical community and the public.

This abstract highlights the need to prioritize AI transparency, ethical integration, and innovation in the potential of autonomous surgical systems development.

Biography

Michael Stark specializes in obstetrics and gynecology. His main interest is gynecological oncology. He is the scientific advisor of the European novel telesurgical system, scientific and medical advisor of the ELSAN, an 80-hospital group in France, and a guest scientist at the Charité University Hospital in Berlin. Since 2004 he has been the president of the New European Surgical Academy (NESA), an international interdisciplinary surgical organization with members in 54 countries and a formal cooperation agreement with FIGO concerning the transmission of knowledge to countries with limited resources. In 2011, he was nominated as the Medico Del Anno (Doctor of the Year) in Italy and is an honorary member of the French, Polish, Russian, and Italian Gynecological Associations. In the years 1983-2000 he was the medical director and head of the Ob/Gyn department of the Misgav Ladach General Hospital in Jerusalem, and between 2001 and 2009 the chairman of all Ob/Gyn departments of the HELIOS Hospital Group in Europe. He modified operations like the vaginal and abdominal hysterectomy and Cesarean section and developed the concept of single-entry natural orifice surgery. He was involved in the development of the transoral thyroidectomy and trans-Douglas abdominal surgery.



Scientific Abstracts

DAY 1

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AI and storytelling

David John Wortley
IORMA, UK

The convergence of Artificial Intelligence (AI) and storytelling is reshaping how narratives are created, experienced, and understood. AI technologies ranging from natural language processing to generative models are increasingly capable of producing coherent, engaging, and personalized stories across various media. This evolution expands creative possibilities, enabling writers, filmmakers, game developers, and other storytellers to co-create with machines, accelerate ideation, and reach new levels of narrative complexity. At the same time, AI-driven storytelling tools democratize content creation, allowing individuals with limited technical or artistic skills to craft compelling narratives. However, the integration of AI also raises critical questions about authorship, authenticity, and the ethical use of generative content.

As AI systems learn from vast datasets, they may inadvertently reinforce biases or replicate harmful stereotypes, necessitating thoughtful design and oversight. Furthermore, the emotional resonance and cultural impact of AI-generated stories challenge traditional perceptions of human creativity. As the technology continues to evolve, the relationship between AI and storytelling will likely redefine not only how stories are told, but also who gets to tell them and for whom they are crafted. This transformation presents both exciting opportunities and complex challenges for the future of narrative art and human expression.

Keywords: Storytelling, Creative Technologies, Social Media, Disruptive Technologies, Social Influencers

Biography

David John Wortley is CEO & Founder of 360in360 Immersive Experiences and a VP of the International Society of Digital Medicine (ISDM). He is a Fellow of the Royal Society of Arts and Commerce and a global thought leader and innovator on enabling technologies for health, education, and the environment. He is the director of the IORMA Health and Wellness Technology Center and a non-executive director of the World Lifestyle Medicine Education Services (WLMES).

As the Founding Director of the Serious Games Institute (SGI) at Coventry University, his team established an International Centre of Excellence for Applied Research and Innovation in the field of serious games and immersive technologies for a wide range of applications. His areas of special interest are technologies for preventative healthcare, collaboration, virtual reality, and interactive rich media knowledge sharing. He is a professional motivational speaker, webinar host, and publisher.

Enhancing family engagement: Building positive relationships in mental health

Clara Meehan* and **Maria McGoldrick**
Health Service Executive, HSE West Northwest, Ireland

An extensive survey was conducted with service users and families in mental health regarding their experience of the service. One of the key findings was the need for greater family engagement and support. It is acknowledged in the literature that having a mental health condition not only impacts the functioning and well-being of the individual but also affects those within their social support network, e.g., families and friends (Ward et al., 2017; Keogh et al., 2017). An Enhancing Family Engagement co-production project group was established in 2023 to develop a suite of initiatives to enhance family engagement & support. One of these initiatives was the development of an eLearning module on HSEland for staff on how to develop positive relationships with a service user's support network in mental health.

The aim of this eLearning module is to provide learners with the knowledge and skills required to engage effectively with service users support networks and signpost them to additional support services/interventions as required. The module was co-produced by the project team with input from service providers, service users, and family members. The eLearning module content is evidence-based from the literature and aligned to policies/guiding frameworks at a national and international level (Eckardt JP., 2022).

Conclusion: The literature highlights that building positive relationships with a service user's support network in mental health improves the outcomes for the service user and facilitates family members to build on their own recovery (Muddle et al., 2022; Ward et al., 2017). This provides an evidence base for the development of this e-learning module for staff working in mental health. A comprehensive evaluation of this e-learning module is planned for the end of 2025.

Acknowledgements: A special thanks to all the service providers, service users, family members, and community partners who worked in partnership to co-produce this eLearning module.

Biography

Clara Meehan, a former occupational therapist, is a Health and Social Care Professional (HSCP) Lead with the Roscommon Service Improvement Team in Mental Health. Her role on the team is to represent the HSCP within the service, and she is co-chair of the Enhancing Family Engagement Project Group. She is passionate about co-production and co-creation in the development and evaluation of services in mental health. Clara recently graduated from the University of Galway with a postgraduate diploma in health promotion and has a particular interest in community development and equity in healthcare.

The 4Rs to resilience: Strengthening mental health through inner leadership

Anupa Devi
Founder-Root to Resilience, UK

In today's high-pressure world, resilience is more than a buzzword it's an essential foundation for sustainable mental wellbeing and human flourishing. This presentation introduces the 4Rs to Resilience framework: a practical, holistic model built on four pillars Regulate, Reframe, Restore, and Reconnect designed to strengthen mental, emotional, physical, and spiritual wellbeing.

Developed through my work as a speaker, coach, and founder of Root to Resilience, the 4Rs framework equips professionals and leaders with actionable tools to navigate challenges, prevent burnout, and support others in doing the same. This approach bridges the gap

between performance and wellness, helping individuals lead themselves and others from a place of clarity, calm, and connection.

Through real-world examples, reflective prompts, and evidence-informed strategies, attendees will learn how to:

- Recognise stress patterns and self-regulate under pressure
- Shift unhelpful thinking through mindset reframing
- Replenish energy through restorative habits
- Reconnect with purpose to build long-term resilience

Key outcomes include enhanced emotional regulation, improved mental clarity, and increased capacity to foster resilience within teams and communities. This work aligns closely with the conference's mission of human-centred innovation in mental health and offers a grounded, accessible path for both personal growth and systemic change.

The session reflects my broader mission: to create ripple effects of resilience that empower individuals and transform workplaces. It will be of particular value to health professionals, wellbeing leaders, HR teams, and educators.

Keywords: Mental Health, Resilience, Emotional Wellbeing, Inner Leadership, Workplace Wellness, Human Flourishing

Biography

Anupa Devi is the founder of *Root to Resilience*, a speaker, coach, and podcast host. dedicated to helping individuals and organizations cultivate sustainable resilience through mind, body, and soul practices. With a background in well-being, communications, and

leadership, She works with busy professionals, leaders, and wellbeing ambassadors to strengthen mental, emotional, physical, and spiritual wellbeing.

Her signature framework The 4Rs to Resilience provides a practical, holistic approach to navigating pressure, preventing burnout, and promoting long-term mental health. Anupa delivers talks, workshops, and 1:1 coaching for public and private sector clients, creating ripple effects of resilience that transform both individuals and workplace cultures.

She also hosts the *Root to Resilience Podcast*, where she interviews thought leaders on the art and science of flourishing. Passionate about empowering others to lead from within,

Anupa blends real-life insight with grounded tools for growth, making resilience both relatable and achievable.

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Improving early prediction of conversion to mild cognitive impairment via personalised uncertainty

Martina Billichová[1*], Davide Bruno[2], Fariba Sharifian[2], Silvester Czanner[1,3] and **Gabriela Czanner[1,4]**

[1]*Slovak University of Technology in Bratislava, Slovakia*
[2]*Liverpool John Moores University, UK*
[3]*University of Chester, UK*
[4]*University of Southampton, UK*

Early detection of mild cognitive impairment (MCI), a prodromal stage of Alzheimer's disease (AD), is crucial for timely intervention. This study proposes an uncertainty-aware predictive framework using the Cox proportional hazards model to identify cognitively healthy individuals at risk of developing MCI. While traditional survival models provide time-to-event estimates, they often overlook the uncertainty associated with individual predictions.

We addressed this gap by incorporating uncertainty quantification into the Cox model through bootstrap resampling, generating 500 prediction instances per subject. We performed a detailed comparative investigation of several measures of uncertainty, distinguishing between epistemic (model-based) and aleatory (data-inherent) sources. For the assessment of the epistemic uncertainty, we used five different measures, including standard deviation and percentile-based ranges (100%, 95%, 90%, and 50%). These measures were evaluated at multiple significance thresholds of 0.1, 0.2, and 0.3. Aleatory uncertainty was captured through four interval-based measures that were derived from the variability of predictions across the resamples.

Our predictive model was trained and tested using data from the National Alzheimer's Coordinating Center, applying feature selection methods to focus on key demographic and clinical variables. Results indicate that while the model achieves strong baseline performance (C-index = 85.858%, Brier score = 0.138), accounting for uncertainty, particularly aleatory, yields improvements in prediction accuracy, specifically an improvement in AUC (from 0.879 to 0.884), sensitivity (from 0.590 to 0.604), specificity (from 0.916 to 0.931), PPV (from 0.790 to 0.809), and NPV (from 0.806 to 0.830), while flagging 7.24% of patients as uncertain.

Additionally, we found that the model tends to exhibit higher uncertainty in predictions for individuals who later convert to MCI. This highlights the need to further explore model behavior in uncertain cases and refine decision support tools. Our ongoing work aims to extend this approach to latent feature spaces, enabling more nuanced and robust modeling.

Keywords: Uncertainty-aware AI, Cox proportional hazards model, Statistical modelling, Mild Cognitive Impairment

Biography

Martina Billichová is a PhD student at the Faculty of Informatics and Information Technologies at the Slovak University of Technology in Bratislava. She published her MSc work in a PLOS ONE paper where she compared ML approaches to the prediction of mild cognitive impairment onset, presented at AI-focused conferences, and is a student co-investigator of the externally funded project on uncertainty-aware AI for brain diseases. In her dissertation, she investigates mild cognitive impairment (MCI) and the use of artificial intelligence methods for automatic monitoring of MCI progression. One of her primary objectives is to develop novel approaches to quantify the uncertainty of artificial intelligence in making predictions so that it is adapted for each patient in a personalized manner, which is an essential factor for clinical decision-making.

Beyond the timeline: Exploring public attitudes on digital legacy and AI-driven immortality

Nazime Tuncay
Individual Researcher, Cyprus

As artificial intelligence increasingly shapes our digital lives, many questions about digital legacy and virtual immortality are being raised. Beyond influencing our current identities and online as well as offline behaviors, it also starts to affect how we or our loved ones are remembered after death. Do people want to take control over their digital legacy in their current life, or what will happen to their digital legacy after they pass away? This research is the second step of the Digital Legacy Project, following the first step of delivering courses that inform people about AI applications and ethics. It aims to develop a tool to measure people's attitudes towards digital legacy, AI simulations, and digital immortality.

A 25-item questionnaire was developed to assess attitudes across three primary dimensions: (1) control over digital legacy, (2) openness to AI-driven simulations, and (3) ethical and emotional concerns. Following an exploratory factor analysis (EFA), two items with weak factor loadings were removed, resulting in a refined 23-item instrument. The scale demonstrated excellent internal consistency (Cronbach's $\alpha = 0.879$). The questionnaire was administered to 180 participants, exceeding the minimum sample size recommended by power analysis.

The results revealed a complex picture. Participants who described themselves as more digitally literate or experienced expressed greater comfort with the idea of digital immortality. In contrast, many participants, especially women, voiced strong ethical concerns and emotional discomfort about AI replicating the dead. These patterns suggest that while the technology is advancing rapidly, society's emotional and moral readiness is still evolving.

In a world where "being remembered" can be shaped by both artificial intelligence and anonymous digital commentary, the boundaries between respectful remembrance and harmful distortion grow increasingly blurry. This study highlights the importance of developing ethical frameworks, ensuring platform accountability, and promoting public awareness to manage our evolving digital afterlives and protect human dignity across multiple timelines.

Biography

Nazime Tuncay is an experienced educator, researcher, and trainer with 25 years of expertise in artificial intelligence, educational technologies, distance education, data analysis, and social media analysis. Her academic interests include data science, digital ethics, and inclusive education. She has worked with a wide range of learners, including secondary school students, high school students, college students, and special education students, and has led numerous teacher training programs. She has authored 8 books and published over 50 academic articles. She actively participates in international conferences and is particularly passionate about lifelong learning, the ethical use of AI in education, and the integration of innovative technologies into teaching and learning practices.

Intelligent manufacturing meets intelligent marketing: AI applications in fashion & textile industry 4.0

Rajdeep Singh Khanuja
National Institute of Fashion Technology (NIFT) Bhopal, India

India, with its rich heritage in textiles and a rapidly modernizing fashion sector, stands at a pivotal juncture where traditional craftsmanship converges with the transformative power of Industry 4.0. This paper explores the synergistic integration of *Intelligent Manufacturing* and *Intelligent* Marketing through the application of Artificial Intelligence (AI) in the Indian fashion and textile industry. The study investigates how AI-powered tools including predictive analytics, computer vision, digital twins, and natural language processing are redefining both the production and consumer-facing dimensions of the sector.

On the manufacturing side, Indian textile units, particularly in states like Tamil Nadu, Gujarat, and Maharashtra, are leveraging AI to optimize supply chains, enhance quality control, reduce waste, and enable mass customization. Smart factories equipped with IoT sensors and real-time monitoring systems are enabling SMEs and export-oriented units to transition from labour-intensive methods to precision-driven, automated processes. AI-enabled demand forecasting and inventory optimization are helping manufacturers mitigate the risks of overproduction and market volatility.

In parallel, the marketing landscape is undergoing a paradigm shift. Indian fashion retailers from homegrown D2C startups to legacy brands are increasingly deploying AI for hyper-personalized customer engagement, sentiment analysis, and influencer marketing strategies tailored to diverse linguistic and cultural demographics. Virtual try-ons, AI stylists, and voice-based shopping in regional languages are bridging the digital divide and reshaping consumer experiences across tier-2 and tier-3 cities.

By contextualizing global Industry 4.0 trends within the socio-economic and infrastructural realities of India, this research highlights key challenges such as digital skill gaps, data privacy concerns, and the need for robust policy frameworks. It also underscores opportunities for inclusive growth, sustainable production, and global competitiveness through strategic AI adoption. Ultimately, the convergence of intelligent manufacturing and intelligent marketing holds the potential to position India as a global hub for smart, sustainable, and culturally resonant fashion innovation.

Keywords: Industry 4.0, homegrown D2C startups, Virtual try-ons, digital skill gaps, AI stylists, inclusive growth and voice-based shopping.

Biography

Rajdeep Singh Khanuja, a gold medalist in Masters of Business Administration (Finance & Marketing), has been presently serving the National Institute of Fashion Technology, Bhopal, as an assistant professor and center coordinator in the Department of Fashion Management Studies. He had presented several research papers at various national/international conferences and also published papers in various good national/international journals, including the "Scopus Indexed Journal," as his contribution in the area of research. Adding to the perfect research environment constructed by him at the department, he has also completed his PhD in management in the area of "Accounting & Finance." The topic of his PhD is "An Analytical Study of Financial Ratios of Public and Private Banks of India." He successfully qualified for " National Eligibility Test (NET) "organized by the University Grants Commission (UGC) in the year 2012. His other academic qualifications include M.Com. (Accounts) & M.Phil. (Management). His teaching areas include fashion business research and fashion marketing. Strategic Management, Costing, Financial Management, Entrepreneurship Management, Consumer Behavior, etc. He has also handled the significant profile of "Controller of Examinations" at NIFT Bhopal. rajdeep.khanuja@nift.ac.in Dr. Rajdeep Singh Khanuja Title of Dissertation of PhD An Analytical Study of Financial Ratios of Public and Private Banks of India Area of Teaching and Research: Strategic Management, Marketing & Financial Management Assistant Professor, Fashion Management Studies, Bhopal

A cross-sectional study on the prevalence of depressive symptoms among left-behind children in Jiangsu, China

Yang Wenyi
Jiangsu Provincial Center for Disease Control and Prevention, China

Purpose: Left-behind children are an important group in China, but the direct relationship between the depressive symptoms status of this group and its important influences has not been well studied. The aim of this study was to investigate the prevalence of depressive symptoms among left-behind children in Jiangsu Province, China, to explore the risk factors associated with depressive symptoms, and to assess the correlation between depressive symptoms and anxiety, stress, and sleep quality.

Methods: We conducted a cross-sectional study in Jiangsu, China. Randomized whole-cluster sampling was used to select investigators. Sociodemographic data as well as physical and mental health status were investigated through questionnaires. Regression analysis was used to identify risk factors for depressive symptoms. Structural equation modeling (SEM) was used to analyze the relationship between depressive symptoms, anxiety, stress, and sleep.

Results: The prevalence of depressive symptoms among left-behind children in Jiangsu, China, was 23.8%, and multivariate regression analyses showed that girls, did not consume alcohol, had been scolded by their parents, and had suffered from bullying in school, anxiety, stress, and poor sleep quality were significantly associated with depressive symptoms. Structural equation modeling was used to explore the significant interrelationships among depressive symptoms, anxiety, stress and sleep.

Conclusion: Our study shows that depressive symptoms is common among left-behind children in Jiangsu, China. Comprehensive interventions can be taken to target left-behind children's mental health problems by population group and different life experiences.

Biography

Yang Wenyi is a researcher affiliated with the Jiangsu Provincial Center for Disease Control and Prevention (CDC) in Nanjing, China.

Their research interests primarily focus on public health issues affecting children and adolescents in Jiangsu Province. Key areas of their work include Mental Health, Student Health and Wellbeing, Epidemiological Characteristics of Diseases. He/she Yang often collaborates on studies utilizing data from the Jiangsu Provincial Center for Disease Control and Prevention's surveillance systems and health monitoring programs. Their publications can be found in journals such as China CDC Weekly and PLOS ONE.

A multi-dimensional cross-sectional study of adolescent depressive symptoms

Jie Yang
Jiangsu Provincial Center for Disease Control And Prevention, China

Objective: This study aims to integrate questionnaire survey data with voice acoustic feature data to analyze the prevalence, core influencing factors, and voice feature differences associated with adolescent depressive symptoms. The findings provide a scientific foundation for early identification and intervention in school-based depressive symptoms screening among adolescents.

Methods: Based on mental health data collected from December 2022 to December 2023 within the "School-based Evaluation Advancing Response for Child Health" (SEARCH) project in Jiangsu Province, a stratified cluster sampling method was employed to include 11,427 students aged 10-18 years for questionnaire surveys. Core influencing factors were identified through literature review, ULR, LASSO and MLR. Concurrently, voice data from 10,926 students were collected, and 91 acoustic features (timbre, prosody and spectrum) were extracted. Differential analysis (t-test, Mann-Whitney U test) and correlation analysis (Pearson correlation coefficient) were conducted to evaluate their association with depressive symptoms.

Results: The overall detection rate of adolescent depressive symptoms was 23.0% (2,631/11,427). Specifically, the detection rates were 22.3% (1,355/6,083) for boys and 23.9% (1,276/5,344) for girls. By educational stage, the detection rates were 10.4% (333/3,209) for primary school students, 22.4% (973/4,353) for junior high school students, and 34.3% (1,325/3,865) for senior high school students. The questionnaire study identified 15 core influencing factors, including gender, educational stage, regional economic level, academic performance ranking, holding student leadership positions, being a victim of bullying, insomnia, self-harm, frequency of sweet food intake, alcohol consumption, family environment intimacy, family environment conflict, family environment cultural aspect, family environment entertainment and family environment organization. Additionally. 67 voice features showed significant differences between the depressive symptoms and non-depressive symptoms groups ($P < 0.05$), with 32 positively correlated ($r = 0.01 - 0.16$) and 35 negatively correlated ($r = -0.18$ to -0.03).

Conclusion: This study describes the prevalence characteristics and core influencing factors of adolescent depressive symptoms, as well as the differences in voice acoustic features between depressed and non-depressed adolescents. It highlights that demographic, economic, social adaptation, and family environment and lifestyle behaviors are significantly associated with depressive symptoms. Furthermore, voice acoustic features offer a novel Approach for depressive symptoms screening, providing a scientific basis for the development of subsequent depressive symptoms risk prediction models and their Application in school-based screening.

Biography

Jie Yang is affiliated with the Jiangsu Provincial Center for Disease Control and Prevention (CDC) in China. Their work primarily focuses on public health research within Jiangsu Province, covering a range of topics. His/Her research interests includes Children and Adolescent Health, Infectious Diseases, General Public Health Trends. Jie Yang has published numerous articles in various journals, including China CDC Weekly, Journal of Affective Disorders, and other scientific publications. Their work often involves analyzing data from surveillance programs and large-scale observational studies within Jiangsu Province.

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Cancer detection and treatment using visual transformer deep learning techniques

Shakil Akhtar* and **Darshankumar Patel**
Clayton State University Morrow, USA

We investigate the burgeoning field of machine learning (ML) and its transformative potential in addressing complex challenges in cancer research, specifically in the areas of cancer cell growth detection, growth modeling, and treatment optimization. Driven by significant interest within the Clayton State University community and fueled by a recent NSF grant to CS/IT Department focused on medical imaging, skin cancer detection, and accessible diagnostic tools, this research explores the development and application of novel ML algorithms.

We first evaluate existing open-source ML software suites in Python, assessing their efficacy in processing medical image data and constructing predictive models for cancer growth and treatment response. Next, we delve into the intricacies of ML concepts that enhance computational efficiency, accuracy, and security in handling medical images. This involves meticulous identification and classification of cancer cells, coupled with the development of sophisticated models to simulate cancer growth dynamics. We also look at how the field of machine learning has evolved to the use of Visual Transformers for image detection and particularly skin cancer detection.

We adopt a holistic approach to data analysis, integrating both cellular analysis and image recognition techniques to enhance cancer detection accuracy. A comparative analysis of various ML-based software methodologies is conducted, rigorously evaluating their respective detection capabilities. Furthermore, we leverage publicly available datasets of cancer cell images, employing deep learning algorithms to discriminate between benign and suspicious samples. This analysis incorporates cutting-edge pattern matching algorithms, enabling a comprehensive assessment of the available data and facilitating potential cancer type diagnosis.

Keywords: Machine Learning, Deep Learning, Skin Cancer Detection, Vision Transformer.

Biography

Shakil Akhtar has been a Professor of IT and Computer Science at Clayton State University since 2007. He was the IT Department head during 2007-2008. Before that he was a Professor in the College of Information Technology at UAE University from 2002 to 2007, with interim Dean during 2003-2004. He has a Ph.D. in Computer Engineering from Wayne State University, MS in Electrical Engineering from King Fahad University of Petroleum and Minerals, Dhahran, Saudi Arabia, and a BS in Electrical Engineering from University of Peshawar. His main research interests are reliability/performance modeling of computer and communications systems, QoS and security issues of mobile systems, wireless LAN standards and CS/IT education. His other prior work experience includes Computer Science/Engineering Departments at Central Michigan University, University of Toledo, and King Fahad University of Petroleum and Minerals, Dhahran, Saudi Arabia.

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An adaptive loss function for enhanced image segmentation

Haroon Haider and **Majid Iqbal**
COMSATS University, Pakistan

A Machine Learning (ML) model's performance is strongly influenced by how well the training process works. Since it establishes the ML model's learning curve and provides suggestions for improving the model's optimisation, the loss function is crucial to training. For models used in tasks like image classification and semantic segmentation, the selection of the loss function is essential. Data is taken from several image characteristics during the segmentation process, which may result in a reduced gradient value that makes model training difficult, especially in high-dimensional scenarios using traditional loss functions. Furthermore, foreground objects frequently overlap background objects as the number of classes rises, resulting in inaccurate and imprecise recognition. A dynamic loss function that can self-adjust to manage class imbalance difficulties is required to address these problems. In order to address the problem of class imbalance, this work proposes an Adaptive Intelligence Loss function (AIL) that may adapt itself during the model's training process. The performance of the suggested dynamic loss function was compared with state-of-the-art loss functions employing various machine learning models through experiments on three imbalanced medical image datasets Kvasir-SEG, CVC-Clinic and BUS2017. The findings show that during the training process, the proposed loss function integrated with any deep learning model with an accuracy of 98.8% and dramatically decreased the convergence time by limiting the loss to 0.01%. The AIL is an effective loss function that can identify small polyps early-on, that the other cutting-edge models missed. Integrated with various machine learning models it demonstrated enhanced precision, accuracy and recall throughout the validation procedure.

Keywords: Semantic Segmentation, loss function, class imbalance, Adaptive

Biography

Haroon Haider Khan PhD (COMSATS UNIVERSITY Islamabad, Pakistan), Dean Computer Science department Roots IVY College and University affiliated with University of Bedfordshire and Portsmouth UK. His primary scope of research is in Deep Learning and Machine learning algorithms. He is also a speaker at international forums and a member of review committee of various international journals.

Has to his credit a total of 21-year experience of teaching and as a visiting Professor in Higher Education Commission recognized universities like International Islamic University and University of Lahore. Also works in the capacity of an independent consultant and CEO of software firm HPsoft which provides IT solutions to small and medium sized businesses.

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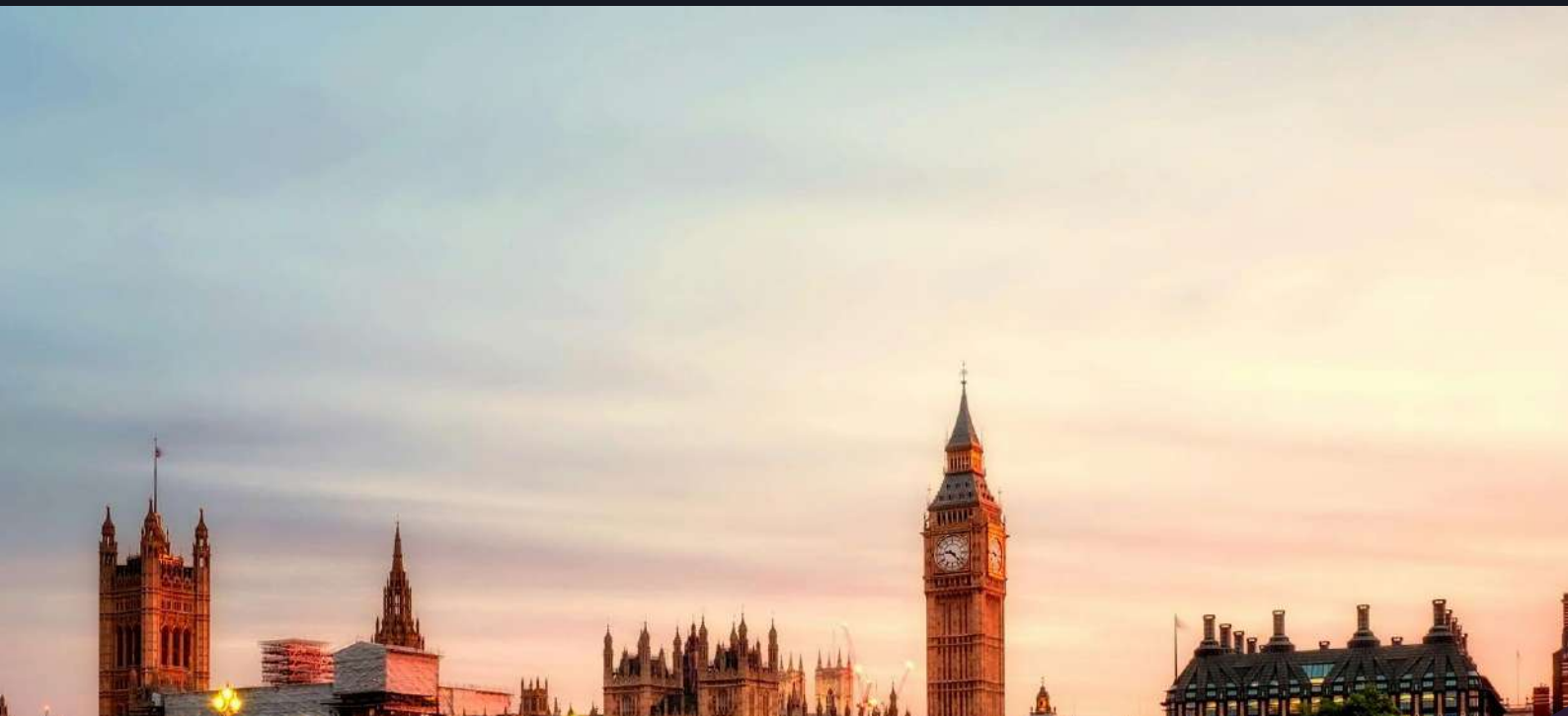

Scientific Abstracts

DAY 2

2nd International Conference on

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July 21-22, 2025 | London, UK

Enhancing the sharing and the management of personal data in cybersecurity landscape

Domenico Desiato
University of Bari Aldo Moro, Italy

Cybersecurity is becoming increasingly vital in our interconnected digital ecosystem. The rapid advancement of information technology has yielded significant benefits across various sectors, primarily owing to the exponential growth of data availability. Analytical methodologies have facilitated the development of advanced applications in precision medicine, e-commerce, crowd management, and fraud detection domains. However, this technological evolution has concurrently paved the way for new cybersecurity challenges that require vigilant management and oversight, particularly when these threats have tangible consequences for end-users. As the threat landscape evolves, there is a growing demand for robust and effective cybersecurity solutions. A critical focus area is protecting sensitive data, representing a key attack vector for threats like phishing, spam, ransomware, and more. Additionally, social engineering attacks leverage poorly managed or inadequately privatized social media data, enabling targeted schemes designed to defraud users.

Enhancing privacy awareness among social network users regarding data management practices is imperative to mitigating these cybersecurity risks. Furthermore, integrating increasingly sophisticated AI models poses significant risks related to sensitive data exposure. Data analytics initiatives leveraging these AI capabilities must incorporate data privacy and anonymization strategies to ensure that insights can be gleaned without compromising sensitive information. This necessitates a careful balance between data utility and privacy/anonymization, highlighting the need for innovative methodologies to harmonize these often conflicting objectives.

Lastly, the concept of cyber-social security involves the proactive monitoring of activities such as cyberbullying, hate speech, misogyny, and the identification of fake accounts. To effectively address these issues, it is necessary to harness technological advancements, particularly large language models (LLMs), to empower end-users to recognize and prevent such cyber-social threats. Through these efforts, it is possible to enhance both cybersecurity and the overall safety of online interactions.

Keywords: Data Security; Data Anonymization; Data Privatization; Privacy-preserving Social Network Data; Privacy- preserving Machine Learning Approaches; Security Prevention; Data Analysis; Privacy Awareness in Cybersecurity Scenario; Cybersecurity.

Biography

Domenico Desiato received from the University of Salerno an MSc (cum laude) in Computer Science and a PhD in Computer Science and Information Engineering. He is currently an assistant professor and postdoctoral researcher at the University of Bari Aldo Moro, Department of Computer Science. He regularly serves as a reviewer in conferences and journals, such as Information Sciences (Elsevier), Computer & Security (Elsevier), Big Data Research (Elsevier), IEEE Access, 12th International Conference on Model and Data Engineering, and the 35th International Conference on Software Engineering & Knowledge Engineering.

He is a program committee member of the 29th International DMS Conference on Visualization and Visual Languages and the IEEE International Conference on AI x Data & Knowledge Engineering. Moreover, he served as guest editor of the Special Issue on Data Security in IoT Networks Applied Sciences (ISSN 2076-3417). His research interests include data privacy, data security, data anonymization, big data, privacy-preserving machine learning, social network data sharing, improving users' privacy awareness in social network platforms, cybersecurity, fake account identification, and cyberbullying detection.

Predicting hypertension risk using machine learning technique with a web application interface

Damilare Timileyin Daramola[1*], Folasade Mojisola, Dahunsi[1], Ponmile Idaresit[2] and **Ogunjemite[2]**

[1]*Federal University of Technology Akure, Nigeria*
[2]*Pioneer Medical Initiative, Nigeria*

Hypertension, a leading cause of cardiovascular disease and mortality globally, poses significant challenges in resource-limited regions like Africa. Early detection and management are essential for reducing its impact. This research introduces a machine learning-based platform designed to predict hypertension risk and assist in its management for patients and healthcare professionals. Utilizing a Decision Tree model with a 97% accuracy rate, the platform outperformed other models like Logistic Regression and Support Vector Machines. Key features include personalized health dashboards, real-time monitoring, direct communication with healthcare providers, and secure data management. For professionals, it offers tools for patient management, data-driven insights, and seamless integration with electronic health records (EHR) systems. Data were collected from outreach programs in Nigeria, including parameters such as age, sex, systolic and diastolic blood pressure, and body mass index. The platform's architecture is built for efficient data processing and scalability, adaptable to different healthcare settings. The results highlight its potential to improve hypertension prediction and management, offering valuable tools for early intervention. Future work will expand the dataset, integrate additional health parameters, and explore advanced machine learning techniques to enhance predictive capabilities. This research contributes to digital health innovation in Africa, providing a scalable solution for various healthcare environments.

Keywords: Hypertension, Machine Learning, Medical Informatics, Africa, Electronic Health Records (EHR).

Biography

Damilare Timileyin Daramola, who is on the verge of completing his first degree in computer engineering from the Federal University of Technology, Akure (FUTA), Nigeria, is carving his niche in the field of bioinformatics and healthcare technology, with a focus on machine learning applications and data-driven healthcare systems. His research interests include predictive modeling, health informatics, artificial intelligence, and digital healthcare solutions.

He has held various roles, including FUTA Network Director at Pioneer Medical Initiative, and he is currently a fellow at Arewa Data Science Academy, contributing to both academic and industry-driven research. He is an active member of Black in AI and has been actively involved in initiatives aimed at promoting technology-driven healthcare. He also gives his time to mentoring and fostering technological innovation among young individuals, with involvement in initiatives such as Teens Launch Africa and Pioneer Medical Initiative, among others.

Cancer Detection and Treatment Using Visual Transformer Deep Learning Techniques

Shakil Akhtar and **Darshankumar Patel**
Clayton State University Morrow, USA

We investigate the burgeoning field of machine learning (ML) and its transformative potential in addressing complex challenges in cancer research, specifically in the areas of cancer cell growth detection, growth modeling, and treatment optimization. Driven by significant interest within the Clayton State University community and fueled by a recent NSF grant to CS/IT Department focused on medical imaging, skin cancer detection, and accessible diagnostic tools, this research explores the development and application of novel ML algorithms.

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His published research consists of papers in international journals and proceedings of international conferences, including papers in IEEE Transactions on Reliability, Computer Communications, WSEAS Transactions on Mathematics, ASEE Annual Conference & Exhibitions, Spring and Summer Simulation Multiconferences, SIGCSE Technical Symposiums on Computer Science Education, etc.

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Strain-modulated electronic properties of graphene and MoS_2 -based heterostructures

Shivani Kumawat[1], Chandan Kumar Vishwakarma[2], M. Zeeshan[1], Indranil Mal[1], Sunil Kumar[1] and **B. K. Mani[1]**

[1]*Indian Institute of Technology, New Delhi, India*
[2]*University of California, USA*

Graphene (G) is known as a "wonder material," which offers a plethora of unique electronic and optical properties [M. Bernardi et al., 2013]. Transition Metal Dichalcogenides (TMDs), on the other hand, are semiconductors known for their large surface-to-volume ratio compared to conventional materials [Xiao Li et al., 2015]. The combination of graphene and TMDs into vertically stacked heterostructures has opened new avenues for technological applications such as photodetection, field-effect transistors, and biosensing. An application of strain in these heterostructures is reported to enhance the functional properties of these materials [N. Ghobadi, 2019].

In the present work, we employ first-principles calculations to investigate the structural, electronic, and optical properties of vertically stacked graphene and MoS2 (M)-based heterostructures, such as GM (bilayer), GMG (trilayer), and MGM (trilayer). Our simulations reveal the emergence of small band gaps of 8.6 meV.

11.4 meV and 5.1 meV in GM, GMG, and MGM heterostructures, respectively, suggesting potential for applications that require controlled electronic properties. Additionally, we calculated the static dielectric constants for G, M, GM, GMG, and MGM structures and observed enhancements in the dielectric properties.

Optical property simulations demonstrate significant improvements, particularly in the MGM heterostructure, where absorption is found to be enhanced in the far-infrared regions compared to individual monolayers. Furthermore, we explore the influence of uniaxial strain on these heterostructures. Our results indicate that the tensile strain enhances the band gap more effectively than compressive strain, providing tunability for optoelectronic properties. These findings highlight the potential of graphene and MoS_2 heterostructures for advanced technological applications, including optical sensors, modulators, and photodetectors [C. K. Borah et al., 2020]. Moreover, our work provides valuable insights into the interplay of structural and electronic properties under uniaxial strain, paving the way for future innovations in nanoscale devices.

Keywords: Heterostructure, Transition Metal Dichalcogenides (TMDs)

Biography

Shivani Kumawat is a PhD scholar in the Physics Department at the Indian Institute of Technology (IIT) Delhi, India. She joined IIT Delhi in January 2021 under the joint supervision of Prof. Brajesh K. Mani and Prof. Sunil Kumar. Her research work is centered on 2D materials and their heterostructures. She explores the electronic.

optical, magnetic, and valleytronic properties of novel materials using density functional theory (DFT) calculations. Her specific interest lies in graphene, transition metal dichalcogenides, Janus transition metal dichalcogenides, and their heterostructures, investigating their potential applications in next-generation electronic, optoelectronic, and magnetic devices. In addition to theoretical studies, she actively collaborates with experimental groups to validate computational predictions and explore practical implementations.

The future of artificial intelligence in academic research

Abdul Malik*, **Irfan Bashir, Afshan Naseem, Nargis Bhatti** and **Fariha Gul**
University of Management and Technology, Pakistan

The rapid advancement of Artificial Intelligence (AI) is reshaping academic research, offering new methodologies for data analysis, literature synthesis, and knowledge creation. This paper explores the transformative role of AI in academic research, focusing on its implications for research methodologies, ethical considerations, and knowledge management. While AI enhances efficiency in scholarly work, concerns regarding bias, authenticity, and intellectual property rights persist. The study also examines the role of AI-driven tools in facilitating interdisciplinary collaboration and innovation. The findings highlight both opportunities and challenges, emphasizing the need for governance frameworks to ensure responsible AI integration in academia.

Biography

Abdul Malik is a research associate at the University of Management and Technology, Lahore, Pakistan. His research focuses on the intersection of artificial intelligence and higher education, with a particular emphasis on AI-driven transformations in academic research and knowledge management. He has contributed to several scholarly publications addressing the future of AI in education.

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Adult's interpersonal relationships and resilience during work from home in COVID-19: An exploratory study

Nidhin Pallikkara Kuttyadan[1] and **Athulya Sreekumary**[2]

[1]*Kings College Hospital, UK*
[2]*Doncaster and Bassetlaw Teaching Hospital, UK*

Background and Objective: Covid-19 has caused unheard-of shifts in our workplace culture, and as a result, its consequences are being investigated globally to develop a thorough grasp of how to manage them. The goal is to evaluate the literature and investigate the idea of working from home, as well as any potential effects it might have on psychological traits including resiliency, loneliness, and interpersonal interactions.

Methods: A cross sectional study from May 2022- June 2023 was conducted among individuals working from home during the Covid-19 pandemic under the Department of Psychology. Data collection was done during a period of 3-months and the form was circulated online and consent was obtained from all participants. The sample comprised of 300 individuals - 160 males and 140 females, within the age range of 18-60 years, who had been working from home actively for at least 4 hours a day, for the past six months, having a bachelor's degree or pursuing a bachelor's degree and are proficient in English.

Results: There were a total of 168 (59.4%) unmarried individuals and 132 (40.6%) married individuals. Further the sample was divided into various age groups consisting of 142 individuals (47%) in the 18-30 age group, 60 (20%) in the 31-40 age group, 60 (20%) in the 41-50 age group, and 38 (13%) in the 51-60 age group. Comparison of age means for all dependent variables group differences were found to be significant for Loneliness, Resilience and FACES (Subscales 2 and 3) at 0.01 confidence level.

Conclusion: The findings indicate that those who are single or younger in age (18 to 30) are most affected, with low resilience, high symptoms of loneliness, and deteriorating mental health. The research's specific analyses, restrictions, and suggestions must be further explored.

Keywords: Covid- 19 Pandemic, Work from Home, Resilience, Loneliness, Meaning in Life Hope, Life Satisfaction

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Fear of corona and psychological distress among teachers after returning to teaching under the corona pandemic

Athulya Sreekumary[1] and **Nidhin Pallikkara Kuttyadan**[2]
[1]*Doncaster and Bassetlaw Teaching Hospital, UK*
[2]*Kings College Hospital, UK*

Background and Objectives: The fear of the corona virus and the psychological discomfort experienced by teachers after returning to the classroom were two psychological repercussions of the spread of the corona virus that were mentioned in much earlier research. The current study aims to ascertain the degree of psychological distress, fear of Corona, and the relationship between the two among teachers upon their return to face-to-face instruction.

Methods: After taking their initial agreement, the questionnaire was distributed among the teachers in several schools after they showed their agreement to participate in filling out the questionnaire. They were informed of the aim of the study concerning all the ethical issues in preserving the confidentiality of the information and that the information will be used for scientific research only. Accordingly, the questionnaire was distributed to 300 teachers in the by the simple random sample method.

Results: The study was female preponderance with 54% are female teachers and most common age group was 30-39 years comprising 45% participants followed by 40-49 years. There are no statistically significant differences in the level of fear of Corona among the teachers, which is due to the variable of gender. There are no statistically significant differences at the significance level of in the level of psychological distress among the teachers according to the variable of age. There is a positive relationship with statistical significance between fear of Corona and psychological distress among the teachers.

Conclusion: According to the study, psychological distress and fear of Corona are positively correlated. To strengthen the teachers' non-knowledge abilities and safeguard them against the detrimental effects of the phenomena of fear and psychological distress, it is vital to develop their flexibility and emotional adaptability.

Keywords: Depression, Stress, Anxiety, Fear of Corona, Psychological Distress

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Management of higher-order aberrations vision of irregular cornea with specialty lenses

Moataz Nady Elhelaly[1*], Moustafa abd Alaziz[2] and **Ahmed Zamzam[3]**

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Keratoglobus is a rare corneal disorder characterized by generalized thinning and protrusion of the cornea, leading to significant visual disturbances and increased higher-order aberrations (HOAs). This case report focuses on a 25-year-old male with keratoglobus and corneal opacity, who was referred for specialty contact lens fitting. The management strategy involved applying various specialty lenses, including a semi-scleral lens for the right eye and a soft customized lens for the left eye, to address the irregular corneal profile and enhance visual acuity.

Initial assessments revealed a markedly irregular corneal topography, with the thinnest point of the right cornea measuring 38 micrometers and the left cornea measuring 87 micrometers. After several fitting attempts, the semi- scleral lens improved visual acuity in the right eye from 6/90 to 6/12, while the soft customized lens enhanced the left eye's vision from 6/36 to 6/12.

This case underscores the importance of customizing lens as per k readings anterior chamber depth, type of corneal profile and lens parameters base curve sag depth lens material and characteristics in the management of keratoglobus, can provide substantial improvements in visual outcomes and patient satisfaction. The findings highlight the critical role of specialty contact lenses in addressing complex corneal conditions and the need for continued exploration of customized solutions in optometric practice. Through meticulous fitting and adjustment, patients with keratoglobus can regain visual independence, transforming their daily experiences and overall quality of life.

Biography

Moataz Nady Elhelaly has completed his BSc science in optics technology at the age of 22 years from Higher Institute of Optics Technology Egypt, got his professional doctorate in 2023 , published scientific papers about specialty lenses on general medicine open access and international scientific journals , and he is member of European Academy of Optometry and optics , England , built his experience in Kuwait with practice more than 10 years HASSAN'S OPTICIAN CO. till now and he is teaching assistant institute and held position of head training in same optical company for ophthalmic and contact lenses.

Alchemy of presence

Saroj Dubey
Kailash Hospital Noida, India

I propose to give a talk (keynote lecture) titled THE ALCHEMY OF PRESENCE. In this, I would like to discuss the strategies I employed that helped me deal with a challenging professional situation. A patient on whom I performed an ERCP developed a life-threatening complication and subsequently died. The incident broke my heart and led to a lot of heartache, despair, grief, fear, and guilt. Since I was on the path of meditation and mindfulness for many years, I decided to incorporate the teaching into real life. I decide that rather than suppress my emotions and feelings, I should embrace them fully and openly, with complete presence. True resilience develops when we are able to embrace and feel our emotions mindfully and allow them to be a portal to peace and equanimity. When we are able to ACCEPT our situation completely without resistance and by SURRENDERING to the present moment, we are able to transcend it. It causes an ALCHEMY of emotions and allows the transmutation of dark emotions like fear, guilt, and despair to the lightness of joy and stillness. Also, in the act of EMBRACING all our dark emotions, we also gain access to a vast inner space and are able to explore our true nature deeper than our thoughts and emotions. I have also described this process of being broken open, surrendering, and alchemy in my book Rx for RESILIENCE, published by Hay House.

Biography

Saroj Dubey is an author, a motivational and TEDx speaker, and a medical doctor a practicing senior consultant gastroenterologist in Delhi NCR. Apart from his medical practice, he is deeply passionate and curious about exploring life and helping others to lead a richer, more meaningful life. He takes classes where he helps people to step out from their mind identification and thoughts and become more engaged with the present moment and say yes to it in whatever form it arrives. He guides people to become more mindful and present, which in turn fosters greater joy and creativity and helps in living a more fulfilled, abundant life. He delves into his personal experience, which he has discussed in the book Rx for Resilience with great honesty and detail. He is a motivational speaker, where he motivates people to merge the dance of doing with the stillness of being. He gave a TED Talk in Pune on “The Art of Doing and Being.’

The productivity paradox: A longitudinal study of generative ai adoption and its socio-technical barriers in the Nigerian public sector

Gideon M. Adogbo and **Didi Esther Walson-Jack**
Office of the Head of the Civil Service of the Federation, Nigeria

This paper investigates the adoption and impact of "Service-Wise GPT," a generative AI tool deployed within the Nigerian public sector, to enhance the efficiency and productivity of the Civil Servants, and to understand the challenges of digital transformation in low-resource environments. Through a longitudinal, mixed-methods analysis of two user surveys conducted in January (N=478) and June 2025 (N=111), this study identifies a new productivity paradox. The findings reveal a significant positive evolution in user behavior, with daily usage increasing and a dramatic shift towards more sophisticated tasks, including a nearly four-fold rise in data analysis (from 9.2% to 34.2%). Concurrently, perceived productivity skyrocketed, with the mean impact score jumping from 5.7 to 8.6 out of 10.

However, these tangible individual gains are systematically undermined by persistent socio-technical barriers, including poor digital infrastructure, prohibitive personal costs for data and subscriptions , and a lack of adequate hardware. This friction creates a competence-frustration cycle, where growing user reliance on the tool intensifies frustration with these environmental constraints. Furthermore, the study uncovers a governance-trust asymmetry, while 72% of users are comfortable with AI in government, 58.6% harbor specific concerns about data privacy and security.

The paper concludes that while generative AI demonstrates immense potential to enhance individual efficiency, its ability to drive broad organizational transformation is severely constrained. Realizing AI's promise in the public sectors of the Global South requires a holistic strategy that moves beyond the technology itself to address foundational infrastructure, equitable access models, and robust, user-centric governance frameworks to build institutional trust. By combining empirical feedback and policy analysis, we aim to offer a blueprint for ethical AI in low-resource public sectors, balancing innovation with safeguards that uphold equity and public confidence.

Keywords: Generative AI, Public Sector, Digital Transformation, Low-Resource Environments, Socio-Technical Systems and Productivity Paradox.

Biography

Gideon Adogbo is a Senior Technical Advisor on Governance Reforms, Technology and Innovation in the Office of the Head of the Civil Service of the Federation, The Presidency, Nigeria. In this role, he leads the design and implementation of AI driven digital transformation initiatives—most notably Service Wise GPT—and coordinates FCSSIP 25 war rooms for strategic performance tracking and accountability. His work revolves around policy development, innovation, digital transformation, capacity building, and forging partnerships to advance Nigeria's Civil Service AI initiatives. He holds a PhD in Chemical Engineering and

an MBA from MIT with additional professional education from Harvard, UC Berkeley, LSE, and Imperial College. He was a visiting Fellow at MIT Sloan School of Management. His research interests relate to AI in public sector governance, innovation, technology enabled productivity in low resource settings, and ethical frameworks for digital innovation.

Assessing mechanical and fracture damage mitigation by polydopamine functionalized milled GO in epoxy nanocomposites

Sandeep Kumar Singh, Thingujam Jackson Singh and **Laishram Dhanabir Singh**
National Institute of Technology, India

Fascinating features of 2D structured carbon nanomaterials such as graphene oxide have garnered significant interest due to their potential to enhance the mechanical strength and fracture toughness of epoxy composites. However, challenges still lie in improving their dispersibility within polymers and enhancing interfacial interactions. This paper investigates the exfoliation level and effective surface functionalization of wet ball-milled graphene oxide (BGO) using bio-inspired dopamine functionalization. The process demonstrated improved exfoliation and stronger interfacial bonding with the epoxy matrix which are crucial for fabricating high-performance nanocomposites. The amine-functionalized BGO was thoroughly characterized through various techniques: FESEM for morphology, FT-IR for identifying surface functional groups, AFM for examining surface topography, TGA for thermal degradations, and Raman spectroscopy for structural analysis. The hybrid epoxy nanocomposite reinforced with surface functionalized D-BGO3hrs@1% demonstrated significant improvement in tensile strength (~45%), tensile strain (~57.4%), and tensile modulus (~58%) with respect to the control. Similarly, flexural properties such as FS, FSt, and FM of the D-BGO3hrs@1% nanocomposites were increased by ~37%, ~34%, and ~42%, respectively, compared to the control. The fracture toughness and energy increased by 2.32 $MPa{\cdot}m^{1/2}$ (160.6%),1.36 kJ/m^2 (423%), and surface indentation resistance by 40% compared to the control at the above filler wt.%. This improvement is attributed to the superior dispersibility of D-BGO3hrs, which ensures strong and consistent interfacial interactions with the epoxy matrix, enhancing the materials' resistance to fracture. FESEM images show improved surface roughness, shear steps, and crack branching, all contributing to improved fracture toughness. The results demonstrate that incorporating D-BGO3hrs@1% notably improves the fracture toughness and energy absorption of epoxy composites, highlighting their potential for diverse industrial uses.

MENTAL HEALTH 2025

DAY

POSTERS

DAY 1

2nd International Conference on

MENTAL HEALTH AND HUMAN RESILIENCE

July 21-22, 2025 | London, UK

Reinforcement learning-based topology optimization for shimming-aware design of a 3 T MRI magnet

Geonyoung Kim
Seoul National University, South Korea

Magnetic resonance imaging (MRI) magnets have long been designed using stochastic optimization models such as Monte Carlo sampling, simulated annealing, or genetic algorithms to explore coil geometries and ferromagnetic insert layouts. Although these methods can traverse broad design spaces, they often require thousands of evaluations, exhibit slow convergence, and struggle to satisfy stringent shimming requirements or to minimize higher-order field inhomogeneities simultaneously.

To address these challenges, a reinforcement learning (RL)–driven topology optimization framework that directly embeds shimming constraints into its design policy is introduced. This approach represents the magnet cross-section as a discretized grid of potential coil windings and shim insert regions. At each iteration, an RL agent observes the current field map characterized by low- and high-order spherical harmonic coefficients and selects actions that modify local material or conductor placement. The reward function balances overall field uniformity (e.g., peak-to-peak homogeneity) with reduction of specific high-order terms critical for advanced imaging.

This work implements this method using proximal policy optimization (PPO), training the agent in a physics-based simulation environment that computes field maps via a fast boundary-element solver. Over several hundred training episodes, the agent learns to propose coil topologies and shim configurations that achieve target homogeneity levels with 25% fewer iterations than a baseline genetic algorithm.

Leveraging the trained policy, a complete 3 T MRI magnet whose simulated field inhomogeneity falls below 1.8 ppm over a 26 cm diameter spherical volume is designed. This work demonstrates that reinforcement learning can not only accelerate magnet design but also discover non-intuitive topologies that meet complex shimming requirements, paving the way for more efficient development of high-performance MRI systems.

Keywords: MRI Magnet, Reinforcement Learning, Topology Optimization, Shimming

Biography

Geonyoung Kim is a PhD student from the Department of Electrical and Computer Engineering at Seoul National University in South Korea, driven by the dream of contributing to the advancement of the world through engineering. His/her primary area of expertise is in superconducting magnet applications, with a particular focus on developing dipole magnets for use in high-field MRI or particle accelerators. Ever since he/she was young, He/She have aspired to be an engineer, which led me to enroll in the Department of Electrical and Computer Engineering at Seoul National University for his/her undergraduate studies. Over the past ten years, his/her have continued to nurture that dream.

2nd International Conference on
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NOVELTICS GROUP

JULY 21-22, 2025 | LONDON, UK

Application of machine learning for training load analysis and physical development assessment in elite women's football

Martyna Ławniczak
Adam Mickiewicz University in Poznań, Poland

This project aims to develop a comprehensive analytical framework for evaluating training loads and assessing the physical development of female football players using intelligent algorithms and data derived from the Catapult athlete monitoring system. While GPS-based tracking tools are widely adopted in elite sports environments, the analytical approaches commonly used to interpret such data often lack the nuance and complexity required for individualized performance assessment and optimal training adaptation, particularly in women's football, where research and resources have historically been limited.

The proposed methodology integrates advanced machine learning techniques to identify patterns in physical workload, classify training sessions, and predict player readiness, fatigue, and developmental trajectories. The model will be specifically tailored to the demands of elite women's football and will incorporate a wide range of key performance indicators, including total distance covered, sprint count, running pace, high-intensity efforts, accelerations, decelerations, and metabolic power index, among others.

Training and match data will be collected throughout the competitive season from players of the KKS Lech Poznań UAM women's football team using the Catapult GPS system. The accumulated datasets will be processed, cleaned, and analyzed to build robust predictive models that track individual progress, identify anomalies, and forecast physical performance trends over time.

The outcome of the project will be a machine learning–powered tool to assist coaching staff in data-informed decision-making, enabling smarter load management, injury risk reduction, and improved physical performance in female athletes. This research represents a step forward in the application of artificial intelligence in women's sports science, promoting evidence-based practices in high-performance environments.

Keywords: Machine Learning, Training Load, Women's Football, Sports Science, GPS Tracking, Injury Prevention

Biography

Martyna Ławniczak is a first-year master's student in Data Analysis and Processing at Adam Mickiewicz University in Poznań. She holds a bachelor's degree in medical biotechnology and a second bachelor's degree in bioinformatics. Her academic background reflects an interdisciplinary interest in both life sciences and computational methods. She has developed a particular interest in the role of data across scientific domains. and its impact on evidence-based decision-making. Currently, she is focusing on the application of data science techniques in sports performance analysis. Her research interests include athlete monitoring, machine learning, and sports data analytics. She intends to explore these topics further in her master's thesis, using data from elite women's football to support training optimization and physical development assessment.

Analysis and modeling of player movements – distance, speed, and dynamic acceleration changes using IMU sensors in the justwin smartband

Tomasz Kuczyński* and **Patryk Żyliński**
Adam Mickiewicz University, Poland

This project aims to develop a precise reference system based on Ultra-Wideband (UWB) technology and to collect, analyze, and model motion data from both this system and sports smartbands equipped with Inertial Measurement Unit (IMU) sensors, including accelerometers and gyroscopes. The goal is to enhance the accuracy of existing methods and establish a reliable framework for estimating an athlete's speed, distance, and dynamic acceleration without relying on GPS.

The project will begin with the design, calibration, and deployment of a custom UWB-based reference system providing real-time, high-precision positional data. This system will label and validate data collected from smartbands during sports training sessions. The training protocols will include a wide range of

football-specific movements sprints, sharp turns, dribbles, and interval runs conducted under realistic field conditions with athletes of varying physical profiles, ensuring a representative dataset.

Collected data will be processed using advanced signal filtering, Pedestrian Dead Reckoning (PDR) methods, and machine learning algorithms for time-series sensor data. Special focus will be placed on adapting models to individual differences and dynamic contexts. Data from both UWB and IMU systems will be synchronized and analyzed to detect patterns, reduce noise, and develop algorithms that generalize well across varying conditions.

The project will yield a validated motion dataset and a predictive model capable of estimating speed and distance using only IMU data. The model will be iteratively optimized and tested against UWB ground truth. The resulting solution is expected to be robust, scalable, and applicable in both professional and amateur sports, offering a GPS-independent method for accurate motion tracking, including in indoor environments. This research also supports future integration into commercial wearables.

Biography

Tomasz Kuczyński is a master's student in computer science, specializing in artificial intelligence, at Adam Mickiewicz University in Poznań, Poland. He currently works as an ML Developer at the university's Artificial Intelligence Center, where he focuses on implementing and optimizing machine learning models for real-world business and technological challenges. His research centers on the application of machine learning in sports, with a particular interest in sports data analysis and motion tracking using sensor data. He is especially focused on developing predictive models based on IMU signals, exploring the limitations of traditional approaches, and leveraging modern AI techniques.

Machine learning-driven near-infrared spectroscopy for multidimensional coffee quality assessment

Piotr Andrzejewski and **Kaj Skubiszak**
Adam Mickiewicz University, Poland

This project aims to create an analytical system that combines NIR spectroscopy with advanced machine learning algorithms for rapid, non-destructive coffee quality assessment. Traditional analysis methods are time-consuming and costly, while the proposed solution offers an efficient alternative without compromising accuracy. The research will involve creating a database of NIR spectra from coffee samples with varying parameters, conducting laboratory analysis, and performing sensory evaluation. After spectral data preprocessing, various models will be compared, from classical chemometric methods to deep neural networks, with particular emphasis on multi-task models. The system will enable rapid determination of coffee's chemical composition and objective assessment of its sensory profile. The non-destructive nature of the method will allow for direct analysis on the production line at the Coffee Roastery in Sułaszewo (JDE). Project results will be presented in the form of a conference poster.

Biography

Piotr Andrzejewski and Kaj Skubiszak are master's students in the IT Department at the Faculty of Mathematics and Computer Science, specializing in artificial intelligence. Their academic activities focus on the application of advanced machine learning techniques to real-world problems, with a particular interest in integrating AI with scientific instrumentation and data analysis. Their current research centers on developing analytical systems that combine near-infrared (NIR) spectroscopy with state-of-the-art machine learning algorithms for rapid, non-destructive quality assessment in the food industry. They are actively involved in laboratory work, data processing, and the implementation of both classical and deep learning models. Their broader interests include the development of intelligent systems for industrial applications, data-driven decision-making, and the advancement of AI methodologies for sensory and chemical analysis.

DAY

Accepted Abstracts

DAY 1

International Conference on

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

July 21-22, 2025 | London, UK

Addressing mental health and substance abuse in somaliland: A community-centered research approach

Ayan Abdilahi Abdi
Miyir Kaab Rehabilitation Center, Somalia

Miyir Kaab Recovery and Rehabilitation Center is actively addressing the growing mental health and substance abuse challenges in Somaliland, with particular focus on the widespread use of Qat, a culturally ingrained substance. As the country's only specialized rehabilitation facility, Miyir Kaab is uniquely positioned to conduct critical research that investigates the complex interrelationship between addiction and mental health disorders.

This study aims to assess the prevalence and severity of mental health conditions across various districts in Somaliland using data gathered from 150 randomly selected households. While acknowledging the need for broader-scale research, our current initiative provides valuable insight into the immediate concerns affecting our communities.

The study also evaluates the effectiveness of existing treatment methods used by local mental health service providers, identifying both successful practices and areas requiring improvement. In addition, the research captures community attitudes toward mental health and addiction, helping to uncover prevailing stigmas and barriers that hinder access to care.

Using a mixed-methods approach including surveys, structured interviews, and focus groups we seek to construct a comprehensive understanding of Somaliland's mental health landscape. Our findings aim to inform the development of more responsive, culturally appropriate treatment strategies while also promoting a societal shift toward greater openness and dialogue around mental health issues.

This research represents a crucial step in laying the foundation for a robust and inclusive mental health care system in Somaliland one that supports sustainable recovery and rehabilitation for individuals and families affected by addiction and psychological disorders.

Prevalence and factors associated with the multiple morbidity of postpartum depression, diabetes mellitus and hypertension among mothers in Mbarara District, South Western Uganda: A parallel convergent mixed methods study

Catherine Atuhaire
Mbarara University of Science and Technology, Uganda

Background: The occurrence of multiple morbidities of postpartum depression (PPD), hypertension and diabetes mellitus (DM) among mothers poses a health care challenge because it not only affects the mother but also the life of the new born baby and that of close family members. Therefore, this study aimed at examining the prevalence and factors associated with these comorbidities among mothers in public health facilities in Mbarara, south western Uganda.

Methods: We conducted a facility based cross sectional study using parallel convergent mixed methods to collect information from 309 postpartum mothers between 6 weeks and 6 months after childbirth. Using consecutive sampling, mothers were enrolled from postnatal clinics of two health facilities in rural southwestern Uganda. PPD was diagnosed using the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5). DM was diagnosed by measuring Hemoglobin A1c (HbA1c). Hypertension was diagnosed when a person's systolic blood pressure (SBP) was ≥140 mm Hg and/or their diastolic blood pressure (DBP) was ≥90 mm Hg following repeated examination. Logistic regression was used to determine the factors associated with multiple morbidity. In the qualitative phase, 20 key informant interviews were conducted purposively. The interviews were audio recorded, transcribed verbatim and analyzed thematically.

Results: The prevalence of multiple morbidity was 13.6% (95% CI: 10.2-19.3%). Having high cortisol levels was the only factor significantly associated with multi-morbidity among mothers with PPD OR = 6.9, (95% CI: 3.29- 14.47), $p<0.001$. In addition, this study revealed that psychological and socioeconomic factors, intimate partner violence and life style changes were likely to predispose the mothers to the multiple morbidity of PPD, Hypertension and DM.

Conclusion: High cortisol levels was associated with suffering from multiple morbidities of PPD, hypertension and DM. This study recommends early screening and diagnosis of PPD and other non-communicable diseases.

The hidden power of human resilience: Rewiring the mind for growth after adversity

Cornelius Edison
Lift Fitness Studio, USA

The ability to adapt, recover, and grow stronger after adversity is not just a psychological trait but a trainable process rooted in mindset, physiology, and community. This presentation explores the multidimensional nature of resilience, drawing from both lived experience and evidence-based practice to examine how adversity can serve as a catalyst for personal growth, purpose, and long- term transformation.

As a former NFL athlete turned entrepreneur, I have experienced firsthand how resilience is built through moments of loss, transition, and reinvention. Using a

combination of storytelling and applied science, this session offers a framework for building resilience in real time through mental fitness strategies, identity realignment, and community-based recovery models.

This work integrates psychological concepts such as growth mindset, neuro plasticity, and emotional regulation with real-world strategies used by high performers including athletes, business leaders, and students. Key interventions include narrative reframing, breath work, structured reflection, and service-based leadership.

Participants will leave with a deeper understanding of how to activate their own resilience blueprint including tools to support themselves and others through change. The presentation will also highlight the role of community especially in youth and athletic populations in cultivating a culture of recovery, emotional safety, and forward momentum.

By showcasing how ordinary people develop extraordinary strength, this talk encourages a redefinition of resilience not as a reaction, but as a proactive, faith- fueled discipline that can be learned, practiced, and shared.

Keywords: Human Resilience, Mental Fitness, Growth After Adversity, Athlete Identity, Community Recovery

Taking a strategic, business perspective of AI

Graham Poulton
Oober Conslting Ltd., UK

Taking a strategic, business perspective of AI, as it relates to agricultural research. We will look at some of the exciting ways that AI is impacting ag research, today, tools that are being deployed right now. I will then share my personal perspective on the broader conversation around AI in ag research, and the crop protection industry more widely. We will talk about the hype around AI and the dangers of over promising, and how this is resonating with customers. We will then wrap up with some predictions from the presenter of where AI is likely to have the biggest impact in the short term.

Practitioners and recipients alike can look forward to leaving this presentation with a clear set of actions on AI for your customers or business, for 2025.

Keywords: Strategic Perspective, Agricultural Research, Actions on AI

2nd International Conference on
MENTAL HEALTH AND HUMAN RESILIENCE

NOVELTICS GROUP

JULY 21-22, 2025 | LONDON, UK

Detection of bipolar disorder using LIWC and machine learning

Hassan Raza[1] and **Yiyao Huang**[2]
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[2]*School of Psychology, Wenzhou-Kean University, China*

Background: Bipolar disorder (BD) is one of the most prevalent mental disorders in the world, characterized by alternating phases of depression and mania. Despite its prevalence and impact on social and daily functioning, BD is underdiagnosed due to its complex symptomology. With the increased number of social media platforms, individuals tend to publish emotions and daily events online, offering the potential for early detection of psychiatric disorders like BD. This study employed user-generated online content to construct a model for identifying BD individuals by implementing lingustic inquiry and word count LIWC(SLIWC) and machine learning techniques.

Methodology: We sampled the "Bipolar Disorder Super Topic Community (BDSTC)" for BD-related posts from Sina Weibo and the "Life in Pieces Super Topic Community (LIPSTC)" as the control sample. After detailed preprocessing, the linguistic, affective, and behavioral features from Simplified Chinese LIWC (SCLIWC) were extracted to build a monthly user model. The user model was made richer by including emotional dynamics, sentiment polarity, and activity patterns, i.e., the timing of posts. A range of machine learning classifiers, i.e., Random Forest,

Support Vector Machine (SVM), and Logistic Regression, were used to evaluate the performance of the suggested model. Results The random forest algorithm attained the highest accuracy prediction with an accuracy value of 0.9205 and a recall of 0.9583 compared to other classifiers like SVM and Logistic Regression. The significant features contributing to the classification are emotional classes, sentiment polarity, and first-person pronoun usage.

Conclusion: This study shows the feasibility of leveraging social media data, coupled with linguistic and machine learning methodologies, for the early detection of BD individuals. The suggested monthly user model has the potential to aid in improving early detection and facilitating timely interventions for BD.

Straw tar epoxy resin-based green carbon fiber composites

Zhanpeng Jiang and **Jiuyin Pang**
Beihua University, China

With the increasing global concern for environmental protection and sustainable development, the development of green, high-performance composites has become a hot research topic in the field of materials science. This study focuses on the preparation and performance evaluation of straw tar epoxy resin-based green carbon fiber composites. Using straw tar and lignin as the main raw materials, bio-based epoxy resin was prepared by extracting phenol derivatives to replace bisphenol A and using epoxidized lignin to replace epichlorohydrin. The experimental results showed that the composites exhibited excellent mechanical properties with tensile strength up to more than 3500 MPa and specific strength over 2000 MPa/(g/cm^3). In addition, the material has good high temperature and corrosion resistance, and the production process is environmentally friendly and low cost. Compared with traditional epoxy resin, straw tar-based epoxy resin has significant advantages in terms of eco-friendliness and performance, which provides a new idea for the development of green carbon fiber composites. In the future, this material is expected to be widely used in aerospace, automobile manufacturing and other fields to help sustainable development.

Keywords: Straw tar; Epoxy resin; Green carbon fiber composites

2nd International Conference on
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NOVELTICS GROUP

JULY 21-22, 2025 | LONDON, UK

The photocatalytic activity of zinc oxide /carbon nanotubes nanocomposites: Fabrication methods and characteristics

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[1]*K. N. Toosi University of Technology, Iran*
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Carbon nanotubes (CNTs) represent a remarkable allotropic form of carbon characterized by their cylindrical structure and nanoscale dimensions. Their unique physical, chemical, electrical, and mechanical properties have garnered significant attention across various fields of engineering and materials science. Recent research has increasingly focused on the development of carbon nanotube-based photocatalysts, which hold promise for diverse applications ranging from energy harvesting to the treatment of environmental and industrial wastewater.

In this context, zinc oxide (ZnO) emerges as a favored semiconductor for photocatalyst production due to its numerous advantages, including affordability, non-toxicity, environmental compatibility, and commendable chemical and mechanical stability. The synergistic interaction between zinc oxide and carbon nanotubes can effectively mitigate the inherent defects associated with ZnO, enhancing its photocatalytic performance.

This review delves into various design methodologies for photocatalysts as well as functionalization techniques for carbon nanotubes. It also explores the underlying photocatalytic mechanisms involved in pollutant degradation and water splitting processes. A comprehensive analysis is provided on the properties of nanocomposites synthesized through different methods such as hydrothermal synthesis, spray pyrolysis, and sol-gel techniques (D. Chaudhary et al., 2018)

Among these methods, the sol-gel process has been particularly noteworthy for producing reinforced samples that exhibit significantly higher current densities and lowest nano particle size compared to alternative approaches. This increase in current density is crucial as it amplifies the material's capacity to generate reactive species like hydroxyl radicals key players in both water splitting and dye degradation reactions. Overall, this review highlights the potential of CNT-ZnO composites in advancing photocatalytic technologies while addressing critical environmental challenges. (A. M. Alenad et al., 2023)

Keywords: Photocatalys, water splitting, carbon nanotube and zinc oxide

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Seeing the whole patient; rethinking psychiatric training in the context of MLTCs

Niharika Tekchandani
Kent and Medway Partnership Trusy & Medway NHS Foundation Trust, UK

Statement of the Problem: Resilience is often framed around patient outcomes yet in psychiatry, it must also be built into training and systems. Individuals with severe mental illness (SMI) and multiple long-term conditions (MLTCs) face reduced life expectancy and fragmented care. Clinicians frequently report feeling underprepared for the complexity these patients present. This case-based reflection explores how system and training gaps undermine recovery, and how reforming education can foster resilience at every level of care.

Methodology & Theoretical Orientation: This reflection centres on a 69-year-old patient detained under the Mental Health Act with schizophrenia, type 2 diabetes, chronic kidney disease, and peripheral vascular disease. During admission, she exhibited poor nutritional intake, pressure sores, labile observations, and fluctuating capacity, with repeated refusals of care. Despite multidisciplinary involvement, communication remained fragmented and escalation was delayed. Her physical health deteriorated and she died following emergency transfer. This case illustrates breakdowns that occur when psychiatric training does not address multimorbidity, frailty, end-of-life care, or team-based coordination. It is used here to demonstrate the need for psychiatric education that builds resilience through ethical literacy, medical integration, and collaborative competence.

Findings: Only 34% of psychiatry trainees report confidence managing physical health, and fewer than 30% feel prepared for end-of-life care. These gaps compromise both patient outcomes and clinician resilience. Inadequate training contributes to moral distress, avoidable deterioration, and fragmented recovery pathways.

Conclusion & Significance: Resilience in mental health care must extend beyond individuals to include the systems and clinicians that support them. This case advocates for psychiatric training reform that embeds the skills required to manage complexity, uncertainty, and ethical challenge all essential to supporting true recovery in vulnerable patients.

Keywords: psychiatric training, multimorbidity, resilience, recovery-oriented care, ethical complexity, end-of-life care, physical health literacy, integrated care, mental health education, severe mental illness (SMI)

Sign language translation using AI for people with auditory impairment

Prithvi Mitra and Sanatan Ratna
Amity University, India

Hearing loss affects over 430 million people worldwide, and that number is expected to grow to more than 700 million by 2050. For many in the Deaf and Hard of Hearing (DHH) community, sign language is their main form of communication. However, because most hearing people don't understand sign language, meaningful communication can be difficult. Recent advances in artificial intelligence and computer vision offer promising solutions. This paper explores how technologies like gesture recognition, depth sensing, and machine learning are being used to build real-time sign language translation systems. From using wearable sensors to training deep learning models with limited data, researchers are finding creative ways to make translation more accurate and accessible. Interestingly, the same facial mapping and depth-sensing tools found in biometric face recognition technology can also help capture subtle facial expressions and hand movements key parts of sign language bringing us closer to seamless, inclusive communication for everyone.

Artificial intelligence and machine learning for cytopathological applications of cancer

Priya Hays
USA

Cytopathological examination of cancer specimens involves the use of diagnostic techniques such as a Pap smear, bone marrow and peripheral blood smears and fine needle aspiration of thyroid and lung tissue. Artificial intelligence is being applied to cytology to enhance sensitivity, specificity, and accuracy in the analysis of these specimens. This presentation, based on a systematic review published in November 2024 issue of the European Journal of Medical Research, will demonstrate how Artificial Intelligence and Machine Learning models are a useful aid for the cytopathologist in the examination of specimens when there is differing diagnoses, decreasing interobserver variability. Artificial neural networds and convolutional neural networks will be discussed and their relevance to these applications as well. Human performance will also be compared to artificial intelligence/machine learning performance. The use AI in these settings is increasing and becoming more relevant.

Integrating social robotics with ethical AI for inclusive public services in emerging economies

Victor Benjamin Oshodi
Country Director, AAAI, Nigeria

This paper explores the integration of social robotics and ethical artificial intelligence (AI) to enhance public service delivery in emerging economies, with a focus on Africa. Drawing from real-world experiences and ongoing pilot initiatives led by AAAI–Nigeria, the study proposes a framework for deploying socially intelligent robots in healthcare, education, and civic engagement while maintaining ethical, culturally sensitive, and inclusive approaches.

Introduction

Social robots are increasingly seen as tools to support human-centered services in education, healthcare, and community engagement. However, in low- and middle-income countries (LMICs), the potential of social robotics remains largely untapped. This paper advocates for the strategic adoption of AI-driven social robots to solve practical challenges in these settings specifically in public health communication, student engagement, and bureaucratic efficiency.

Background & Context

In Africa, digital literacy and infrastructure are rising, but human resource gaps in public services persist. The deployment of AI-enabled robots designed to interact naturally, deliver information, and assist with administrative or emotional support tasks offers a scalable solution. However, such adoption must be embedded within ethical AI principles, aligned with local cultures, and guided by robust public trust mechanisms.

Proposed Framework

The paper proposes a three-pillar framework for deploying social robots in emerging contexts:

- Contextual Intelligence: Robots must be trained on local languages, behavioral norms, and social cues. NLP and multimodal interaction must reflect regional diversity.
- Ethical AI Governance: Building trust requires transparent data practices, explainability, and
- bias mitigation, especially in sensitive sectors like healthcare and education.
- Participatory Design: Co-creating solutions with local communities ensures robots are not only accepted but seen as allies in service delivery.

This framework is being tested through AAAI–Nigeria's pilot engagement with local education boards and public health agencies, integrating AI tools for civic learning and pandemic awareness in underserved regions.

Use Case Example

In Lagos State, AAAI–Nigeria is leading a prototype initiative where AI-based educational bots simulate classroom assistants in large public schools. These bots engage students in interactive STEM tutorials, track emotional cues, and adapt content delivery. Preliminary feedback shows improved participation and reduced teacher burnout.

Challenges & Considerations

Several challenges persist:

- Infrastructure limitations (connectivity, power supply)
- Cultural hesitation or mistrust
- Ethical dilemmas (data privacy, autonomy)

To address these, the paper suggests government partnerships, community sensitization, and multidisciplinary ethics boards to oversee pilot rollouts.

Conclusion

As social robotics and AI converge, LMICs have the opportunity to leapfrog legacy service systems. By embedding ethics, inclusivity, and local innovation into the design and deployment of social robots, nations can amplify social impact and promote equitable technology ecosystems.

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From industrial waste (pyrrhotite ash) to high-value magnetic iron (iii) oxide (α-Fe_2O_3) nanoparticles: Extraction, characterization, and application

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In this work, we have extracted iron (III) oxide from Moroccan inorganic PA by-products by acid leaching followed by hydrothermal reaction in the presence of aqueous ammonia. The effects of leaching process conditions on iron extraction are investigated. Furthermore, we have demonstrated how the leaching temperature, time, acid concentration, and liquid-solid (L/S) ratio affect the leaching process. The synthesized powder material was analysed using XRF. The phase, purity, and crystallinity of the extracted iron (III) oxide from PA were investigated using XRD techniques. FTIR was employed to confirm the results obtained from XRD patterns and to identify the functional groups present in the materials extracted using the hydrothermal method. The seven Raman-active vibration modes, namely two A1g phonon modes and five Eg phonon modes corresponding to the pure hematite structure, were observed. The morphological and elemental characteristics of the extracted powder were analyzed using SEM and EDS. Hysteresis loop magnetic measurements were performed at 5 K and 300 K on the extracted hematite powder indicates ferromagnetic behavior, with coercivity values of 630 Oe and 730 Oe, respectively. The magnetization does not saturate even at 475 Oe, reaching a maximum value (Mmax) of 6.49 emu/g at 5 K and 6.75 emu/g at 300 K. The synthesized iron (III) oxide nanoparticles were used as raw materials to prepare ferromagnetic cobalt and nickel ferrite powders by solid-state reaction and the resulting materials were checked for their effectiveness. Here, for the first time PA by-product was used as a source of iron (III) oxide to form soft magnetic powders (CFPs and NFPs). The production of iron (III) oxide nanoparticles from the valorization of industrial wastes and used as raw materials to prepare magnetic materials could be a major advantage, from both economic and sustainability aspects, as well as removing potential waste from the environment.

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