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THE 1st INTERNATIONAL CONFERENCE ON DRIVING SOCIETAL ADVANCEMENT THROUGH INTERDISCIPLINARY INNOVATION

ABSTRACTS OF THE KEYNOTE SPEAKERS

Prof. Mieke Meurs
American University

Contributions of Feminist Economics: A Strategy for the 21st Century (online)

In this talk, I present three fundamental propositions of feminist economics and demonstrate how these provide keys to addressing three existential crises of the 21st Century: demographic crisis (population aging), the crisis of economic inequality, and climate crisis.

Assoc. Prof. Dolgorsuren Batjargal
Mongolian University of Science and Technology

Enhancing the diagnosis of cystic echinococcosis with AI-driven imaging analysis

Cystic echinococcosis (CE) remains a significant global health challenge due to its slow progression and non-specific clinical symptoms, often leading to delayed diagnosis and treatment. Early and precise detection is critical, particularly given the five-stage classification system established by the World Health Organization (WHO). In this keynote, I will present a groundbreaking AI-powered approach to CE cyst classification using computed tomography (CT), ultrasound (US), and magnetic resonance imaging (MRI).

Our study evaluates ten machine learning (ML) models and introduces a novel scoring technique that consolidates key performance metrics—accuracy, precision, recall, specificity, and F1-score—into a unified evaluation framework. The results highlight the superiority of hybrid deep learning models, particularly CNN+ResNet and Inception+ResNet, in accurately classifying CE cysts. Notably, the CNN+ResNet model achieved 97.55% accuracy on CT images, 93.99% on US images, and 100% on MRI images, demonstrating its potential for real-world clinical applications.

By leveraging pre-trained architectures and hybrid models, this research paves the way for more efficient, accurate, and accessible diagnostic tools, enhancing the early detection and management of CE. Join me as we explore how AI transforms medical imaging and redefines the future of parasitic disease diagnosis.

Academician. Enkhbat Rentsen
Mongolian Academy of Sciences

Latest Advances in Profitability Analysis of Business

This paper intends to develop a new cost-volume-profit (CVP) analysis based on optimisation and sphere packing theories.
The original cost-volume-profit (CVP) model was first introduced by Hess and Mann in 1903 and generalised later to the multi-product case. It seems a little attention has been paid to the extension of existing models of CVP analysis when its parameters, such as sales, prices, and costs, vary simultaneously over a given period. For this purpose, we propose a new approach to profitability analysis based on a notion of the set of profitability conditions concerning CVP parameters.

The main difficulty for handling CVP analysis is the nonconvexity of the set of profitability conditions.

To overcome this, we apply optimization methods to find a feasible point in a nonconvex set of profitability conditions. Finding a feasible point allows us to construct other subsets of the set of profitability conditions based on sphere packing theory. The approach also provides practical suggestions and recommendations for managers to choose a set of optimal CVP parameters. The proposed approach is illustrated with some examples.

Assoc. Prof. Delgertsetseg Chuluundorj
University of the Humanities

Psychological well-being of Mongolians in COVID-19 pandemic: What lessons have we learned?

The COVID-19 pandemic had a profound effect on the well-being of millions of people worldwide, while it is unclear how pandemic national lockdowns affected the psychological well-being of the Mongolian population. This project aimed to explore psychological well-being in lay Mongolian adults in three research projects during the social restrictions.

Study 1 measured life satisfaction across 11 domains, positive and negative emotions, and compared well-being between eudaimonics and hedonics groups. The eudaimonic values involve authentic relationships, life meaning, efforts/engagement and mental accomplishments, and the hedonic values include positive emotions, fun/pleasure, wealth/income and intimate relationships. The results showed that the eudaimonics had significantly higher life satisfaction in all domains and positive emotions while having significantly lower negative emotions, in comparison to the hedonics group.

Study 2 surveyed two behaviors: use of information media and increased purchases during lockdown. The most common means of information was word-of-mouth (80.8%), followed by the Internet (79.5%), Facebook (65.7%), TV (27.6%), books and magazines

(23.5%), newspapers (10.5%) and radio/FM (6.1%) for our participants. The eudaimonics evaluated the information as more positive, whereas the hedonics had more negative impressions. Buying behaviors changed dramatically during the crisis and the participants reported increased purchases of many products, except for gas which decreased (-33.7%). The highest increase was in hand sanitizers (78.3%), followed by toilet papers (59.2%), fruits and vegetables (57.5%), water (57.1%), meat and meat products (55.9%), rice and noodles (50.5%), bread and bakery (46%), medicines (42.8%), household fuel (20.6%) and canned food (16%). The eudaimonics and hedonics did not differ in the behavioral changes and worries for family health were the strongest motivators in both groups. However, some motivations significantly differed and worries for one's own health, potential product shortage and stress/distress were stronger motivators for the hedonics, rather than the eudaimonics.

Study 3 provides empirical evidence on how online mindfulness meditation benefits affective psychological well-being by comparing within-subjects control, between-subjects control and experimental/meditation groups. A significant improvement was observed in affective well-being. Altogether, the studies suggest that eudaimonics had better psychological well-being in the face of pandemic stress than the hedonics, and behavioral motivations, but not the behaviors were different between these groups. Moreover, eudaimonia-based programs such as mindfulness meditation practices can be beneficial in reducing stress and improving psychological well-being in the lay Mongolian population. The studies provide a practical rationale for social interventions to improve psychological well-being in various stages of Bronfenbrenner's Ecological Model.

Prof. Jin-Woo Jung
Dongguk University

Beyond CCTV - Intelligent CCTV Monitoring System for Police Station Jail Environment

CCTV is one of the most popular devices for environmental monitoring today. However, to monitor certain individuals or objects via CCTV, many human agents are required to view each feed and assess the emergency state. In this talk, a recent intelligent technology for CCTV will be introduced to alleviate the burden on monitoring agents and enhance safety in human society.

In Korea, police stations have their own jail environments for individuals related to crimes whose judgments have not yet been determined. Recently, there have been many incidents involving these individuals, such as suicide attempts, self-harm cases, and violence. To manage these issues efficiently and reduce the burden on police officers, the Korean police department has initiated a research project called PoliceLab 2.0, which includes our intelligent CCTV project.

Our proposed intelligent CCTV system consists not only of a popular RGB camera but also of a thermal camera and radar sensor to detect human skin temperature and subtle movements, such as heartbeat and breathing, both day and night. Additionally, utilising state-of-the-art AI technology, it can automatically recognise facial expression levels, falls, self-harm, violence, and prolonged fixed postures with an accuracy of 80- 90%.

Prof. Batkhuyag Ganbaatar
University of Finance and Economics

The Importance of Interdisciplinary Approaches in Social Science and Innovation

This keynote emphasizes the growing importance of interdisciplinary approaches in addressing today's complex global challenges—ranging from climate change and pandemics to social inequalities. These issues demand integrated, multi-perspective solutions that go beyond the capabilities of any single discipline. As research evolves from discipline-bound "Mode 1" to context-driven "Mode 2" knowledge production (Gibbons et al., 1994), the role of interdisciplinary collaboration becomes central.

The speech differentiates between multidisciplinary (parallel work), interdisciplinary (shared integration), and transdisciplinary (co-creation with non-academic actors). Practical examples—such as smart city design or healthcare innovation—demonstrate how blending insights from social sciences, data science, and engineering leads to more holistic and actionable outcomes.

Key benefits of interdisciplinary work include enhanced creativity, broader applicability, reduced blind spots, and faster implementation. Research shows that combining diverse perspectives fosters innovation that is both socially relevant and impactful (Amabile, 1996; Ostrom, 1990).

However, interdisciplinary efforts face cultural, institutional, and methodological challenges. Differences in terminology, academic silos, and the risk of shallow collaboration must be addressed through structured coordination, boundary-spanning roles, and supportive institutional frameworks.

The keynote presents proven models that facilitate interdisciplinarity, including the Triple/Quadruple Helix (Etzkowitz & Leydesdorff), Design Thinking (Brown & Wyatt), Mode 2 research, and Systems Thinking (Senge). Real-world success stories, such as MIT Media Lab and Stanford's school, show how structured interdisciplinarity can generate transformative innovations.

Finally, the speech calls on researchers, universities, industry, and governments to actively foster interdisciplinary ecosystems. Only through collective intelligence and collaboration can we generate the kind of robust, inclusive, and sustainable solutions that today's challenges demand.

Gundari Amarjargal
ARGUN LLC

Beyond the Screens: How Augmented Reality is Reshaping the Education Industry

Today, the education sector is undergoing a quiet yet powerful transformation. Immersive technologies, particularly Augmented Reality (AR) and Mixed Reality (MR)—are pushing
learning beyond the digital realm, creating experiences that are interactive, sensory-rich, and deeply engaging. While online tools have made education more accessible and connected classrooms around the world, AR and MR go a step further. They don't just show content—they immerse learners in it. This shift is redefining the very core of education: how we learn, how we teach, and how we engage with knowledge.

In this keynote, we'll explore how AR and MR technologies are addressing some of the most pressing challenges in education today. From declining student interest and outdated teaching methods to rigid curricula and unequal access, these technologies offer new possibilities to rethink and rebuild learning from the ground up.

AR/MR technologies are reshaping education in four key areas:

• Learning Environments: From static, one-way spaces to dynamic, immersive classrooms where students actively participate.

• Teaching Methods: From traditional lectures to interactive approaches that spark curiosity and foster creativity.

• Learning Materials: Replacing paper textbooks with interactive 3D models, simulations, and AR tools that bring subjects to life.

• Access & Quality: Enabling anytime, anywhere learning through AR glasses, AI tutors, and cloud-based content.

We are witnessing the rise of a new educational architecture where virtual schools, virtual teachers, and immersive AR experiences are becoming a reality. This isn't just about technological advancement. It's about rethinking the essence of education itself: making learning more meaningful, teaching more intuitive, and collaboration more creative.

"Beyond the Screens" isn't just a catchy phrase—it's the gateway to the future of education. And that future is immersive, inclusive, and already beginning.