SEMINAIRE AXE 4, Laboratoire Geriico.

KNOWLEDGE ORGANIZATION, ARTIFICIAL INTELLIGENCE AND HEALTH CARE

Organisé par - organised by Amel Fraisse, Université de Lille, GERiiCO LAB, France

DATE :

Vendredi 21 mars 2025 HORAIRE 11H – 17H **Friday March 21st 2025** HORAIRE-TIME 11 AM – 5 PM (LOCAL TIME: UTC+2H)

LOCATION :

Université de Lille, Campus Pont de bois, Bâtiment B, salle B2.454 (Gerard Losfeld)

University of Lille, Pont de Bois Campus, Building B, Room B2.454 (Gérard Losfeld)

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Seminar organized within the framework of the Mecare Project, funded by theTransatlantic Research Partnership Albertine Foundation

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INTERVENANTS - SPEAKERS

11:00 AM

MOUHEB MEHDOUI
Université de Lille, Geriico Lab et iSchool de l'UDL, France
Université de Monastir, Tunisie

Leveraging unstructured data from online communities for tailored healthcare content delivery based on health literacy levels evaluation

11:30 AM

MARLÈNE NIKABOU MAYI
Université de Lille, Geriico Lab et iSchool de l'UDL, France

The evolution of health data governance in the age of AI: Theoretical perspectives and communication challenges

02:30 PM

LAURENCE FAVIER
Université de Lille, Geriico Lab et iSchool de l'UDL, France

02:45 PM

YEONG-TAE SONG
Department of Computer and Information Science, Towson University, USA.

Personal health coaching framework using digital twin and on-device AI

03:45 PM

AMEL FRAISSE
Université de Lille, Geriico Lab et iSchool de l'UDL, France
JINIE PAK
Department of Computer and Information Science, Towson University, USA.

The mecare project: Enhancing health literacy through accessible medical information

04:15 PM

ISMAIL TIMIMI & WIDAD MUSTAFA EL HADI
Université de Lille, Geriico Lab et iSchool de l'UDL, France

Terminological variations in medical knowledge organization systems: towards socio-epistemic approaches

SHORT BIOS

YEONG-TAE SONG

(EN) Prof. Yeong-Tae Song, Ph.D. in Computer Science from the University of Texas at Dallas, specializes in software engineering, enterprise architecture, e-learning, and medical informatics. He has led projects for NASA and Maryland's electronic medical records system.

(FR) Prof Yeong-Tae Song, titulaire d'un doctorat en informatique de l'Université du Texas à Dallas, se spécialise en ingénierie logicielle, architecture d'entreprise, e-learning et informatique médicale. Il a dirigé des projets pour la NASA et les dossiers médicaux électroniques du Maryland

JINIE PAK

(EN) Dr. Jinie Pak, Ph.D. in Information Systems, specializes in deception detection using NLP and machine learning. She has published in health informatics and is a member of AIS and AOM.

(FR) Dr Jinie Pak, titulaire d'un doctorat en systèmes d'information, se spécialise dans la détection de la tromperie avec le NLP et l'apprentissage automatique. Elle a publié en informatique de la santé et est membre de l'AIS et de l'AOM;

MOUHEB MEHDOUI

(EN) Mouheb Mehdoui is a Ph.D. student focusing on AI solutions for data processing, healthcare, and linguistics. He holds a Master's in AI and Reasoning Systems and is currently working on the MeCare project.

(FR) Mouheb Mehdoui est doctorant en IA et sciences de l'information pour le traitement des données, la santé et la linguistique. Titulaire d'un Master en IA et Systèmes de Raisonnement, il travaille actuellement sur le projet MeCare.

MAYI MARLENE NIKABOU

(EN) Mayi Marlene Nikabou, Ph.D. candidate at the University of Lille, specializes in data governance and AI ethics. She has a background in journalism and communication, with experience at TV5 Monde and Vétérinaires Sans Frontières.

(FR) Mayi Marlene Nikabou, doctorante à l'Université de Lille, se spécialise en gouvernance des données et en éthique de l'IA. Elle a une formation en journalisme et communication, avec une expérience à TV5 Monde et Vétérinaires Sans Frontières.

ABSTRACTS

PERSONAL HEALTH COACHING FRAMEWORK USING DIGITAL TWIN AND ON-DEVICE AI

PROF YEONG-TAE SONG

When a person comes down with a disease, it is important to get proper treatment at the right time to get it cured, but due to various reasons, it may not always be possible. What is more important is to try not to be in such a situation by monitoring their own health and taking necessary actions in a timely manner when any abnormal conditions occur. Clinical institutions such as hospitals are the places to get treatments, but when it comes to maintaining personal health, they may not be the right place as health monitoring requires constant assessment and guidelines that may differ by person. In this talk, we propose a novel approach in personal health monitoring using digital twin and on-device AI. Digital twin is used to monitor, assess, and predict user's health using up-to date data from clinical sensors and observed symptoms. On device AI provides secure personalized health coaching without consulting external AI like ChatGPT.

LEVERAGING UNSTRUCTURED DATA FROM ONLINE COMMUNITIES FOR TAILORED HEALTHCARE CONTENT DELIVERY BASED ON HEALTH LITERACY LEVELS EVALUATION

MOUHEB MEHDOUI

Unstructured data from platforms like Reddit and other online sources offers a valuable opportunity to improve healthcare content delivery. One key challenge is ensuring that the information provided is tailored to individuals with varying health literacy levels. Health literacy influences how people understand and act on health information, and by evaluating these levels, it becomes possible to customize content to meet specific needs. By analyzing unstructured data, such as user discussions and shared experiences, insights can be gathered about common struggles or misconceptions people face regarding healthcare topics. This allows for the creation of more accessible and relevant content that resonates with different audiences. Tailoring healthcare information based on health literacy not only helps improve understanding but can also empower individuals to make more informed decisions about their health, ultimately promoting better health outcomes.

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ABSTRACTS

THE EVOLUTION OF HEALTH DATA GOVERNANCE IN THE AGE OF AI: THEORETICAL PERSPECTIVES AND COMMUNICATION CHALLENGES

MAYI MARLENE NIKABOU

Artificial intelligence (AI) is transforming the healthcare sector by leveraging vast amounts of medical data to enhance diagnosis, treatment, and prevention. However, this technological revolution raises significant challenges in information management, communication, ethics, and data governance. This study offers a theoretical reflection on these issues through the lens of Information and Communication Sciences (ICS). We examine how ICS can provide insights into the production, circulation, and interpretation of health data, as well as the interactions among key stakeholders (physicians, patients, institutions, and AI systems). Furthermore, we analyze the ethical and communicational dimensions of AI implementation, emphasizing transparency, trust, and fairness, along with the ethical, regulatory, and multidisciplinary challenges of health data governance in the AI era. In conclusion, we highlight the crucial role of ICS in designing responsible and human-centered AI systems.

TERMINOLOGICAL VARIATIONS IN MEDICAL KNOWLEDGE ORGANIZATION SYSTEMS: TOWARDS SOCIO-EPISTEMIC APPROACHES

ISMAIL TIMIMI & WIDAD MUSTAFA EL HADI

In this presentation we focus on the terminological variations in medical Knowledge Organization Systems (KOS). Our study is based on an early research project (Timimi & Mustafa El Hadi, 2008) which examined the challenges of integrating terminology uses in different contexts: healthcare professionals, technical staff, learned users, patients and their families. We will focus on the methodological aspects that should allow for incorporating the description of terminological variations in medical KOS in particular in the context of self-medication processes on the Internet where we observe significant variations between the innovative professional language and the informal language used by patients and their relatives.

The historical approaches suggested rigorous definitions in order to fix the meaning and achieve a bi-univocity between sense and signifiers (Eugen Wüster and Vienna School of Terminology). In other words, it seeks to eliminate as much variation as possible that blurs exchange and strive for regular monosemy (Faber and L'Homme, 2022). Socio-terminology was born from an epistemological critique of the theoretical stance of this concept-centered terminology. By focusing on the circulation of terms in different contexts we intend to show how crucial to consider terminologies from the perspective of their social uses rather than merely unique concept labels. A consequence of this theoretical and methodological stance, medical terminology should be more linked to its different production situations, circulation, reception, and interpretation. This perspective influences the content and the way of producing KOS particularly in how to think about and organize the description of variations based on current critical socio-epistemic approaches in Knowledge Organization domain.

THE MECARE PROJECT : ENHANCING HEALTH LITERACY THROUGH ACCESSIBLE MEDICAL INFORMATION

AMEL FRAISSE & JINIE PAK

Improving health literacy (HL) is essential for enabling individuals to understand and effectively use health information for informed decision-making. As communication technologies become increasingly integrated into healthcare, access to health information and services has improved. However, individuals with low health literacy often face challenges in evaluating and utilizing this information accurately. Mecare is a proposed framework aims to enhance health literacy by presenting medical knowledge in clear and accessible language while identifying and classifying individuals health literacy levels based on their health interests. By combining advancements in computer science and technology with insights from humanities and social sciences, this approach seeks to develop tools that improve the comprehension, interpretation, and simplification of medical literature, ultimately empowering individuals to make better-informed health decisions.