

Welcome to



EUSPN 2024

The 15th International Conference on
Emerging Ubiquitous Systems and
Pervasive Networks



ICTH 2024

The 14th International Conference on
Current and Future Trends of
Information and Communication
Technologies in Healthcare

October 28 – 30, 2024
Leuven, Belgium

With support of

Hasselt University, Belgium & Acadia University, Canada



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EUSPN / ICTH SYMPOSIA AND WORKSHOPS

EUSPN	The 15th International Conference on Emerging Ubiquitous Systems and Pervasive Networks
ICTH	The 14th International Conference on Current and Future Trends of Information and Communication Technologies in Healthcare
AMDE	The 5th International Workshop on the Advancements in Model Driven Engineering & Software Engineering
DS	The 2nd International Workshop on Digital society: In the Eve of the 6th Information Revolution
DTER	The International Workshop on Digital technologies For Enhancing Resilience
EATH	The 3rd International Workshop on Emerging Advancements and Technologies in Healthcare
EICN	The 11th International Symposium on Emerging Information, Communication and Networks
HODII	The 5th International Workshop on Healthcare Open Data, Intelligence and Interoperability
IA&NLP	The 3rd International Workshop on Artificial Intelligence for Natural Language Processing

PROGRAM AT A GLANCE

EUSPN 2024, ICTH 2024 and Workshops

Program Time Slots

Timing	Monday 28 October 2024					
18:00 - 19:00	Registration	Registration Room				
		ROOM 1		ROOM 2		ROOM 3
		Erasmus 1		Erasmus 2		Erasmus 3

Timing	Tuesday 29 October 2024					
Starts 08:30	Registration	Registration Room				
09:00 - 09:10	Opening Ceremony	Erasmus 1				
09:10 - 10:00	Keynote Speaker	Dr. Yves Vanrompay				
10:00 - 10:25	Coffee Break	Meeting Foyer				
10:30 - 12:00	Technical Sessions (1)	EUSPN-S1		ICTH-S1		DS-S1
12:00 - 12:55	LUNCH	Lunch Room (Restaurant)				
13:00 - 14:30	Technical Sessions (2)	EUSPN-S2		ICTH-S2		DS-S2
14:30 - 14:55	Coffee Break	Meeting Foyer				
15:00 - 16:30	Technical Sessions (3)	EUSPN-S3		ICTH-S3		HODII-S1
16:30 - 18:00	Technical Sessions (4)	EUSPN-S4		IA&NLP		HODII-S2
19:00 - 20:30	Banquet and Award Ceremony	Banquet Room				

Timing	Wednesday 30 October 2024					
Starts 09:00	Registration	Registration Room				
09:00 - 10:30	Technical Sessions (5)	EUSPN-S5		DTER & EATH		DS-S3
10:30 - 12:00	Technical Sessions (6)	AMADE&ISFN		ICTH-S4		DS-S4

	End of Event					
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KEYNOTE

i-DREAMS – A Ubiquitous Platform of Technologies for Safer Driving

Dr. Yves Vanrompay

Hasselt University, Belgium

Abstract

Driver competence plays a crucial role in road safety. However, a driver's capability is affected by numerous internal factors (e.g., age, experience and judgement), concurrent physical and psychological factors (fatigue and distractions) and external factors (weather, time of day, speed, road conditions and traffic volume). The aim of the EU-funded i-DREAMS project is to establish a driver and road environment assessment and monitoring system that will define a safety tolerance zone for drivers. By considering all driving-related influences, the system will gauge a driver's ability to safely operate a vehicle. It will also provide real-time alerts during a trip and make recommendations after a trip (through a smartphone app) when tolerable limits are reached, thus mitigating driving risks.

To achieve this goal, a secure technological platform was set up consisting of in-vehicle sensors and interventions, wireless communication with cloud-based trip processing, scoring and gamifications systems, and end-user communication by means of a smartphone app and web dashboard. Within this ubiquitous computing system, own developments (both on the edge and in the cloud) are integrated with third party applications (e.g., OSM tiles) and hardware. Some of these components are time critical (e.g. in-vehicle safety interventions), while other components are non-time critical and are presented to the driver in an intelligent way (post-trip feedback and -interventions). During this presentation, we delve deeper into the technological aspects of the i-DREAMS platform and will demonstrate some of its key functionalities.

About the Speaker:

Dr. Yves Vanrompay is researcher-coordinator at the Transportation Research Institute (IMOB) of Hasselt University, Belgium, since 2015. He is responsible for the development and valorization of research and IT platforms related to smart mobility, traffic safety and mobility patterns. He obtained his Ms. Informatics in 2003, Ms. Artificial Intelligence in 2004 and Ms. Philosophy in 2019 from the Katholieke Universiteit Leuven. From 2005 to 2011 he was a researcher in the Embedded and Ubiquitous Systems taskforce of the DISTRINET research group in the department of computer science of the Katholieke Universiteit Leuven, leading to a PhD in the domain of context-awareness and prediction. Then he worked as research manager at the Mathematics Applied to Systems Laboratory of Ecole Centrale Paris. His main research interests include context-aware systems, ambient intelligence, Semantic Web technologies, personalization and self-adaptive applications. He was involved in several European projects and co-authored over 50 peer-reviewed publications.

DETAILED PROGRAM

Monday, October 28, 2024

Registration 18:00 - 19:00

Room: Registration Room

Tuesday, October 29, 2024

Registration Starts 08:30

Room: Registration Room

Opening 09:00 - 09:10

Opening Ceremony

Room: Main Meeting Room

Keynote 09:10 - 10:00

-DREAMS – A Ubiquitous Platform of Technologies for Safer Driving

Dr. Yves Vanrompay, Hasselt University, Belgium

Session Chair: Elhadi Shakshuki, Acadia University, Canada

Room: Main Meeting Room

Coffee Break 10:00 - 10:25

Room: Meeting Foyer

Technical Sessions (1) 10:30 - 12:00

EUSPN Session S-1

Session Chair: Orven Llantos, MSU - Iligan Institute of Technology, Philippines

Room: Room 1

Multimodal Sentiment Analysis based on Video and Audio Inputs

Antonio Fernández and Suzan Awiant

Resource Consumption Analysis of Distributed Machine Learning for the Security of Future Networks

Md Muzammal Hoque, Ijaz Ahmad and Mohammad Tahir

Exploiting Fluid Dynamics Concepts to Solve Local Minima Problems in Robotic Path Planning

Mohammed Baziyad, Tamer Rabie, Raouf Fareh, Ibrahim Kamel and Maamar Bettayeb

Evaluating Safe Region Sizes for Accuracy in Approximate Continuous Nearest Neighbour Queries

Wendy Osborn

ICTH Session S-1

Session Chair: Hasna Chamlal, Hassan II University, Morocco

Room: Room 2

Clustering of longitudinal Clinical Dementia Rating data to identify predictors of Alzheimer's disease progression

Patrizia Ribino, Giovanni Paragliola, Claudia Di Napoli, Maria Caterina Mannone, Davide Chicco and Francesca Gasparini

Fine-tuned SegFormer for enhanced fetal head segmentation

Niama Assia El Joudi, Mohamed Lazaar, François Delmotte, Hamid Allaoui and Oussama Mahboub

Exploring Nanoparticle Dynamics: Simulating Brownian Motion in Blood and Saltwater Using Monte Carlo Simulation

Gc Neal Christian Clarin, Orven Llantos and Maynard Limbaco

DS Session S-1**Session Chair:** Kateryna Kolesnikova, International IT University, Khazakstan**Room:** Room 3

Unification of Methods for Reflecting and Analyzing Scientists' Performance Indicators

Kateryna Kolesnikova, Oleksii Kolesnikov, Askar Khikmetov, Ardak Mukhamedyeva, Nursultan Alpysbay, Kaisar Alpysbayev

Development of a Mathematical Model for the Distribution of Financial Resources

Gulbakyt Sembina, Almaz Abdualiyev

Development of an Aerodynamics Calculation Model for a Fan With a Wing

Alibi Akhmejanov, Madi Akhmejanov, Bolatbek Ryskaliyev, Kateryna Kolesnikova

Development of Mathematical Models for Traffic Control at Signalized Intersections

*Oleksii Kolesnikov, Kateryna Kolesnikova, Lyazat Naizabayeva, Buitek Bayan***Lunch Break****12:00 - 12:55****Room:** Meeting Foyer**Technical Sessions (2)****13:00 - 14:30****EUSPN Session S-2****Session Chair:** Ibrahim Kamel, University of Sharjah, UAE**Room:** Room 1

Receding Horizon and Optimization-based Control for UAV path planning with Collision Avoidance

Gamil Ahmed and Tarek Rahil Sheltami

A Data Augmentation System for Traffic Violation Video Generation Based on Diffusion Model

Shih-Yu Sun, Ting-Hao Hsu, Chia-Yen Huang, Cheng-Han Hsieh and Chun-Wei Tsai

Eyeway: An Artificial Intelligence Of Things Pothole Detection System With Map Visualization

Leonhel Fortin, Arjean Rose Delos Santos, Pul Joven Cagud, Paul Rodolf Castor and Orven Llantos

Integrating Edge Computing and Blockchain for Safer and More Efficient Digital Transportation Systems

*Elarbi Badidi and Omar El Harrouss***ICTH Session S-2****Session Chair:** Rebeca Leonor Estrada Pico, Escuela Superior Politecnica del Litoral, Ecuador**Room:** Room 2

Integrating Machine Learning-Based Ambulance Travel Time Estimation into Emergency Medical Services Simulation Modeling Framework

Saeid Amouzad Mahdiraji, Muhammad Adil Abid and Johan Holmgren

Securing IoT wearable health devices against cyberthreats through Securing XML Data in electronic Patient Care Reports (ePCR)

Fadi Muheidat, Lo'Al Tawalbeh, Mousa Al-Kfairy and Monther Aldwairi

NLP and Topic Modeling for Assessing Psychosocial Concerns in Monthly Surveys

Rkia Amraoui, Fatima Azzahrae Adnane, Mehdi Adda and Lily Lessard

Enhancing Breast Cancer Detection with Dimensionality Reduction Techniques: A Study Using PCA and LDA on Wisconsin Breast Cancer Data

*Gani Esen, Aizhan Altaibek, Jandos Amankulov and Marat Nurtas***DS Session S-2****Session Chair:** Kateryna Kolesnikova, International IT University, Khazakstan**Room:** Room 3

Metauniversity as a Tool for Inclusive Learning

Umitkhan Turzhanov, Yevgeniya Daineko, Dana Tsoy, Madina Ipalakova

Data Processing and Analysing Techniques in UX Research

Muslima Abdulla, Aigerim Aitim

Reducing the Digital Divide with the Future Integration of 6G

Muslima Abdulla, Aigerim Aitim

Integrating Smart Traffic Systems with Real-Time Air Quality Monitoring to Minimize Emissions and Improve Urban Health

Lyazat Naizabayeva, Nurgul Seilova, Daniyar Zaitov, Madina Akhmetova

Coffee Break 14:30 - 14:55

Room: Meeting Foyer

Technical Sessions (3) 15:00 - 16:30

EUSPN Session S-3

Session Chair: Hoon Ho, University of Ulsan, Ulsan, South Korea

Room: Room 1

Asynchronous Inter-Class Project Collaboration Adaptation Method to Agile Practices in University Context

Lucman Abdulrachmn and Orven Llantos

Factors Influencing the Quality of Augmented Reality Applications: A Conceptual Framework

Mohammad Abdallah, Gana Sawalhi, Ahmad Mazhar, Mustafa Alrifaae and Mousa Salah

Energy Consumption Prediction System based on clustering techniques

Rebeca Leonor Estrada Pico, Pedro Farinango, Kevin Santana and Victor Asanza

Applying AI and Machine Learning to Enhance Automated Cybersecurity and Network Threat Identification

Fadi Muheidat, Lo'Al Tawalbeh, Moayyad Abu Mallouh, Omar Al-Saleh and Omar Al-Khasawneh

ICTH Session S-3

Session Chair: Patrizia Ribino, ICAR Institute - National Research Council of Italy, Italy

Room: Room 2

A Stacking Ensemble Classifier with GAN-SFLA for Improved Diagnosis in Imbalanced Healthcare Data

Hasna Chamlal, Hajar Kamel and Tayeb Ouaderhman

Evaluation of Mixed Reality Technologies in Telemedicine-Assisted Childbirth Simulations

Leonel Vasquez-Cevallos, Leticia Parpacen-Briones, Fabian Del-Pino-Bazan, Hermes Moran-Chaguay, Priscilla

Diaz-Mora, Juan Carlos Zevallos, Rebeca Estrada, Paul E.D. Soto-Rodriguez, Susana Muñoz-Hernández and Angel Herranz-Nieva

Automatic Classification of Psychosocial Concerns: From Traditional Approach to Deep Learning

Fatima Azzahrae Adnane, Rkia Amraoui, Mehdi Adda and Lily Lessard

HODII Session S-1

Session Chair: Manuel Filipe Vieira Torres Santos and Tiago Guimarães, University of Minho, Portugal

Room: Room 3

Gamification in mobile applications: techniques, benefits and challenges

Mariana Oliveira, António Abelha, Regina Sousa, Hugo Peixoto

Innovative mobile solutions for visual and mobility disabilities: a comprehensive overview

Joana Fernandes, Júlio Duarte, José Machado, Hugo Peixoto

Transforming Healthcare Data: How OpenEHR is Revolutionizing AI-Driven Business Analytics

João Cunha, João Lopes, Ricardo Duarte, Tiago Guimarães, Manuel Filipe Santos

Evaluating the Impact of Primary Health Care Appointments on Hospital Length of Stay

Joana Lopes, Tiago Miranda, Regina Sousa, José Machado

Technical Sessions (4)**16:30 - 18:00****EUSPN Session S-4****Session Chair:** Wendy Osborn, University of Lethbridge, Canada**Room:** Room 1

Unbiased Text Categorization in IoT-based Digital Content Using a Word-to-Graph Model

Pascal Muam Mah

Real-Time Tracker for Moving Objects with Enhanced Signal and Customized User Interface through Broadcasting Global Positioning Systems Data

*Orven Llantos, Olga Joy Gerasta, Jefferson Hora, Eddie Mondejar, Earl Ryan Alehuya, Jesrey Martin Macasero,**Andrea Delos Santos, Preus Manulat, Terrence Jefferson Cimafranca, Helmar R. Israel and Edejed Paculba*

Modeling Wazuh rules with Weighted Timed Automata

Anass Haydar and Mathias Ramparison

A pipelined image transmission protocol for WSNs utilizing LoRa networks

*Hop Q. Ta, Khoe V. Ta and Hoon Oh***IA&NLP Session****Session Chair:** El Habib Ben Lahmar, Hassan II University; Fatima Lakrami & Fatima Zahra Fagroud, Chouaib Doukkali University, El Jadida, Morocco**Room:** Room 2

Advanced OCR for Digits Exploring CNN for Optimal Performance

Khalil Ladrham, Hicham Gueddah

Conversational AI System for Enhancing Autonomy in Individuals with Alzheimer's Disease

Radia BELKEZIZ; Reda CHEFIRA; Mohamed Yassine SAMIRI; Said RAKRAK;

Deep Learning Approaches for Forest Fires Detection and Prediction using satellite Images

Mounia Aarich; Awatif Rouijel; Aouatif Amine

Prediction of student dropout using Artificial Intelligence algorithms

*Jairo Jonathán Martínez; Dodanim Castillo***HODII Session S-2****Session Chair:** Manuel Filipe Vieira Torres Santos and Tiago Guimarães, University of Minho, Portugal**Room:** Room 3

Transforming Sales in Healthcare: The Impact of Augmented Reality and Spatial Computing on the Medical Equipment Industry

Carlos Alves, José Machado, José Luís Reis

An Adaptive Business Intelligence Approach to Surgery Scheduling: A Modular Architecture

João Pereira, Mariana Rodrigues, Afonso Lobo, João Lopes, Manuel Filipe Santos

Time-sensing clinical data handling and codification: a review and methodological approach

*Ana Delgado, Tiago Guimarães, Júlio Duarte, Manuel Filipe Santos***Banquet and Award Ceremony****19:00 - 20:30**

Banquet Room

Wednesday, October 30, 2024

Registration Starts 09:00

Room: Registration Room

Technical Sessions (5) 09:00 - 10:30

EUSPN Session S-5

Session Chair: Mehdi Adda, University of Quebec At Rimouski – UQAR, Canada

Room: Room 1

Application of machine learning in technological forecasting

Franck Nkolongo Tshibanda, Adda Mehdi and Said Echchakoui

Design and development of a decision support platform for the evaluation of CSR performance measurement for manufacturing SMEs

Florentine Esther Mahout Kamte, Mehdi Adda, Anissa Frini and Philippe Kabore

A Practical Computer Vision-Based Advanced Nutritional Analyzer for Adult Diets

Nelson Vera, Alisson Constantine, Rebeca Estrada and Miguel Realpe

Resource Allocation using Reinforcement Learning for Secure SWIPT-RIS-assisted UAV communications

Ramiro Miguel Agila Astudillo, Rebeca Estrada Pico and Katty Rohoden Jarramillo

DTER & EATH Session

Session Chair: Roman Muzyka, Kyrylo Yemets, Myroslav Havryliuk, Lviv Polytechnic National University, Ukraine

Room: Room 2

Regression-based Model for Predicting Simulated vs Actual Building Performance Discrepancies

Ivan Izonin, Roman Tkachenko, Rosana Caro, Antonio LaTorre, Kyrylo Yemets and Stergios-Aristoteles Mitoulis

Enhancing Autoscaling in Cloud Environment: Case of Hotels Network Management System

Kvitoslava Obelovska, Orest Mamchuk, Andriy Abzyatov, Michal Gregus ML., Oleh Liskevych and Rostyslav Liskevych

Method of Cumulative Error Estimation for Surrogate Model in Indoor Air Temperature Prediction Task

Nataliya Shakhovska, Lesia Mochurad, Rosana Caro and Sotirios Argyroudis

Parkinson's disease detection from brain MRI data using convolutional neural networks

Nour El Houda Boulkrinat, MayaYahiaoui, Lydia Kaci

DS Session S-3

Session Chair: Kateryna Kolesnikova, International IT University, Khazakistan

Room: Room 3

Deep Learning-Based Image Processing for Real-Time Detection of Road Surface Damage

Batyrkhan Omarov, Bakhytzhhan Kulambayev

Review of Methods of End-to-End Automatic Recognition of Kazakh Speech

Yerlan Karabaliyev, Kateryna Kolesnikova, Batyrkhan Nurkhan

Optimization of Administrative Processes in the Medical Center of the University using RPA Technology: Case of IITU, Almaty

Diana Smagul, Yevgeniya Daineko

Integrating Deep Learning and Reinforcement Learning into a Digital Twin Architecture for Medical Predictions

Nursultan Alpysbay, Kateryna Kolesnikova, Tolganay Chinibayeva

Technical Sessions (6)**10:30 - 12:00****AMADE&ISFN& NSCTI Session****Session Chair:** Mathias Ramparison, University Grenoble Alpes, CNRS, France**Room:** Room 1

A Review of Wind Impact on Container Port Operations: Current Technologies & Strategies and Future Perspectives

Julio Cesar Mojica Herazo, Sandra Milena Acosta Orozco, Aurora Patricia Piñeres Castillo

A Mathematical Model for Optimization of Hospital Capacity in Response to Multiple Hazards: Case of Coquimbo and La Serena Territories in Chile

Gustavo Gatica, Erick Alexander Montenengro Fuentes, Felipe Rojas, Erwin Aliaga, Lura Rivera, Jairo R. Coronado-Hernandez

Parametric verification to ensure safe behaviour of connected devices

Mathias Ramparison

Using Artificial Intelligence and SDN for Dynamic Scalable Control of Security Rules : An IoT Security Solution

Abderrazek Karim, Mustapha Zeroual, Youssef Baddi, Hicham Toumi, Faysal Bensalah

ICTH Session S-4**Session Chair:** Mehdi Adda, University of Quebec At Rimouski – UQAR, Canada**Room:** Room 2

TriageIntelli: development of an AI-assisted triage system in health centers, using multimodal data

Ziad Araouchi and Mehdi Adda

Harnessing the Implementation Potential of Digital Vaccination Certificates (DVCs) on Global Scale

Brianna White, Rameshwari Prasad, Olufunto Olusanya, Nupur Singh and Arash Shaban-Nejad

Optimizing BIRADS Classification for Breast Cancer in Moroccan Women: Comparing Four Transfer Learning Models

Mohamed Zakaria Kamri, Hafsa Elkoumikhi, Abdessadek Aaroud, Abdelali Bitar

END of the Event