

# TEADMISTEST MÕJUKATE LAHENDUSTENI

## Parallel Sessions

### Applied Research and Quality of Education

#### **ARTEMIS, Alliance for Regional Transition, Equality, Mobility, Inclusion and Sustainability | TTK University of Applied Sciences**

ARTEMIS is a European university alliance that sparks innovation across Europe by leveraging mobility, collaboration, and regional strengths. An overview of the organisational structure and activities of ARTEMIS and its impact on the core activities of TTK with a focus on research and development, sustainable innovation, and cooperation with local governments and communities. The partners are University Clermont Auvergne, University Clermont Auvergne Innovation, The Regensburg University of Applied Sciences, VIVES University of Applied Sciences, University of Ioannina, Western Norway University of Applied Sciences, Ovidius University of Constanța and University of Perugia.

#### **Care about IT | Tallinn Health University of Applied Sciences**

The Care About IT project aims to make healthcare in Europe smarter, more efficient and future-proof by bridging the gap between healthcare, education and IT. Together with our education and industry partners, we provide high-quality vocational education and training (VET) for healthcare professionals, make careers in healthcare and IT more attractive, and ultimately improve the quality of care and patient satisfaction.

#### **Intelligent: Innovative Teaching and Learning of Generations Z and Alpha in Higher Education | Estonian Entrepreneurship University of Applied Sciences**

The project aims to develop entrepreneurship teaching and learning methods for Generation Z and Alpha students, using innovative and technologically advanced solutions. It combines theoretical and practical approaches, drawing on virtual reality, business simulations and artificial intelligence, among others. These solutions are developed in cooperation with European higher education institutions, vocational education and training organisations, and businesses. As a result, entrepreneurship education becomes more

inclusive, accessible and attractive, while learners' digital competences are strengthened and the digital transformation of education is supported. One of the project's outputs currently being tested is the entrepreneurship education game Intelligent, which combines learning and practical experience in a novel way. The game is developed by Andrejs Rusinovskis, who leads the Game Design and Development curriculum at EUAS.

## Applied Research and Security

### **Developing of the Collecting and Digitalising Methodology of the Data from the Land Border Violation Places Using Unmanned Aircraft Systems Which Is Suitable as Evidence in Court (Frontex project) | Estonian Academy of Security Sciences**

The project focused on the development of a new strong methodology for collecting data from land border violation crime scenes for use as evidence in court, in circumstances where communication with the neighbouring country is limited or absent, while respecting that country's sovereignty.

### **Classical and Artificial Intelligence–Based Algorithms for Classifying Radio–Frequency Signals Recorded with Limited Bandwidth and Dynamic Range | Estonian Military Academy**

In many defence-related applications, it is important to identify the parameters of radio frequency signals and to classify these signals. With the increasing role of electronic warfare and the growing number of jammers on the modern battlefield (notably illustrated by the war in Ukraine), the discrimination of jamming devices and the waveforms they employ, as well as the development and implementation of possible countermeasures, has become increasingly important. A cost-effective solution for electronic warfare is the use of commercial software-defined radios, but their limited capabilities (bandwidth and dynamic range) also require the use of dedicated algorithms. The main goal of the research project is to find out the advantages and disadvantages of different algorithms in such applications.

### **Comparison of UWB, Visual Navigation, and LiDAR Technologies for Algorithmic Compensation of Drone Swarm Instability | Estonian Aviation Academy**

A project is investigating the use of a drone swarm to detect the locations of radio stations over longer distances. The project is developing a concept for a sensor array with adjustable size and configuration, where each drone carries a single array element—an antenna. While this solution allows for flexible modification of the sensor array's dimensions and spatial configuration, continuous shifts in the drones' positions due to

wind cause the array geometry to become unstable. This, in turn, can affect the accuracy of algorithms used for radio direction-finding. The project investigates the impact of sensor array instability on direction-finding accuracy and evaluates various technological solutions to determine and compensate for geometric deviations caused by drone movement. The project is funded by the Estonian Ministry of Defence under targeted funding from the Estonian Military Academy.

## **Applied Research and Business Cooperation**

### **Business Models and Economic Impact of Sustainable Energy Solutions in Estonian Airports and Air Connectivity | Estonian Aviation Academy**

The study aims to develop sustainable business models and smart energy solutions (including renewable energy, electric, hydrogen, and SAF technologies) for Estonian regional aviation to achieve climate neutrality. The results are planned to be implemented in cooperation with the Estonian Aviation Academy, Tallinn Airport, aviation companies, and public-sector partners.

### **EXEP3D, Innovation Excellence in Construction Engineering: Novel 3D Concrete Printing Technologies and Sustainable Mixtures | TTK University of Applied Sciences**

The EXEP3D project focuses on advancing 3D concrete printing technologies and sustainable mixture designs to develop the competence centre and to enhance the scientific and technological capacity of TTK University of Applied Sciences (TTK UAS). The international project lasts three years and, through collaboration with leading European universities (Eindhoven University of Technology and Dresden University of Technology), aims to position TTK as a European competence centre in construction engineering.

### **Test City – The Urban Environment as a Testbed for Companies: Applied Collaboration at Ülemiste City | Estonian Entrepreneurship University of Applied Sciences | Ülemiste City**

With the involvement of EUAS, broad applied collaboration with the business community takes place at Ülemiste City, linking applied research directly to a real urban environment. One of its central formats is Test City: the city as a testbed where companies can pilot new solutions on real users and existing infrastructure before wider market entry. To date, pilot projects have included the use of mobility data to optimise mobility flows across buildings and the City to save energy; AI-based building management; computer-vision-based movement analysis to assess the impact of urban-space interventions; autonomous courier and robotics solutions on real-world routes; and measuring the impact of temporary traffic-management interventions to inform permanent infrastructure planning.

## **Applied Research in the Service of Society**

### **Interdisciplinary Collaboration in the Arts | Pallas University of Applied Sciences**

The project focuses on developing contemporary epithesis solutions by combining art, medicine, and technology. The interdisciplinary team consists of healthcare and creative professionals whose collaboration results in prosthetics that improve patients' quality of life. Traditional artistic skills are complemented by innovative simulation solutions.

### **Empowering Family Caregivers | Tartu Applied Health Sciences University**

The ongoing applied research project focuses on empowering family caregivers to improve the well-being of adults requiring long-term care at home and to address challenges associated with caregiving burden. During the project, interviews were conducted with family caregivers, a continuing education course for family caregivers was developed and implemented, and a MOOC (Massive Open Online Course) is currently being prepared to provide freely accessible learning opportunities for caregivers.

### **Data in the Service of Society: An Open Workflow for Tallinn-Based Mobility Modelling | Ülemiste City | Estonian Entrepreneurship University of Applied Sciences**

Estonian Entrepreneurship University of Applied Sciences contributes applied research that supports data-driven decision-making in shaping Ülemiste City and community services. Its central tool is Ülemiste RADAR – a data-driven economic and spatial analysis platform developed and populated with the involvement of EUAS's data scientists. RADAR aggregates and visualises the precinct's economic, usage and spatial data, turning it into a basis for evidence-based decisions: which services to offer and where, how to plan new infrastructure, and where to direct investment. In this way, both public and private sector decisions can rest on real data, helping to make the services more accessible and more responsive to community needs.