CERTH
CENTRE FOR
RESEARCH & TECHNOLOGY
HELLAS

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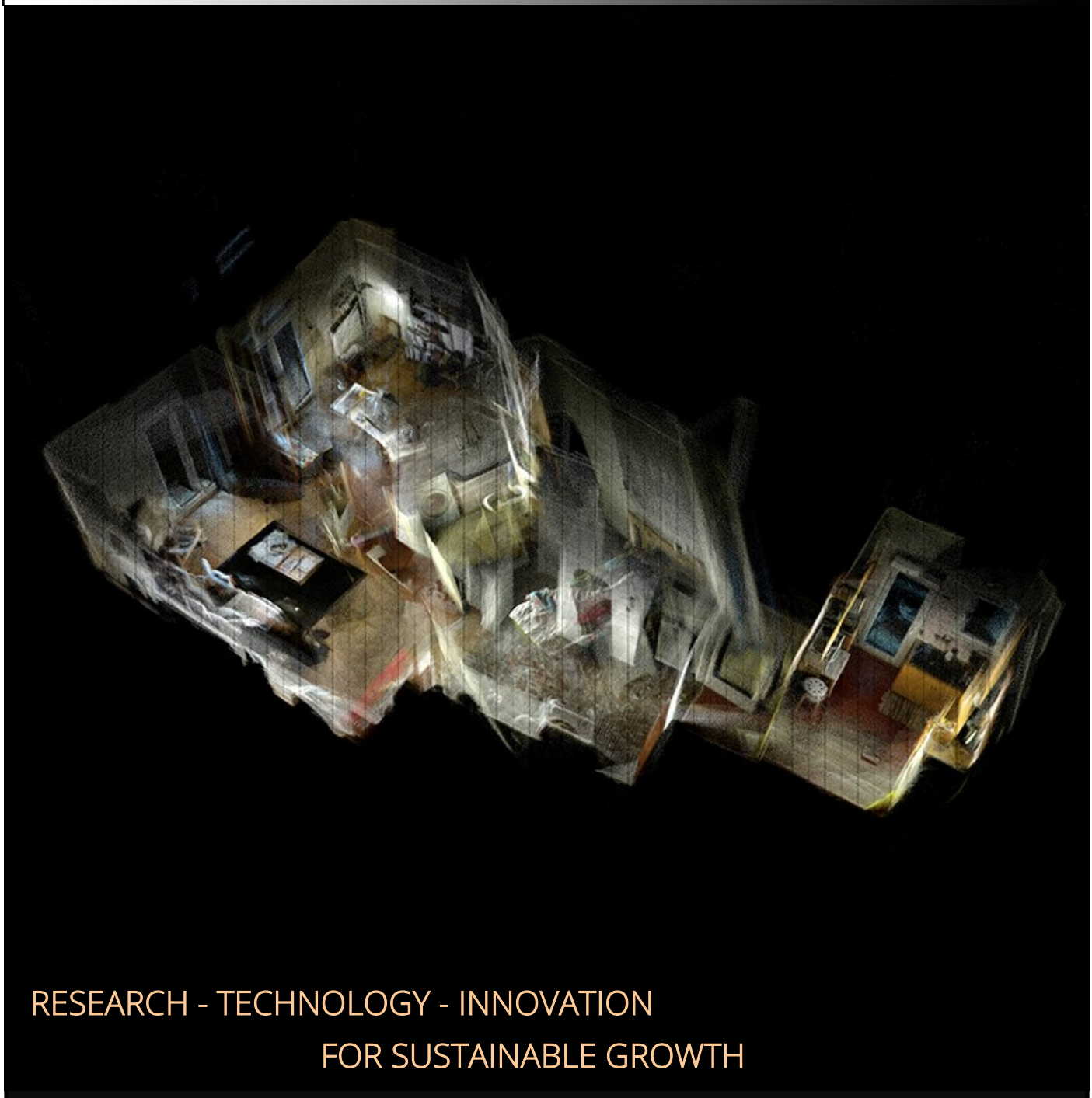


RESEARCH - TECHNOLOGY - INNOVATION
FOR SUSTAINABLE GROWTH

Architecture and video virtual reality games based on movies, documentaries, paintings and images from the artwork

Innovative combination of state of the art information technologies, focusing on the development of 3D and open data-enriched multimedia objects for architecture and virtual reality games design

Newsletter CERTH in English

Dr. Theodoros Moysiadis has been distinguished as fellow of the week on the 12th, January within the framework of Marie Skłodowska Curie-Individual Fellowships (MSC-IF). Dr Moysiadis is an MSC fellow in INAB under the supervision of Dr Kostas Stamatopoulos. His project is CLLassify with full title "Innovative risk assessment for individualizing treatment in chronic lymphocytic leukemia".

CLLassify aspires to face the high-challenging and timely problems related to chronic lymphocytic leukemia, and in particular the classification and efficient prognosis of patients at the time of diagnosis and the attempt to personalize the treatment. CLLassify addresses these issues in a pioneering fashion within a multidisciplinary collaboration, proposing an improved classification of the patients, as well as the novel aspect of personalized prediction of the need for treatment at a specific time point for the individual patient.

At the same time, CLLassify includes a broad range of dissemination and outreach activities, which address both the scientific community and the general public, respectively. Dr Moysiadis has developed and regularly updates the CLLassify website (cllassify.gr) and the respective FB page: CLLassify (https://www.facebook.com/CLLassify-1004874609594944/)

Observing the Earth from above

EOPEN - Open interoperable platform for unified access and analysis of Earth Observation data (H2020 EO RIA, 2017-2020) Earth Observation (EO) data access through the Copernicus data distributor systems has paved the way to monitor changes on Earth, using Sentinel data. One of the main objectives of EOPEN is to fuse Sentinel data with multiple, heterogeneous and big data sources, to improve the monitoring capabilities of the future EO downstream sector. Additionally, the involvement of mature ICT solutions in the Earth Observation sector shall address major challenges in effectively handling and disseminating Copernicus-related information to the wider user community, beyond the EU borders. EOPEN will fuse Copernicus big data content with observations from non-EO data, such as weather, environmental and social media information, aiming at interactive, real-time and user-friendly visualizations and decisions from early warning notifications. The fusion is also performed at the semantic level, to provide reasoning mechanisms and interoperable solutions, through the semantic linking of information. Processing of large streams of data is based on open-source and scalable algorithms in change detection, event detection, data clustering, which are built on High Performance Computing infrastructures. Alongside this enhanced data fusion, a new innovative, overarching Joint Decision & Information Governance architecture will be combined with the technical solution to assist decision making and visual analytics in EOPEN. Besides EO product-oriented data management activities, EOPEN also exploits user-oriented feedback, tagging, tracking of interactions with other EOPEN users. EOPEN will be demonstrated in real use case scenarios in flood risk monitoring, food security and climate change monitoring.

V4Design: Visual and textual content re-purposing FOR (4) architecture, Design and video virtual reality games

V4Design will develop a platform that provides architects, video game creators and designers of any expertise with innovative tools necessary to enhance and simplify the creative phase of the designing process. The main idea behind V4Design is to reuse 1. visual: movies, documentaries paintings and images from other artwork and 2. textual content: from textual documentations in films, critics, catalogues, museum guides, and re-purpose it in order in a way that will be useful for architecture and video game designers.

To this end, V4Design will develop a data collection and retrieval tool that will gather data from content providers and crawl on-line art libraries, in order to extract 3D and VR representations from objects, buildings and cityscape environments. Additionally, V4Design will introduce innovative design tools to architects, designers and video game creators that will leverage visual and textual ICT technologies: 1. extract a specific historic era's artistic or aesthetic style, localize buildings and art-objects in visual data, 2. generate personalized summaries of the retrieved commentaries, reviews, critics, etc. on the visual content, and 3. enhance all the above with semantic knowledge, smart indexing and retrieval capability. By this way, the creative phase of the design process will be greatly enhanced. Past aesthetic trends and SoA design knowledge would be easily reused, fully leveraging the skills, competencies and talent of designers and allowing them to explore and create new realms. A very rich source of inspiration will be also provided by textual summaries derived from the reflections on the analyzed artwork tuned to designers' interests and profiles.

Bioplastics from residual biomass!

The kick-off meeting of the European research project «Sustainable and efficient bio-chemical catalytic cascade conversion of residual biomass to high quality biopolymers - BioCatPolymers» was successfully held on January 10-11, 2018, in Brussels.

The main objective of BioCatPolymers is to develop and demonstrate a cost-effective, sustainable and efficient cascade technological route for the conversion of low-value, low-quality residual biomass to bio-polymers with equal or better performance than their fossil-based counterparts.

BioCatPolymers is specifically aiming at the efficient and economic production of two monomers with very large markets that can be further processed in the existing infrastructure for the production of various large commodity products, such as synthetic rubber for the production of car tires, polyurethanes and polyesters that can be used as foams for insulation, in footwear production etc. An important advantage of these plastics is the use of renewable biomass as feedstock for their production.

The kick-off meeting of BioCatPolymers was attended by representatives of the project partners and in the presence of the EC Project Officer, Dr Ioannis Vouldis. **Dr. Vouldis congratulated the coordinator and all partners, as BioCatPolymers received the highest score among the proposals submitted in this call and noted that it is the only project coordinated by a Greek entity in the biotechnology area.**
Dr. Angelos A. Lappas, the Project Coordinator and Scientific Responsible of the project, presented an overview of the project, referring to the objectives, the expected results and the organizational structure. Dr. Eleni Heracleous, Collaborating Faculty Member of LEFH/CPERI and Assistant Professor at the International Hellenic University presented the important role and the contribution of CERTH in the technical activities of the project.

The BioCatPolymers project, funded by the European Union under the Horizon 2020 EU Research and Innovation programme, **is** coordinated by the Laboratory of Environmental Fuels & Hydrocarbon of the Chemical Process and Energy Resources Institute (CPERI) at the Centre for Research & Technology Hellas (CERTH). **The project has duration of three years and** total budget of approximately 5.7 million euros. It is one of the biggest research projects of the center, with the budget of CERTH surpassing 1.3 million euros. The other partners include: Visolis Technologies Ltd. (United Kingdom), Bioprocess Pilot Facility B.V. (Netherlands), Process Design Center (Netherlands), Quantis (Switzerland) and Covestro Deutschland AG (Germany).

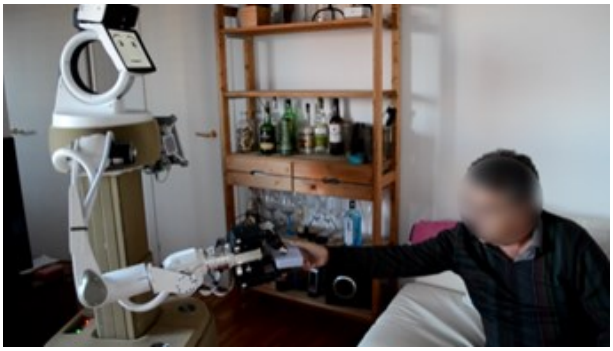
Second version of the RAMCIP robot established and project pilot trials started in Spain and Poland

1st (left) and 2nd (right) version of the RAMCIP robot

During the last months of 2017, the development of RAMCIP robot has been successfully finalized. final integration steps on the robot, along with its preliminary testing with older users, took place in Thessaloniki, within the smarthome premises of the Information Technologies Institute of CERTH (CERTH-ITI), the RAMCIP project Coordinator.

The final pilot trials of the RAMCIP project started in October 2017 in Barcelona (Spain) and in Lublin (Poland). They are expected to conclude within March 2018.

Specifically, two robots have been prepared to operate in parallel in the two pilot sites. The first has been installed in a house-simulating space of the Medical University of Lublin (LUM). In this pilot site, the evaluation of the robot will be performed with the participation of 20 different users diagnosed with Mild Cognitive Impairments (MCI). The users will have the opportunity to experience real human-robot interaction by testing all the target use cases supported by RAMPCIP.



The second robot is located in Barcelona and will be evaluated from 12 participants at their own home environments. The robot is transferred from house to house and remains for 10 days in each one. The trials are supervised by the Alzheimer Center of Barcelona (Fundactio ACE), while the technical support is coordinated by CERTH/ITI and is provided by all the technical partners of the project, ITE, TUM, ACCREA, SSA and SHADOW.

Until now, the pilot trails at the first seven houses in Barcelona have been successfully completed. Within these trials, the robot has managed to accomplish successfully all of the use case scenarios, without significant limitations.

Indicatively, the RAMCIP use cases include the provision of assistance to daily activities, such as cooking, eating and medication, through proactive and discreet monitoring of the end user's activities and robot interventions by reminders and robotic manipulations when deemed necessary. As such, further to the typical on-demand service cases, where the robot is asked to bring e.g. a snack, the RAMCIP robot can indicatively provide medication reminders, bring the medicine and monitor the user while taking them, recognize an object that has fallen on the floor, some electric appliance that has been forgotten open/turned on during cooking, that some known person or stranger is outside the door etc. The robot can also recognize a user's walking activity in low-light conditions and turn on the light through robotic manipulation, as well as detect cases of emergency, such as a user's fall, when a user's relative will get accordingly informed. Finally, the robot provides the user with cognitive training games, as well as with the capability to contact relatives and friends through video-calls.

5th Technology Forum

In the modern economic environment, competitiveness is relied upon the development of innovative products. Knowledge combined with the right technological tools are key elements in the process of developing innovative products & services. Knowledge of such tools exists in both industrial bodies (ICT & other industries) as well as in research organizations (Universities & Research Centers). Therefore, their collaboration is important towards developing innovative products with international perspective.

Therefore, in order to serve these challenges the 5th Technology Forum (www.technology-forum.eu) is going to take place once again in Thessaloniki, at the Aristotle University of Thessaloniki, 16/05/2018, 9:00-18:00.

ΕΚΕΤΑ
ΕΘΝΙΚΟ ΚΕΝΤΡΟ
ΕΡΕΥΝΑΣ & ΤΕΧΝΟΛΟΓΙΚΗΣ
ΑΝΑΠΤΥΞΗΣ

The **Centre for Research and Technology-Hellas (CERTH)** founded in 2000 is one of the leading research centres in Greece and listed among the TOP-20 E.U. institutions with the highest participation in competitive research grants.

Today CERTH includes the following five institutes with indicated major fields of research:

- **Chemical Process and Energy Resources Institute (CPERI)** Sustainable & Clean Energy, Environmental Technologies, Chemical & Biochemical Processes, New Functional Materials
- **Information Technologies Institute (ITI)** Informatics, Telematics and Telecommunication Technologies, Safety and Security
- **Hellenic Institute of Transport (HIT)** Smart Sustainable Mobility, Transport Safety
- **Institute of Applied Biosciences (INAB)** Agri-biotechnology, Health Translational Research, Informatics for big bio-data
- **Institute for Bio-economy and Agri-Technology (IBO)** Bio-economy, Agri-technology

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