

About TUC

The Technical University of Crete (TUC) is a small technical (engineering) university with a clear mission: To expand knowledge and benefit society through research integrated with education. In this endeavour, the pursuit of excellence is the driving force. More than 50 laboratories with prime equipment, high technology infrastructure and eminently qualified personnel (more than 60% of professors have received their PhD's from Western European and North American universities) attest to the level of excellence in education and research conducted at TUC. According to the External Evaluation Report by the Hellenic Quality Assurance & Accreditation Agency, "Research is a core mission of the Institution and as a result, TUC delivers scientific output of high calibre and volume. In terms of research publications, TUC is one of the most productive research institutions in Greece and compares very favourably with peer institutions in Europe and North America". This profile ranks TUC amongst the most prominent research institutions in Greece. In the era of globalisation and international competition, internalisation is one of the cornerstones of TUC's goal for the period 2020-2040.



Dr. Michail Zervakis



Dr. Michail Zervakis, Rector of TUC, Professor at the School of Electrical and Computer Engineering (ECE) and Director of the Digital Image and Signal Processing Laboratories (DISPLAY), ECE TUC, holds a Ph.D. degree from the University of Toronto, Department of Electrical Engineering, since 1990. He is serving as Professor at the department of Electrical and Computer Engineering and directs the Digital Image and Signal Processing Laboratory (DISPLAY). His research interests include modern aspects of signal and image processing, data mining and pattern recognition, imaging systems and AI automation systems. Applications include AI-based surveillance systems including detection and tracking, AI-driven biomedical analysis, and biomarker selection from mass genomic data, time-frequency biosignal characterization, modelling of disease state and progression. He is co-author of more than 280 scientific papers in international journals and conference proceedings. He has participated in more than 30 national and European research projects and has participated in the scientific committees of several IEEE conferences. He currently serves as associate editor in IEEE Transactions on Biomedical and Health Informatics as well as in the journal of Biomedical Signal Processing and Control. Major role in the project – Project manager - senior expert/advisor/researcher / management and coordination of relative tasks



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What will the MaaSiveTwin project add to the current scientific state-of-the-art?

Through MaaSiveTwin, the consortium develops a supply/demand/price prediction worldwide value chain prediction tool based on AI models enabling real-time supply chain monitoring, identifying potential disruptions and allowing for proactive management.

How will the MaaSiveTwin project make Europe more sustainable?

MaaSiveTwin will offer the opportunity for real-time tracking of the supply chain and the effect prediction of possible events on supply chain disruption which would facilitate the distant nodes of the CRM network to work effectively and to consume less.

What will be the main impact of the project?

Battery plays a vital role in the daily life, adding monitoring and value prediction of critical raw materials in a crucial position. Supply chain acquisition is one of the key elements for competitive and resilient battery manufacturing. The MasSiveTwin tool will thus cover all supply chain data and analysis from mining to recycling as well as events and (encouraging/discouraging) policy analysis, contributing actively to the supply chain optimization.



Dr. Marios Antonakakis



Dr. Marios Antonakakis, is an Electronic and Computer Engineer, TUC, with a Master's degree from the same department. He obtained a PhD degree in AI-based systems from the Technical University of Ilmenau, East Germany. Currently, he is a research and teaching collaborator in the DISPLAY, ECE TUC. His research interests include machine and deep learning for surveillance systems (detection and object characterization, data fusion, decision and forecasting systems and tracking systems) and non-invasive biomedical AI-based systems for brain abnormal detection, signal and image processing for real-world applications. During his undergraduate studies, Dr. Antonakakis had received 4 scholarships of excellence, while during his PhD studies, he had received a fellowship from the European Marie Skłodowska-Curie action and one from the Onassis Foundation. Up to now, he has received 6 awards for best research work. He is corresponding author or participate in more than 60 scientific publications in international journals and proceedings of international peer-reviewed conferences. He has participated in more than 10 research-scientific projects in Greece and Europe. He has co-organized several symposia-workshops in international scientific meetings and has been invited as a keynote speaker in international conferences. He serves as a guest editor in three special issues of international publication and impact, and is a reviewer of articles in more than 10 international high-impact journals.

Major role in the project – Senior expert/advisor/researcher / project management/ AI expert / Surveillance Systems / IT services / Signal and Image Activities - Machine/Deep Learning, Data processing and fusion / Visualization systems



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Why is the MaaSiveTwin project important?

The very first time, a MaaS project will offer unique opportunities for monitoring, track and predict CRM for battery production making possible the real-time evaluation of indices for rapid decision making in batter industry.

What will be the benefit of the CRM supply chain industry from the MaaSiveTwin project results?

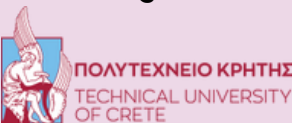
The benefit of MaaSiveTwin to the CRM supply chain industry is more than useful. For the very first time a unique platform will offer worldwide possibilities in monitoring and value prediction of CRMs. Industries will acquire this unique possibility to add their manufacturing chain based on the acute prediction results preventing them from unknown situations.

What will be the role of your organisation in the project?

For MaaSiveTwin, TUC has a double role. The first includes the remote tracking of the mining progress in a daily base by analyzing satellite multispectral and geolocalized images using novel image processing techniques. This role adds 'the virtual eye' for MaaSiveTwin. The second major role of TUC is the leading of Supply-Demand Modelling for CRM Value Chain with the ultimate goal to establish appropriate data representations for multi-source supply chain forecasting based on AI-based models.



Mr. George Livanos



Mr. George Livanos, holds a Master and a Bachelor degree from TUC, School of Electronics and Computer Engineering. He is currently a PhD student at the same department, assistant personnel of in the DISPLAY. He is involved in research on image histogram modeling and segmentation for real-world applications, machine vision and 3D image reconstruction approaches for environmental surveillance and inspection of industrial infrastructure, navigation of Remotely Operated Vehicles via optical recognition, sensor data management tools and platforms. He has been involved in 3 book chapters and 38 paper publications/announcements in international journals and conferences in related areas of image/signal processing, biomedical engineering, 3D reconstruction from stereo and machine vision, chemometrics and spectrum analysis. He is an experienced researcher, having participated in several projects funded by the Greek Ministry of Development, the Greek Ministry of Education, the European Social Fund and the European Union in the above mentioned

Major role in the project – Senior expert /researcher / Surveillance systems / Pattern recognition systems / Signal and Image processing / IT services / Data Analysis / Visualization systems



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