PIC Number	**949870076**		
Partner Full Name	**Lime Technology IKE**		
Short Name	**LIME**	**Country**	Greece
Type	SME	**Website**	www.lime-technology.gr

Official Logo

Brief Partner Profile

LIME is a leading, highly SME established to provide leading edge intelligent technical solutions and consulting services to businesses, organizations and government in order to allow the efficient and effective access and communication with various heterogeneous information and services, anytime and anywhere. LIME has undertaken a series of projects and services developments, mainly involving the Healthcare and Education domains, which provide experience and knowledge to its constantly growing team. The main services are (i) mobile and web development to provide innovative, user-friendly and fully functional applications, (ii) e-Health services aiming at feature extraction and data analysis techniques with AI and deep learning. Moreover, LIME, having experience in developing web services using authentication protocols (oAuth) undertakes the development of middleware to collect data from various connected devices of everyday life, aiming to extract knowledge, analyse information, identify trends, etc.

Relevant skills/experience/technologies

LIME is involved in the FET-Open H2020 project EDIT "Novel precision technological platforms to promote non-invasive early diagnosis, eradication and prevention of cancer relapse: proof of concept in the bladder carcinoma", undertaking the 3D visualization and modelling of the bladder and the bladder cancer.

The members of LIME have gained years of experience in project management, mobile and web development, data mining applications as well as 3D visualization environment development, through their participation in National and European funded research projects. In the area of e-Health, LIME has executed successfully the "Cloud based segmentation as a service" (LIMEcardio) project, under the FICHe accelerator of the FIWARE programme. LIMEcardio provides an accurate estimation of surgery necessity leading to reduction of cardiovascular surgeries. LIMEcardio is an all-in-one-solution provided as a service in the cloud that uses standard imaging techniques (IVUS, OCT, angiographies) resulting to accurate disease detection through: i) 3D reconstruction and visualization of coronary arteries, ii) calculation of artery stenosis metadata, iii) calculation of the Fractional Flow Reserve (FFR).

In addition, LIME successfully completed the LAMSA.A project, developing software incorporating an automated method of checking language deficits in neurological diseases, while its executives participated in several successful EU-funded Projects (i.e. CHRONIOUS, ARTREAT, SensorART, SIFEM, EMBalance). Also, a project is uploaded to the GitHub regarding the OAuth connection with the Withings activity tracker device (https://github.com/chrisfilda/withConn).

Previous major projects

AIR3D: "Minimum viable product for Automated 3D Imaging Reconstruction of the bladder and the bladder cancer". AIR3D will validate the business potential of the automatic 3D imaging reconstruction software developed within the EDIT FET project. Such software allows performing fast, non-invasive 3D visualization of several information on the bladder in real-time with user friendly interaction with the operator. It combines pre-clinical information from UltraSound (US) and Photoacoustic (PA) imaging towards the early diagnosis of bladder cancer and monitoring of cancer progress during therapy and follow-up.

EDIT: "Novel precision technological platforms to promote non-invasive early diagnosis, eradication and prevention of cancer relapse: proof of concept in the bladder carcinoma", Funded from the European Union's Horizon2020 FET Open research and innovation programme under grant agreement No. 801126.

VirtuaLand project: *An Immersive Virtual Experience for Cultural and Natural Heritage Sites.* The overall objective is to: (i) identify, protect and preserve cultural heritage of the Greece-Albania cross border are, through highlighting content included in rare, very old, but too significant assets included in the Libraries. (ii) Act as an attractive touristic package that results to a common reference point for all tourists visiting the area in order to have an in-depth experience with tangible and intangible assets and better understand the traditions, history and culture of locals. LIME delivers a Virtual Reality (VR) interactive platform, where selected Cultural Heritage Objects (CHOs) are converted to cultural and touristic scenarios. Users will not only consume information stored in the assets of interest, but also to "live" into another era, identify the living conditions of that period and interact with people, enhancing their experience. LIME, in the VirtuaLand project, delivers also a library of 3D objects and an open VR platform, where Libraries, professionals in the tourism industry or individuals with limited programming skills will be able to create their own VR stories, increasing the sustainability of the platform. Thus, training activities are foreseen n the use and extension of the VirtuaLand platform, but, also, on the cultural framework of the area.

Balkaneana project: *A Europeana Digital Library Initiative for the Cross Border Area of Greece and Albania.* Within the Balkaneana project, valuable content from the public library of Konitsa, the municipal library of Gjirokastra and the overall cross border region was digitized, the facilities and the service model of both libraries through novel technologies and paradigms was modernized and added value for the growth of the two participating regions was created using as disseminating platform the Europeana portal.

Exploral project: *Exploring the cultural heritage of the cross border region through a digital library and oral sources.* Exploral provides engaging means to offer tourists the opportunity to experience a unique personalized tour of this rich in culture, traditions, arts and natural beauty area and visit multiple urban and rural points of interest.

THEMA project: *New technologies in the service of developing interregional thematic routes*. THEMA project delivers a solution using new technologies for creating and promoting thematic touristic packages as well as empowering users to exploit and benefit through those packages.

BeeQ: A Quality Monitoring system and automatic disease recognition for Beekeeping. The BeeQ system provides a comprehensive, low-energy footprint quality tracking solution that monitors environmental conditions inside and outside cells and monitors cell quality, leading to early diagnosis of any diseases that may occur in the cell. Includes low-energy sensors and transponders installed in the cells, while low-power, low cost and long-range (LoRa Class A) wireless protocols capture the data of each sensor and transmit them to a cloud-based information system that analyzes real-time data and alerts are sent to producers through a mobile app.

LIMECardio, "Cloud based segmentation as a service", FICHe FI-WARE Accelarator.

GeneScreening: "Implementation of a genetic platform diagnosing DNA sequencing pathogens by using NGS", Funded by the European Union (European Regional Development Fund- ERDF) and Greek national funds (NSRF Epirus 2014-2020).

EuSleep, "Biosignal analysis in patients with sleep apnea syndrome and implementation of diagnostic and treatment services". Funded by the European Union (European Regional Development Fund- ERDF) and Greek national funds (NSRF Epirus 2014-2020).

Key personnel

Christos V. Bellos (male) is co-founder and Business Management Director at LIME. He received his diploma in Electrical and Computer Engineering from the National Technical University of Athens in 2006 and master in Engineering Project Management. He has participated for more than ten years in several European and national projects and achieved experience on project and technical management as well as software engineering principles, like advanced modelling, entity relationship modelling and relational database design. Also, he has gained professional experience in software development, web applications and mobile development, while his major research interests include data fusion and mining, feature extraction and data analysis methodologies as well as decision support systems. He has published over 20 scientific papers for international conferences and journals and he serves as a scientific reviewer for various international scientific conferences.

Konstantinos A. Stefanou (male) was born in Ioannina, Greece in 1983. He received his Engineering Diploma from the Department of Electrical and Computer Engineering of the National Technical University of Athens in 2006. He received his Master Diploma in the field of Information Systems from the Athens University of Economics and Business in 2008. He has participated in several European and national projects since 2009 and his main fields of activity in these projects concern technical management and software engineering. His general interests include medical image processing, 3D visualization rendering, mobile application development, information systems design and implementation. He has published over 20 scientific papers for international conferences and journals. He is currently co-founder and Innovation Development Director at LIME.

George S. Stergios (male) is co-founder and Business Services Director at LIME. He received his diploma in Computer Engineering and Informatics from the University of Patras in 2009. He received his Master of Science in the field of ICT in Education from the University of Ioannina in 2014. He currently attends the Postgraduate Programme in Business Administration from the Hellenic Management Association. He has participated in several European and national projects since 2010 and has gained experience on software development, web applications and EEG systems in education. His research interests include event related potentials for educational purposes, speech analysis software and

artificial intelligence systems in credit risk management. He has published over 5 scientific papers in international and national conferences and journals.

Relevant publications/patents/products/services

Bellos, C. et al. (2023). Design of a VR Environment Optimized for Cultural Heritage Sites and Objects: The Use Case of Its Kale, Ioannina, Greece. In: Moropoulou, A., Georgopoulos, A., Ioannides, M., Doulamis, A., Lampropoulos, K., Ronchi, A. (eds) Transdisciplinary Multispectral Modeling and Cooperation for the Preservation of Cultural Heritage. TMM_CH 2023. Communications in Computer and Information Science, vol 1889. Springer, Cham. https://doi.org/10.1007/978-3-031-42300-0_19.

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Existing infrastructure

- LIME has developed libraries with algorithms for image processing and 3D visualization that will be available for further development and adjustment to the needs of the project from the very beginning.
- In addition, LIME has developed a Data Middleware acquiring information from PubMed and other open Repositories.
- VIVE Cosmos Elite and VIVE Focus 3 and the respective expertise on setup of the infrastructure and deployment of the application.
- Oculus Quest 2 and Quest 3 equipment and the respective expertise on setup of the infrastructure and deployment of the application