

ITN – DCH PROJECT

SHORT DESCRIPTION OF THE CONSORTIUM



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FULL PARTNERS

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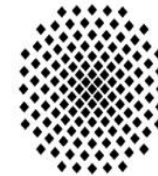
ACADEMIA



UNIVERSITÉ
DE GENÈVE



National
Technical
University of
Athens



Universität
Stuttgart

KATHOLIEKE UNIVERSITEIT
LEUVEN

THE UNIVERSITY OF
WARWICK



University of *Ljubljana*
Faculty of *Civil and*
Geodetic Engineering

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RESEARCH



FONDAZIONE
BRUNO KESSLER



Fraunhofer

IGD



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INDUSTRY

ArcTron 3D

Expertise in Three Dimensions

7 reasons.
Medien GmbH

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CYPRUS UNIVERSITY OF TECHNOLOGY

DIGITAL HERITAGE RESEARCH LAB (DHRLab)

<http://www.digitalheritagelab.eu/dhrlab/lab-overview/>

The **Digital Heritage Research Lab (DHRLab)** was established in 2013 at the **Department of Electrical Engineering and Information Technology of the Cyprus University of Technology**. The lab is devoted to research on the digitization, archiving, and promotion of cultural heritage, tangible and intangible remains of our cultural past.

The research focuses on four thematic areas: recording, access, management, and conservation of cultural heritage assets.



DIGITAL HERITAGE
RESEARCH LAB

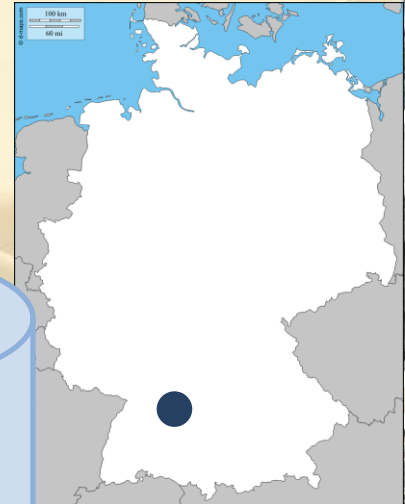
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THE INSTITUTE FOR PHOTOGRAMMETRY@USTUTT



**INSTITUTE FOR PHOTOGRAMMETRY (ifp)
UNIVERSITY OF STUTTGART**



**Teaching,
Further
Education
L³**

**Research
&
Development
(R&D)**

**Technology
Transfer**

- Geodesy & Geoinformatics
- GEOENGINE
- Infrastructure Planning
- WAREM
- Aerospace Engineering

- Photogrammetry, CV
- Photogrammetric Image Processing
- Geoinformatics
- Signal Processing

- The Photogrammetric Week Series (biennially)
- SW Development
- Consultancy
- Workshops

3D OPTICAL METROLOGY UNIT – BRUNO KESSLER FOUNDATION (Trento, Italy)

<http://3dom.fbk.eu/en/home>

Metrology software and methodologies based on terrestrial, UAV, aerial and satellite **photogrammetry** as well as on triangulation and time-of-flight **optical active sensors** (e.g. laser scanners)

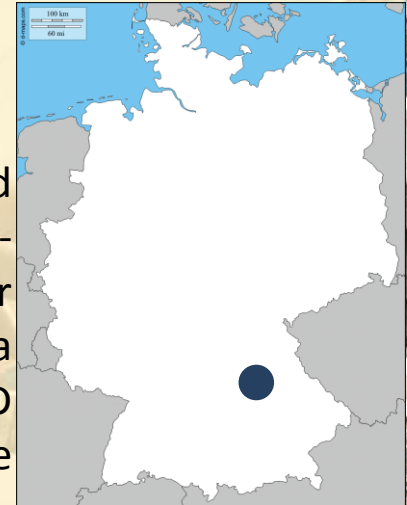
Optimization and development of methods and tools for virtual reconstruction and visualization of natural and man-made sites or objects, with great attention to the **automation** of photogrammetric methods, the **fusion** of 3D models acquired with different techniques (at different point densities and measurement accuracies) and the development of new data processing pipelines.



AIRBONE, TERRESTRIAL AND HIGH RESOLUTION 3D SERVICES FOR CULTURAL HERITAGE

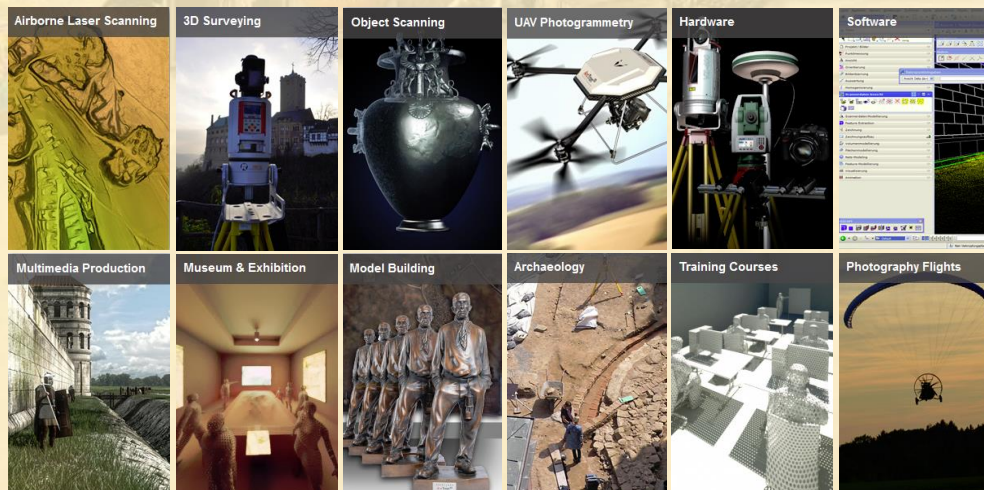
<http://www.arctron.de/en/>

The main focus of the ArcTron company group is on archaeology and cultural heritage, the documentation of landmarked buildings and 3D-multimedia services. Services and products range all around 3D-laser scanning, airborne, terrestrial and high resolution 3D-surveys, multimedia services like visualization, reconstruction and 3D content as well as 3D model building. Software products developed by ArcTron3D include the acclaimed photogrammetric software aSPECT3D.



ArcTron 3D Ltd.
Engineering Services for 3D
Surveying & Software
Development
Ringstraße 8
93177 Altenthann, Germany

E-Mail: info@arctron.de



<http://aspect3d.arctron.de>



National
Technical
University of
Athens

NTUA – SCHOOL OF SURVEYING ENGINEERING

LABORATORY OF PHOTOGRAMMETRY (PhotoLab)

www.survey.ntua.gr

- Photogrammetry, image processing and computer vision applied on cadastral, mapping and cultural heritage applications
- Cameras, laser scanners, UAS, low-cost sensors
- Summer schools on 2D and 3D data acquisition and processing
- Software developing



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NTUA – SCHOOL OF CHEMICAL ENGINEERING

LABORATORY OF MATERIALS SCIENCE AND ENGINEERING (LMSE – NTUA)

http://www.chemeng.ntua.gr/the_materials_science_and_engineering_lab/en

The **Research** conducted within the **LMSE – NTUA** is mainly focuses on:

- The use of sustainable materials and construction technologies aiming to increase the lifetime of infrastructure and monuments
- The impact assessment of environmental loads on structures
- The implementation of integrated diagnosis of the decay of building materials using high measuring techniques
- The planning of interventions for the protection of monuments using compatible materials and techniques
- The application of quality control of building materials and works for sustainable construction
- The strategic planning for the protection of cultural heritage and integrated environmental management for the protection of monuments using GIS
- The development of expert systems providing scientific support on decision making on management of monuments and historic buildings, using intervention necessity indices and risk thresholds.

LMSE – NTUA is headed by Prof. Antonia Moropoulou

<http://www.esat.kuleuven.be/psi/visics>



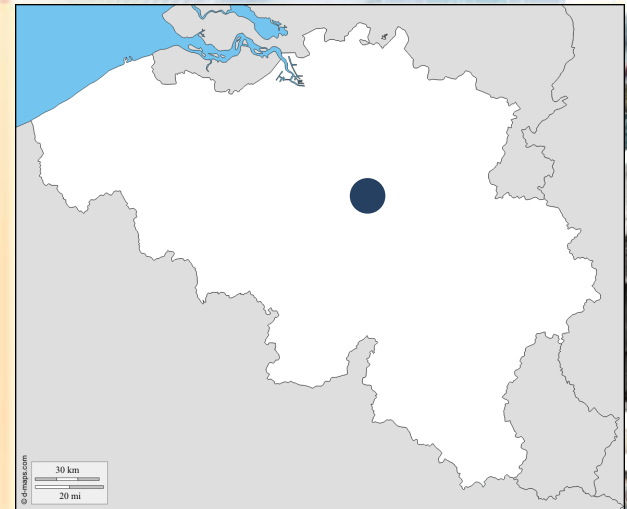
Department of Electronic Engineering
Domains: Electrical Engineering,
Electronics, Information Processing.



**Center for Processing Speech and
Images**
Three subgroups: MIC, VISICS, SPEECH



**VISION in Industry, Communications, and
Services**
Research area: Computer Vision





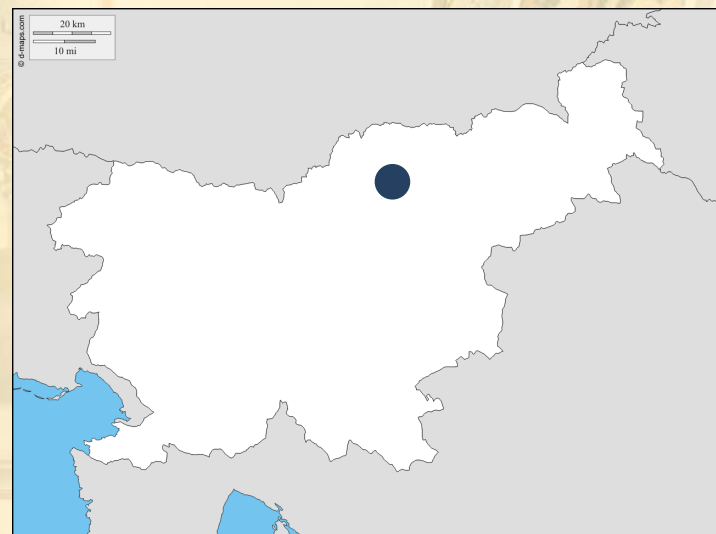
UNIVERSITY OF LJUBLJANA – FACULTY OF CIVIL AND GEODETIC ENGINEERING

<http://www3.fgg.uni-lj.si>

UL-FGG is a **public higher education institute** with the educational and scientific research activity being mainly financed by the Republic of Slovenia.

FGG is divided in eight scientific areas:

- geodesy
- municipal economics and spatial planning
- materials and structures
- construction management
- traffic and traffic constructions
- hydraulic engineering
- construction IT and
- basic subjects.



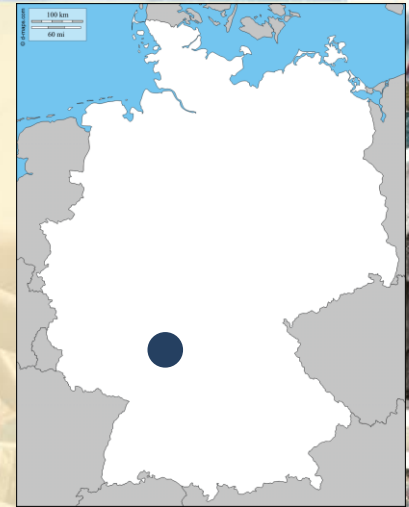


Competence Center for Cultural Heritage Digitization

www.igd.fraunhofer.de/en/Institut/Abteilungen/Digitalisierung-von-Kulturerbe
www.cultlab3d.de/

Department focus:

- Fast and economic digitization technologies for an accurate virtual reproduction of heritage objects
- State-of-the-art scanning and lighting technologies to capture the exact geometry, texture, and optical material properties
- CultLab3D project - the world's first automatic modular 3D digitization pipeline



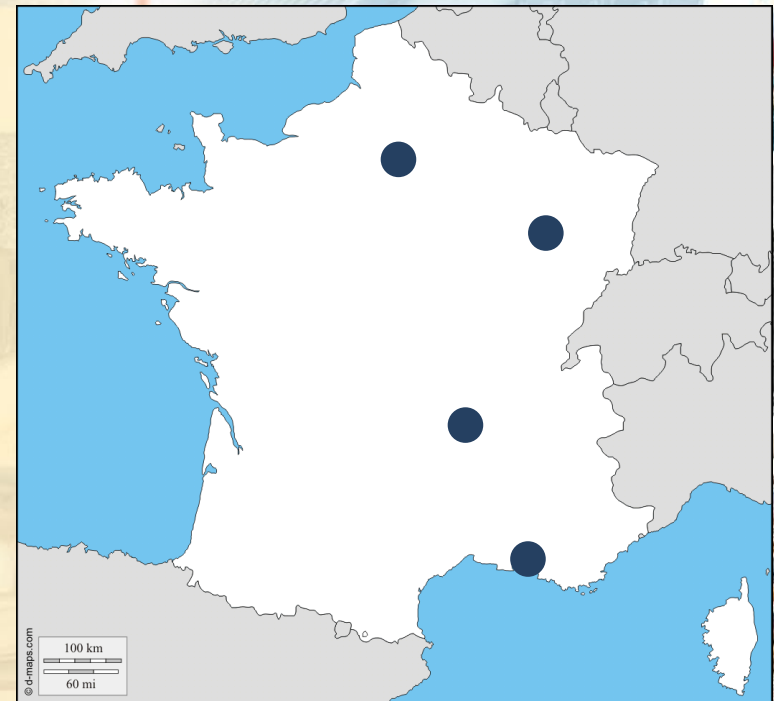
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RESEARCH CENTER CNRS – MAP (Models and simulations for Architecture and Cultural Heritage)

<http://map.cnrs.fr>

- ICT for advancing knowledge on architecture and cultural heritage
- Integration of skills
- A scientific project founded on the Interdisciplinarity (human science and computer science)
 1. Models, methods and tools for documenting architectural heritage
 2. Models and digital environments for the architectural design



MULTIMEDIA CONTENT PRODUCTION FOR THE VISUALIZATION AND PRESENTATION OF SCIENTIFIC AND ACADEMIC RESEARCH

<http://www.7reasons.at>

- Work for museums, documentaries, journals
- Development of appropriate hardware for in-situ content delivery
- Application programming, graphic design, 3D modelling, animation, and architecture
- Access to a network of interdisciplinary experts across Europe through international collaborations and projects



FOUNDATION FOR RESEARCH AND TECHNOLOGY – HELLAS

Contributing to Scientific Knowledge and Research Applications

<http://www.forth.gr/>

Ministry of Culture, Education and Religious Affairs
General Secretariat for Research and Technology

FORTH is one of the largest research centers of Greece

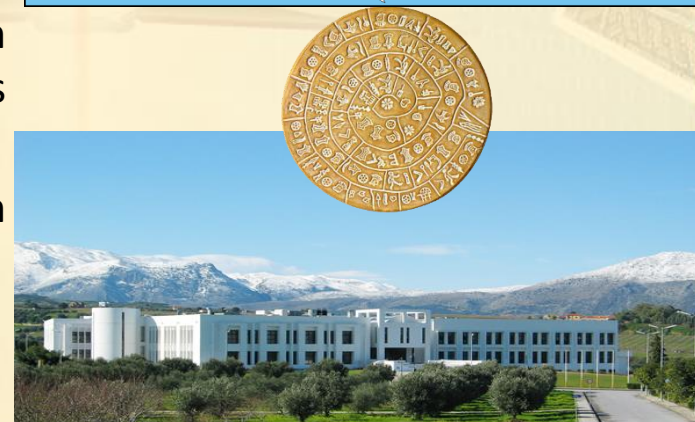
It functions under the supervision of the General Secretariat for Research and Technology (GSRT) of the Ministry of Culture, Education and Religious Affairs

It is ranked as the topmost Research Center in Greece

FORTH has become one of the top European research centers, thanks to its high impact research results and its valuable socioeconomic contributions

Two Research Laboratories of FORTH-ICS participate in ITN-DCH:

- FORTH-CVRL
- FORTH-ISL



Computational Vision and Robotics Laboratory, FORTH-CVRL

- Founded in 1985
- **Activities** emphasize research and development in the areas of
 - ☐ mixed reality (augmented and virtual reality),
 - ☐ computer graphics, gamification, mobile virtual heritage applications,
 - ☐ computer vision and autonomous mobile robots with "intelligent" behaviour,
 - ☐ More than 20 years experience in participating and coordinating EU and National projects for: visual perception of static and dynamic characteristics of the 3-D world (depth, shape, color, motion), object tracking, robot navigation, behaviour modeling, mixed reality presence and real-time graphics (specialized on virtual character rendering and animation)

Information Systems Laboratory, FORTH-ISL

- Founded in 1986
- **Research themes:** Semantic Data Management, Knowledge Systems, Service-Oriented Computing, Information Retrieval and Analysis
- **Core application themes:** Cultural Informatics, Ambient Intelligence, Digital Preservation
- **Centre for Cultural Informatics:** Unit of ISL specializing in the analysis, design, development and application of IT systems in the cultural heritage sector
 - Interdisciplinary research:
 - ❖ 19 years of “Know-how” at **international level**: Reasoning and management processes of cultural heritage
 - ❖ fundamental ontology of cultural-historical reasoning and scientific observation
 - Development and installation of cultural heritage, scientific and historical knowledge management and information integration systems.
 - Collaboration with ICOM, IFLA, ICA in standards for semantic interoperability
 - CIDOC CRM: ISO21127 First International standard from Greece



DIGITALMED
CENTRO DE ESTUDIOS DE ARQUEOLOGIA VIRTUAL

digitalMED, Universidad de Murcia

digitalMED – Centre for Studies in Virtual Archaeology

- Exploration of new applications of Virtual Archaeology
 - 3D Printing
 - 3D Modelling
 - Virtual Museums
 - Immersive environments
 - Metadata applications to Virtual Archaeology



UNIVERSIDAD DE
MURCIA



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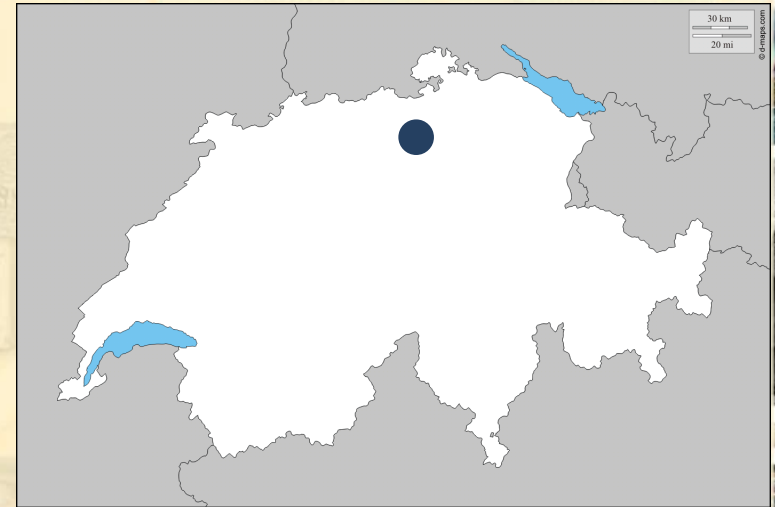


Research Centre : MIRALab

<http://www.miralab.ch/>

Founded in 1989 in Geneva and headed by the [Professor Nadia Magnenat-Thalmann](#), MIRALab teams up around 10 researchers coming from as many different fields as

- Computer Science
- Mathematics
- Medicine
- Telecommunications
- Architecture
- Fashion Design
- Cognitive Science
- Augmented Reality



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The Visualisation team, led by [Professor Alan Chalmers](#), is working to create “Real Virtuality”:
high fidelity virtual environments which provide the same perceptual response from viewers as if they were actually present, or “there” in the real scene being portrayed (also known as there-reality). A human's perception of the real world is more than just what we see, and thus real virtuality may need to include visual, aural, smell, touch and even taste, to achieve the appropriate level of perceptual realism.

Real virtuality has applications in many fields. In particular cultural heritage: Computer reconstructions of heritage sites provide us with a means of visualising past environments, allowing us a glimpse of the past that might otherwise be difficult to appreciate. However, it is essential that these reconstructions incorporate all the physical evidence for a site, otherwise there is a very real danger of misrepresenting the past.



<http://www2.warwick.ac.uk/fac/sci/wmg/research/visualisation/>

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Réunion
des Musées
Nationaux
Grand Palais



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RESEARCH & TECHNOLOGY
HELLAS



Dachverband Tanz Deutschland

Ständige Konferenz Tanz