**Elżbieta MIŁOSZ (Dr Eng)**, the manager of the "3D Digital Silk Road" project, number PPI/APM/2019/1/00004, financed by the National Agency for Academic Exchange (NAWA). Employee of the Division of Programming and Computer Graphics, co-organiser of the last three scientific expeditions to Uzbekistan.

Prof. Marek MIŁOSZ – the head of the Movement Acquisition and Interface Ergonomics laboratory. From the very beginning, he has supported activities related to the digitisation of the Silk Road monuments. He is the co-organiser and participant of all scientific expeditions and the co-author of many scientific works on the three-dimensional digitisation of monuments.
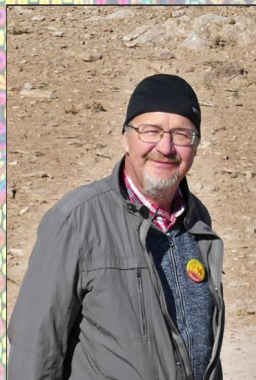
Prof. Jerzy MONTUSIEWICZ created the "Lab3D" laboratory, which deals mainly with the use of 3D computer technologies in digital archiving and making available objects of tangible cultural heritage. He is the co-author of many research papers on this subject and the co-organiser of all scientific expeditions to the countries of Central Asia.

CIiZT building, 2-31 December 2021

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UZBEKISCANNING:
LUT's Scientific Expeditions 2021

Lublin, 2–31 December 2021

Authors of the photographs:

Elżbieta Miłosz
Marek Miłosz
Jerzy Montusiewicz

Galery   Centrum Informacji Naukowo-Technicznej Politechniki Lubelskiej

The photo exhibition of Elżbieta and Marek Miłosz, and Jerzy Montusiewicz takes us to the oriental world of Central Asia, and particullary to Uzbekistan – the most populous country in Central Asia of the former Soviet republics. It may come as a surprise that the employees of the Department of Computer Science of the Lublin University of Technology travel so far, and the aim of their trip to this country is not tourism, but re-search and development.

It all started in 2015, as the Russian say "с нуля" ("from null") eg. from a rather accidental meeting in Samarkand of Elżbieta and Marek Miłosz with Rahim Kayumov. The above Russian reference, though, is no accident, because for the older and middle generation it is the second language of commu-nication, of course after Uzbek or – for some – Tajik. This being the case, it is easier for us to establish contacts with partners and deal with all necessary matters. The first mutual visits of representatives of the cooperating universities took place in 2017.

The scientific and research co-operation from the very beginning has been interdisciplinary. It has concerned the use of computer technologies of three-dimensional graphics (3D) for archiving and sharing museum and architectural objects in the form of: digital 3D models, interactive panoramas, walks in the Virtual Reality (VR) world or three-dimensional prints, creating the cultural heritage of the Great Silk Road. The employees of the Department of Computer Science took with them on expeditions specialised equipment weighing several dozen kilograms: 3D scanners working in the technology of structured light designed to digitise small museum artefacts, a terrestrial laser scanner for the acquisition of a cloud of points of large architectural objects, laptops with high computing power, VR sets and many other small accessories that allowed 3D scanning in situ.

The present photos show the activities of the members of the fifth and sixth scientific expeditions organised by the Department of Computer Science as part of the "3D Digital Silk Road" project financed by the National Agency for Academic Exchange (PPI/APM/2019/1/00004).

The photos show the 3D scanning process of small museum objects using the Artec Eva handheld scanner: petroglyphs – drawings carved in rocks (several thousand years old); various types of vessels from archaeological excavations: clay, glazed and made of leather (from 2,000 to 200 years old); women's national costumes from the nineteenth century; archi-tectural decorative details – wooden columns. The exhibition also includes photos showing 3D scanning with the use of a ter-restrial laser scanner – Faro Focus Plus 350, both inside rooms and entire buildings, and even pano-ramas of the city. The specificity of this scanning challenge requires one not to enter the area of data acquisition, hence the people operating the scanner often had to crouch next to the scanner's stand or hide behind protrusions of objects without losing sight of the equipment, which usually aroused great interest among visitors to monuments. The photos show different cities and their sights, as well as the participants at work. So far, nine employees of the Department of Computer Science have participated in organised expeditions. During the 5th expedition (August 15-28, 2021), digitisation was performed in Tashkent, Samarkand, Chirchik and Hodjikent. The work during this trip was not made easier by staying in the field for many hours in a heat of up to 40o C. A completely different situation occurred during the 6th expedition (October 10-22, 2021): a cold wind was blowing from the desert, which lowered the air temperature even to 0o C, which made it difficult to carry out digitisation in Urgench and Khiva. Despite the difficult working conditions, nearly 200 GB of data was brought from the last two expeditions, which will be pro-cessed to create digital 3D models. However, this requires many hours of work of many people.

However, a collection of digital 3D models from the previous four Uzbekistan expeditions, including one virtual expedition in May 2021, can be viewed even now on silkroad3d.com website.

Jerzy Montusiewicz
Exhibition curator