Description for the general public

Are you amazed when your smartphone shows you a panorama automatically generated from a set of the pictures you have taken? Or when it instantly shows you a route to the nearest restaurant? Or automatically corrects the shaky movie that you have taken with your phone camera? All this is made possible thanks to the power of cloud computing and storage that works seamlessly behind the scenes. Thousands of servers process the data that comes from billions of sources and the software developed by the smartest people reacts to these events producing fascinating results. Cloud computing is revolutionizing our life, the IT industry and also the way people do science.

Astronomers, for example, need to produce high quality panoramas from thousands of pictures of the sky they are taking with their telescopes. They use clouds for this type of data processing, but at slightly different scale than your smartphone needs. How about biologists, who do not necessarily record movies, but instead they need to quickly analyze DNA sequences of similar or larger size? They use the power of cloud to do this, too.

Have you noticed how quickly the technology changes and how rapidly it develops? Cloud technologies change quickly too, so to use the latest technologies, people need to understand them better, to evaluate their costs and benefits. This is what researchers in this project are doing.

The goal of the project, carried out by researchers from AGH together with their American partners from the University of Southern California and University of Notre Dame, is to evaluate the most recent cloud infrastructures from the perspective of scientific applications. This will help understand how to make a better use of these cutting-edge highly-elastic computing infrastructures for new fascinating areas of science, such as discovery of exoplanets or simulation of earthquakes. During the project, a number of experiments is planned where the new emerging and future generation infrastructures will be tested and their behavior measured. Based on these experiments, new algorithms for automatic optimization of their usage will be derived and verified.