



Using Blockchain Technology and Artificial Intelligence in geospatial data sharing

Elio Decolli (1), Kejdi Lleshi (2), Elva Leka (3), and Luan Arapi (4)

(1) Universiteti Politeknik i Tiranës, Fakulteti i Gjeologji-Minierave, Departamenti i Gjeoinformatikës, Albania (eliodecolli@gmail.com), (2) Universiteti Politeknik i Tiranës, Fakulteti i Gjeologji-Minierave, Departamenti i Gjeoinformatikës, Albania (klleshi97@gmail.com), (3) South East European University, Faculty of Contemporary Sciences and Technologies, Tetovo, Macedonia (el23618@seeu.edu.mk), (4) Universiteti Politeknik i Tiranës, Fakulteti i Gjeologji-Minierave, Departamenti i Gjeoinformatikës, Albania (luan.arapi@fgjm.edu.al)

Lately Blockchain Technologies as well as Artificial Intelligence have received considerable attention from many researchers and government institutions. There are many articles circulating around the internet about how both these technologies can be applied on a geoscientific scenario. In this article we will discuss a way to implement a platform on which scientists can share their work/study in a secure and efficient manner.

Using the blockchain to prevent two of the major flaws in scientific research as well as data sharing and collection: ownership-rights, and based on the model described here, equal rights and a democratic eco-system for publishing your data, the last is completely automated; by doing so we also remove the need for a third-party, thus removing bureaucratic short-comings, i.e. corruption and inefficiency. Based on this we also introduce a model detailing how such platform can be programmed to mimic an economic market in order to also produce competition between authors, leading to better studies. Artificial Intelligence is used in order to support this model by examining similarities between projects, therefore detecting potential plagiarism or unauthorized redistribution. We believe that this is a small but necessary step in order to solidify a concrete base for further development and migration of computer science with geosciences. Moreover, the model presented here can be modified and expanded in order to achieve near-real-time distribution of data, thus helping distribute and analyze potential disaster-occurrence data, as well as share previous data sets regarding past disasters information. By keeping this in mind we can integrate a smaller network inside our model, made by nodes which receive data from other participant nodes, and work towards DRM strategies.

Lastly, we present a hypothetical scenario, on which the model has been successfully implemented and how the results would look like.

Keywords: blockchain technology, artificial intelligence, distributed network, geospatial data sharing, disaster risk