GeoAI 2017 Workshop Report
The 1st ACM SIGSPATIAL International Workshop on GeoAI: AI and Deep Learning for Geographic Knowledge Discovery, Redondo Beach, CA, USA - November 7, 2016

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Deep Learning and Artificial Intelligence (AI) techniques are transforming a range of sectors from computer vision and natural language processing to autonomous driving and healthcare. In particular, deep learning methods achieve great success in many computer vision problems, such as image classification and object detection. Deep neural networks are very powerful to capture the hierarchical representation of features in massive and complex data by adopting multiple layers of non-linear information processing. Due to the availability of vast and high-resolution geospatial data and efficient high-performance computing architectures, deep learning techniques empower the geospatial system to provide fast and near-human level perception. For example, recent studies have shown deep learning techniques coupled with volunteered geographic information (such as OpenStreetMap data) can accurately extract buildings from satellite imagery for humanitarian mapping in rural African areas. Also, deep learning helps assimilate autonomous vehicles and intelligent transport system by incorporating a great amount of information gathered by traffic cameras and sensors. Moreover, deep learning technology facilitates the discovery of geographic information within unstructured text data across different languages. There are also many other applications of deep learning in the domain of GIS, such as the prediction for spatial diffusion patterns in epidemiology, urban expansion prediction, and hyperspectral image analysis. The 1st GeoAI workshop aims to bring geoscientists, computer scientists, engineers, entrepreneurs, and decision makers from academia, industry, and government to discuss the latest trends, successes, challenges, and opportunities in the field of deep learning for geographical data mining and knowledge discovery.

GeoAI 2017 (https://udi.ornl.gov/geoai) was held in conjunction with the 25th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems on Nov. 7, 2017 in Redondo Beach, California, USA. This workshop received in total 14 submissions, and after a rigorous review process, 8 papers were accepted, reaching an acceptance rate of about 57%. Each accepted full paper was allocated 20 minutes for a presentation, while accepted short papers were assigned 15 minutes. In addition, Dr. Shawn Newsam from the University of California at Merced gave a keynote titled "Geographic knowledge discovery using ground-level images and videos", and Dr. Saikat Basu, from Facebook gave another keynote on "Using AI to help generate roads for OpenStreetMap". The workshop attracted in average 70 participants, with a maximum of about 100 participants in the room.

We sincerely thank the keynote speakers for their keynote talks, and the authors for submitting and presenting their papers in GeoAI 2017. We also thank the program committee members for their time and efforts in reviewing and evaluating the submitted papers. We hope that the proceedings of GeoAI will make a contribution to this field and can stimulate new research in the near future.