

GeoAI 2019 Workshop Report

The 3rd ACM SIGSPATIAL International Workshop on GeoAI: AI for Geographic Knowledge Discovery Seattle, WA, USA - November 5, 2019

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Nowadays artificial intelligence (AI) is bringing tremendous opportunities and challenges to geospatial research. Big data enable computers to observe and learn the world from many different perspectives, while high performance machines support the development, training, and deployment of AI models within reasonable amount of time. Recent years have witnessed significant advances in the integration of geospatial study and AI in both academia and industry. There have already been many successful studies for both physical environment and human society. Focusing on modeling the physical nature, research has shown that deep learning can improve the representation of clouds that are smaller than the grid resolutions of climate models. Examining the human society, AI and natural language processing methods, such as word embeddings, help quantify changes in stereotypes and attitudes toward women and ethnic minorities over 100 years in the United States. There are also many other applications that effectively integrate AI with problems in geospatial studies, such as vehicle trajectory prediction, high-definition mapping and navigation, historical map digitizing, gazetteer conflation, geographic feature extraction, and place understanding. The 3rd International Workshop on AI for Geographic Knowledge Discovery (GeoAI 2019) builds on the success of the previous workshops in 2017 and 2018. GeoAI is bringing together 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 artificial intelligence for data mining and geographic knowledge discovery.

GeoAI 2019 received 25 paper submissions in total. After a rigorous peer-review process by the program committee, in total 17 papers (5 full papers, 10 short papers, and 2 vision papers) were accepted by the workshop and selected for presentations. Dr. Xin Chen, the Director of Engineering at HERE Technologies, gave a keynote on “HD Live Map for Automated Driving: An AI Approach” (industry keynote), and Dr. Raju Vatsavai, Professor at North Carolina State University, gave a keynote on “Geospatial AI for Monitoring Crops to Nuclear Proliferation Using Global Earth Observations” (academic keynote). This year’s workshop also featured one wrap-up discussion on “How GeoAI will progress?” Many participants contributed constructive ideas, such as encouraging future submissions with share of datasets for common benchmark testing, engagement between different domains of people, enhance data privacy and data security issues, transparency and reproducibility, and explicit spatial constraints on AI models. Participants also discussed the design of core skills for students who want to build expertise in GeoAI. There are 43 participants who officially registered to GeoAI’19. The workshop attracted in average 50 participants, with a maximum of about 80 participants in the room.

We sincerely thank our program committee for their time and efforts in reviewing the submitted papers. We

hope that the proceedings of GeoAI'19 can stimulate new ideas and make a contribution to this growing field.



Figure 1: GeoAI'19 Workshop in Chicago