

GeoAI 2018 Workshop Report

The 2nd ACM SIGSPATIAL International Workshop on GeoAI: AI for Geographic Knowledge Discovery Seattle, WA, USA - November 6, 2018

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In today's era of big data, advanced algorithms, and immense computational power, 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 developing, training, and applying of AI models within reasonable amount of time. Recent years have witnessed significant advances in the integration of geography and AI in both academia and industry. There have already been many successful studies. 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, are helping 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, indoor navigation, historical map digitizing, gazetteer conflation, geographic feature extraction, geo-ontologies, and place understanding. The 2nd International Workshop on AI for Geographic Knowledge Discovery (GeoAI 2018) builds on the success of the previous workshop in 2017. 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 2018 received 19 paper submissions in total. After a rigorous peer-review process by the program committee, 10 papers were accepted by the workshop and selected for presentations. Dr. Rangan Sukumar, Senior Analytics Architect from Cray Inc., gave a keynote on "The AI Journey in Geospatial Discovery: Navigating Shapes, Sizes and Spaces of Data" (industry keynote), and Dr. Bruno Martins, Assistant Professor at the University of Lisbon, gave a keynote on "GeoAI Applications in the Spatial Humanities" (academic keynote). This year's workshop also featured one wrap-up discussion on "How can we make GeoAI better?" Many participants contributed constructive ideas, such as encouraging future submissions on dataset descriptions, privacy and data bias issues, transparency and reproducibility, and explicit spatial constraints on AI models. Participants also discussed the possibility of adding a panel discussion, and core skills for students who want to build expertise in GeoAI. There are 51 participants who officially registered to GeoAI'18. The workshop attracted in average 50 participants, with a maximum of about 70 participants in the room.

We sincerely thank our program committee members for their time and efforts in reviewing and evaluating the submitted papers. We hope that the proceedings of GeoAI'18 can stimulate new ideas and make a modest contribution to this fast growing field.