FOSS4GeoAI Istanbul 2021 "Using OpenGeoAI From Niche To Norm"

Specific issues to be highlighted in FOSS4G?

The world is changing as we enter the 4th Industrial Revolution. Cloud Computing, Big Data, Internet of Things, Artificial Intelligence, Robotics, etc. a culmination of various technologies that completely transform the way we live, work and communicate. Combining geospatial domain and state of the art technologies brings a powerful new dimension to understanding the world around us. This has a wide range of applications in a variety of segments, including commercial, governmental, academic or not-for-profit.

Big Data refers to massive datasets brought on by new technologies, in particular, like the Internet of Things, social media, autonomous systems, driverless cars. These structured and unstructured big data sets are so large and so complex that traditional methodologies cannot be used to analyze them. Furthermore, data today comes to us in many different forms. Apart from satellite and drone imagery and point clouds, we understand and define an environment through different data resources like text, voice recordings, smell, texture, etc. All these define an environment that we are trying to understand and explain. Geospatial is a key platform which uses geographic coordinates and geocodings in bringing these kinds of different data together.

As the world churns out increasing amount of geospatial big data, today geospatial technology and artificial learning are becoming a focal area to perform intelligent analysis and advanced analytics for better decision making. The most important part that we are looking through geospatial informatics and machine/deep learning is to understand the context and not just the objects with their positions and attributes. Therefore it goes beyond identifying a particular object in an environment by characterizing the behavior of the object. So, understanding this continuous process and integrating data in to this process are critical and that is where geospatial solutions are the most important.

GeoAI (Geospatial/Spatial/Location-based Intelligence) community was established in February 2018 in Turkey based on all these paradigm shifts. For the benefit of society, the use of AI methods together with the disruptive technologies in the subjects of spatial modeling, analysis, visualization, solution of spatial problems and spatial decision-making of phenomena and human activities can be defined as **(geo)spatial intelligence** (**GeoAI**).

GeoAI is changing the game for the geospatial industry by combining innovations in spatial science with the rapid growth of methods in machine/deep learning, data mining, high-performance computing, mixed reality, internet of things, game engines, robotics, autonomous systems, cyber-physical systems. From precision agriculture, to oil and gas exploration, high-velocity logistics, marketing and retail, smart cities, GeoAI allows to reveal the complex relationship of location to people, events, transactions, facilities, and assets. Although GeoAI has been used for some time now, industries like geospatial informatics and autonomous driving are just beginning to scratch the surface of what's possible with this technology. GeoAI utilizes many same techniques within narrow AI, however, there are challenges and opportunities that AI has to face in applying geospatial knowledge.

The FOSS4GeoAI Istanbul 2021 aims to bring geoscientists, computer scientists, engineers, entrepreneurs, and decision makers from NGOs, academia, industry, and government to discuss the latest trends, successes, challenges, and opportunities in the field of GeoAI for leveraging GeoAI with free and open source geospatial data/information/technologies/know-how. Both artificial intelligence and open source software are two big trends that will radically change how we develop geospatial applications. We've already talked about open source and its benefits to the geospatial community so far. While AI has been involved in the open source movement, it is clear that the main focus in the FOSS4G 2021 will be FOSS as a fundamental part of GeoAI. Istanbul is a very dynamic and touristic mega city. As Istanbul bridges two continents, the FOSS4G event in Istanbul will bind geospatial information/informatics and the disruptive technologies in the age of AI.

1. Who is your conference chair?

The conference chair is Asst. Prof. Dr. Caner Güney. He is an Assistant Professor in the Department of Geomatic Engineering at Istanbul Technical University (ITU). He is the chairman of the Association of Spatial Informatics Initiative of Turkey (SII-TR). He is also chair of 6. GIS Congress of Turkey (https://cbskongresi.org/) which will be held on October 23-25, 2019 and organized by the Chamber of Survey and Cadastre Engineers (HKMO). He is the facilitator of GeoAI society in Turkey (https://www.meetup.com/Mekansal-Zeka/).

2. Who is on your local organizing committee (LOC)?

LOC primarily has been established with the distinguished people who are dedicated to the open data, the open source subjects and involved in national and international organizations. However, LOC is not limited to the members below, additional members, who are at least as valuable as them, can be added in the future.

- Assoc. Prof. Dr. Ahmet Özgür Doğru (ITU, SII-TR, HKMO)
- Dr. Can Ünen (Project Manager in Humanitarian OpenStreetMap Team (HOT), Chairman of Yer Çizenler Mapping for Everyone Association)
- Orkut Murat Yılmaz (Board Member of the Yer Çizenler Mapping for Everyone Association)
- Pınar Dağ (Data Literacy Association, Open Data and Data Journalism in Turkey)
- Ferah Pırlanta Köksal (International Geodetic Student Organisation, the executive board member of Council of European Geodetic Surveyors, FIG Young Surveyors European Network)

3. What is the experience of your committee members with similar events?

Güney and Doğru both are working in the organization committee of 6. GIS congress in Turkey. They both also worked as members of organization committee and lecturers in the workshop of open source GIS softwares, such as QGIS, GeoServer, GRASS, OSM (http://training.uhem.itu.edu.tr/index.php?tid=27).

4. What is your proposed venue? (include access to Internet, room sizes, maximum attendees)

Such a great and crowded event will be held in a congress center in Istanbul. Istanbul is a rich city in terms of congress halls and universities. Istanbul Congress Center (https://www.iccistanbul.com/), Haliç Congress Center (http://www.halic.com/en) are just a few instances. Furthermore, Istanbul Technical University (ITU) has some facilities for congress, workshops, pre-training, and business networks. There will be no problem regarding room sizes, internet connection, etc. ITU campuses and congress halls are not far away and all are connected by different public transportation modes including subway. More than one thousand participants are welcome to Istanbul for the FOSS4G 2021.

5. What are your provisional dates for the conference?

The beginning of October is suitable since we are planning to organize FOSS4G 2021 event in conjunction with 7. GIS Congress of Turkey. We are also planning to host HOT Summit 2021 in Istanbul as a joint event with FOSS4G 2021. Therefore, 11th to 15th or 4th to 8th of October could be our provisional dates for the conference.

8. Are you partnering with other organizations? (e.g. local entities or other events like HOT OSM Summit)

Initially, we have intention and consensus to organize the FOSS4G Istanbul 2021 together with HKMO, SII-TR, Yer Çizenler Mapping for Everyone Association, and ITU.

9. What makes FOSS4G in your proposed location and with your team compelling?

Turkey is a country that tries to effective and efficient use of open source geospatial technology. Although there is awareness and capacity regarding FOSS4G in Turkey, it is needed a synergy to leverage FOSS4G in Turkey. FOSS4G Istanbul 2021 can meet this expansion in an extraordinary way.