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# OpenStreetMap, beyond just Data: The Academic Track at State of the Map 2022

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OpenStreetMap (OSM) is a project and a community, or community of communities [1], geared towards producing a free, editable, and global geographic database to which anyone can contribute. With more than 8.8 million registered users contributing more than 7.8 billion data points as of 8 August 2022 [2], it has attracted attention across various spheres, from tech giants [1], through governmental organizations and NGOs [3,4], popular media [5], social activists [6], to the academic world [7–9]. The latter is reflected not only in a large corpus of scientific publications relating to OSM, but also in the establishment of the *OSM-science* mailing list [10], dedicated to correspondence on academic studies of OSM, and since 2018 – in the inclusion of a dedicated Academic Track in the annual State of the Map (SotM) conference, the global meeting of the OSM community [11]. The proceedings of the Academic Track at the SotM 2022 conference, taking place in Florence, Italy on August 19-21, 2022 [12], include 19 short papers corresponding to 9 talks and 10 lightning talks presented at the conference. These talks join 49 talks from the previous 4 Academic Track editions as an example of the continued interest of the scientific community in OSM.

The study of OSM is a study of a research object that keeps on evolving and changing [13]. This opens for multiple ways to approach it. However, a classification of recent OSM-related publications [7] shows that some ways are more dominant than others, with the vast majority of papers following data-centric approaches. Unsurprisingly, this theme is also evident in some of the studies included in these proceedings. Several abstracts present domain-specific applications of OSM data, combining OSM data to derive public urban green spaces [14], plan sustainable transport infrastructures [15], map detailed floor plans from digital building models into OSM and back out [16], and using OSM to

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understand global urban green accessibility [17]. Other studies explore the potential for integrating OSM data with other data sources, e.g. combining OSM water tags with Water Point Data Exchange (WPdx) to improve the mapping of rural water infrastructures in Africa [18], or working towards a knowledge-graph (i.e. Wikidata) integrated OSM dataset [19]. Analyses of data quality are not absent here with Herfort et al. [20] assessing OSM building completeness in urban areas across the world, Camboim et al. [21] investigating the impact of grid cell size for OSM data quality analysis, and Dickinson et al. [22] assessing OSM data quality regarding network navigability in areas where high levels of corporate contributions were observed. A final group of abstracts emphasizes data accessibility, either by supporting mapping activities or data analysis: Anderson & Omidire's [23] development of the Analysis-Ready Daylight OSM Distribution makes global OSM data analysis easier and faster; Vestena et al. [24] introduce a new open-source QGIS Plugin named "OSM Sidewalkreator" to help the OSM community to better draw the geometries of sidewalks, crossings, and kerbs in an automatic manner; Schott et al. [25] proposed a workflow to enhance multi-label remote sensing image classification by automatically extracting OSM multi-label training data and verifying them via a feedback-loop in the Tasking Manager projects.

Yet, as noted above, OSM is not just a database - it is the cumulative result of the actions of individuals, organizations, and communities, all being a fundamental part of what OSM is. Hence, OSM is also a social product in which interpersonal, organizational, and behavioral dynamics play a pivotal role [26]. The implication of this is that OSM is a system that extends beyond itself with flows of inputs, people, and resources coming from other systems into it and back out. This social perspective, while existing in the literature, had historically received much less attention [7]. Surveying the abstracts included in these proceedings suggests that the tide may be turning, with 7 of the abstracts detailing research that is socially-oriented in one of several ways. First, 3 abstracts present applications of OSM data that are specifically geared towards social causes, exploring the potential of participatory mapping using a dedicated mobile app based on OSM for promoting geo-literacy among high-school students [27], for analyzing the accessibility of urban spaces for the visually impaired thus prompting equal mobility and walkability in the city [28], or for mapping vulnerable spaces such as refugee camps, using open drone imagery collected as part of the activities of the Humanitarian OpenStreetMap Team (HOT) [29]. Generally, humanitarian efforts within OSM, such as in the last example, seem to induce more socially-oriented research, as seen in Solís' exploration of the way the YouthMappers movement within OSM uses universities as hybrid organizations to navigate between global humanitarian efforts and students' local motivations [30], or Steele's anthropological study of OSM [31] (probably the first since Lin's pioneering work [32]) that uncovers the above mentioned flows through the notion of 'supply chains'. The work of Shrestha et al. [33] joins the one about YouthMappers mentioned above in studying effects on participants by showcasing that mapping skills training of recent high-school graduates and undergraduate students have long-term benefits for youth. Finally, Juhász and Mooney [34] shine a unique light on social dynamics by exploring the meaning for OSM of null island, the fictitious place located at the origin of the WGS1984 coordinate system to which much data is erroneously allocated.

The differentiation made here between data-oriented and social research is not meant to suggest that one is better or more required than the other. This differentiation may not even be real or beneficial given the extent to which contribution processes and data are

interlaced [35] and the awareness of many authors to the social side of OSM, sometimes through direct interactions [7]. Hence, the growing attention to the social aspect of OSM is a positive sign showing that the scientific endeavor termed as OSM science [36] is further developing and maturing. But it also shows that it still has room to grow, promoting interdisciplinary collaborations between researchers that can comprehensively consider both the data and the social aspects of OSM. We use this editorial as an open call for researchers to pursue this direction, further enhancing our understanding of OSM.

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