

Title: A conceptual model of the automated credibility assessment of the volunteered geographic information

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Abstract: The use of Volunteered Geographic Information (VGI) in collecting, sharing and disseminating geospatially referenced information on the Web is increasingly common. The potentials of this localized and collective information have been seen to complement the maintenance process of authoritative mapping data sources and in realizing the development of Digital Earth. The main barrier to the use of this data in supporting this bottom up approach is the credibility (trust), completeness, accuracy, and quality of both the data input and outputs generated. The only feasible approach to assess these data is by relying on an automated process. This paper describes a conceptual model of indicators (parameters) and practical approaches to automated assess the credibility of information contributed through the VGI including map mashups, Geo Web and crowd-sourced based applications. There are two main components proposed to be assessed in the conceptual model-metadata and data. The metadata component comprises the indicator of the hosting (websites) and the sources of data / information. The data component comprises the indicators to assess absolute and relative data positioning, attribute, thematic, temporal and geometric correctness and consistency. This paper suggests approaches to assess the components. To assess the metadata component, automated text categorization using supervised machine learning is proposed. To assess the correctness and consistency in the data component, we suggest a matching validation approach using the current emerging technologies from Linked Data infrastructures and using third party reviews validation. This study contributes to the research domain that focuses on the credibility, trust and quality issues of data contributed by web citizen providers.