HYPERION RESEARCH

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AI Engineers in India Alleviate Effects of Water Scarcity

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October 2021

RECENT DEVELOPMENT

The August 2021 issue of the International Research Journal of Engineering and Technology (IRJET), a peer-reviewed research journal, included a paper based on the work of three researchers from India's St. Francis Institute of Technology (SFIT) summarizing their use of artificial intelligence (AI) and machine learning (ML) methods to help alleviate water shortages in India caused by population growth, urbanization, and climate change. Verlekar, Shah, and Kulkarni used a machine learning model to create a proactive scheme for managing local water resources, work that was prompted by a 2019 drought that impacted the Chennai area of India. Based on a supervised learning technique that uses Random Forest regression, the resulting AI system seeks to create an efficient schedule for allocating water among a set of water reservoir resources, with the goal of minimizing the potential for any localized water shortages.

The team from SFIT determined that while unfortunate natural circumstances do play a role in water scarcity problems, a significant portion of urban water shortage issues can be traced to improper use of infrastructure. This research centers around an AI-based solution that uses diverse and regionally specific data to predict the water level for the major reservoirs that supply the region, providing communities with valuable information and decision time to prepare for or take measures to avoid periods of extreme scarcity.

ANALYST COMMENT

Water scarcity is a global problem that demands local solutions. For an AI system to properly serve a specific region, it must be trained on an up-to-date and detailed portfolio of data including historical rainfall patterns, community use habits, meteorological forecasts, and any other pertinent idiosyncratic data. The SFIT team, whose methods could be a template for other regions facing infrastructure-related water issues, train their platform on data that is limited in usefulness to the Chennai area itself. These highly specialized practices could be used beyond even their urban origins, aiding in water resource management in rural areas, developing nations, underserved communities, and more. This project, offering a socially invaluable and potentially lifesaving capability, highlights a dual nature in the process of creating and training an AI system to address civic needs. On one side, there is a global community whose best practices benefit from worldwide contributors. On the other, there is a dependence on a healthy supply of job-specific, often locally generated data. These efforts made by the team at SFIT demonstrate the ability of AI to address some of the world's most important health and ecological issues.