



2019年第3期总170期

农业与资源环境信息工程专题

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1. 帮助印度制定政策以达成气候目标的工具

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▶ 前沿资讯

1 . Democratizing data science (数据科学的民主化)

简介: MIT researchers are hoping to advance the democratization of data science with a new tool for nonstatisticians that automatically generates models for analyzing raw data. Democratizing data science is the notion that anyone, with little to no expertise, can do data science if provided ample data and user-friendly analytics tools. Supporting that idea, the new tool ingests datasets and generates sophisticated statistical models typically used by experts to analyze, interpret, and predict underlying patterns in data. The tool currently lives on Jupyter Notebook, an open-source web framework that allows users to run programs interactively in their browsers. Users need only write a few lines of code to uncover insights into, for instance, financial trends, air travel, voting patterns, the spread of disease, and other trends.

来源: EurekaAlert

发布日期: 2019-01-15

全文链接: https://www.eurekaalert.org/pub_releases/2019-01/miot-dds011519.php

2 . Researchers develop new zoning tool that provides global topographic datasets in minutes (研究人员开发了新的分区工具, 可在数分钟内提供全球地形数据集)

简介: 河流景观和水的供应对人类安全和社会经济增长至关重要, 确定泛洪区的边界通常是任何城市发展或环境保护计划的第一个关键步骤。该区域划分通常使用复杂的水动力模型进行, 但不同方法建模造成的结果可能有很大差异, 而且目前没有可统一用于全球泛洪区测绘方法。随着遥感技术的普及, 科学家现在可以在全球范围内获得有关地球表面特征的高分辨率数据集。

来源: EurekaAlert

发布日期: 2019-01-15

全文链接: https://www.eurekaalert.org/pub_releases/2019-01/asu-rdn011519.php

▶ 学术文献

1 . IoT and agriculture data analysis for smart farm (智慧农业中物联网与农业数据分析)

简介: In this paper, we propose developing a system optimally watering agricultural crops based on a wireless sensor network. This work aimed to design and develop a control system using node sensors in the crop field with data management via smartphone and a web application. The three components are hardware, web application, and mobile application. The first component was designed and implemented in control box hardware connected to collect data on the crops. Soil moisture sensors are used to monitor the field, connecting to the control box. The second component is a web-based application that was

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designed and implemented to manipulate the details of crop data and field information. This component applied data mining to analyze the data for predicting suitable temperature, humidity, and soil moisture for optimal future management of crops growth. The final component is mainly used to control crop watering through a mobile application in a smartphone. This allows either automatic or manual control by the user. The automatic control uses data from soil moisture sensors for watering. However, the user can opt for manual control of watering the crops in the functional control mode. The system can send notifications through LINE API for the LINE application. The system was implemented and tested in Makhamtia District, Suratthani Province, Thailand. The results showed the implementation to be useful in agriculture. The moisture content of the soil was maintained appropriately for vegetable growth, reducing costs and increasing agricultural productivity. Moreover, this work represents driving agriculture through digital innovation.

来源: Computers and Electronics in Agriculture

发布日期: 2018-12-12

全文链接: <http://agri.ckcest.cn/file1/M00/06/5C/Csgk0FxAHgaABTqfADMBTv35Sx0297.pdf>

2 .An adaptive IoT platform on budgeted 3G data plans (基于预算化3G数据的自适应物联网平台)

简介: In this paper, we design and implement an Internet-of-Things (IoT) based platform for developing cities using environmental sensing as a driving application. Since ubiquitous and free WiFi access is not available in most developing cities, IoT deployments must leverage 3G cellular connections that are metered and expensive. In order to best utilize the limited 3G data plan, we propose two adaptation strategies to drive sensing and data collection. The first technique is an infrastructure-level adaptation approach where we adjust sensing intervals of periodic sensors so that the data volume remains bounded within the allocated data budget. The second approach is at the information-level where application-specific analytics are deployed on-board devices. This use case focuses on multimedia sensors that process captured raw media data to lower volume semantic data that is communicated. We implement the two adaptation strategies on the EnviroSCALE (Environmental Sensing and Community Alert Network) platform, which is an inexpensive Raspberry Pi based environmental sensing system that employs air quality sensors and periodically publishes sensor data over a 3G connection with a limited data plan. We outline our deployment experience of EnviroSCALE in Dhaka city, the capital of Bangladesh, particularly in the direction of infrastructure-level adaptation. For information-level adaptation, our testbed experiment results demonstrate the practicality of adaptive sensing and triggering rich sensing analytics via user-specified criteria over budgeted 3G connections.

来源: Journal of Systems Architecture

发布日期: 2018-11-09

全文链接: <http://agri.ckcest.cn/file1/M00/06/5C/Csgk0FxAH1OAP0hHACsQPid9ZYU482.pdf>

科技报告

1 A Tool for Designing Policies to Achieve India's Climate Targets (帮助印度制定政策以达成气候目标的工具)

简介: India, the world's fourth-largest greenhouse gas emitter, has pledged to reduce its emissions intensity per unit gross domestic product (GDP) by 33 to 35 percent below 2005 levels by 2030 through its Nationally Determined Contribution (NDC). The Energy Policy Simulator, a System Dynamics computer model, can estimate the impacts of various policy packages and offer objective, quantitative analysis to help India develop smart packages of policies that can work in concert to deliver India's climate goals. India's Energy Policy Simulator was developed by Energy Innovation LLC and World Resources Institute. This technical note describes the structure, the input data sources, and the limitations and assumptions of the EPS-India.

来源: 世界资源研究所 (WRI)

发布日期: 2019-01

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