2019年第10期总177期

农业与资源环境信息工程专题

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前沿资讯

1 .A faster, more accurate way to monitor drought（更快更精确的方法去监测干旱）

简介：A new monitoring method developed at Duke University allows scientists to identify the onset of drought sooner -- meaning conservation or remediation measures might be put into place sooner to help limit the damage. "By combining surface and air temperature measurements from thousands of weather stations and satellite images, we can monitor current conditions across an entire region in near real time and identify the specific places where drought-induced thermal stress is occurring," said James S. Clark, Nicholas Professor of Environmental Sciences at Duke's Nicholas School of the Environment.

来源：EurekAlert

发布日期：2019-03-04

全文链接：https://www.eurekalert.org/pub_releases/2019-03/du-afm030419.php

2．New study uses big data to analyze the international food trade（最近研究：利用大数据分析国际食品贸易）

简介：联合国数据由每个国家的专门部门进行报告，提供有关进、出口国家以及流动的每种商品的信息。哥伦比亚数据科学研究所的科学家们利用这些信息间的联系，分析了从1986年-2010年间近180个国家的联合国国际食品贸易年度数据,建立了包含各种商品得年度国际食品贸易网络。通过对这些网络进行分析，对如何在全球范围内重新分配新品进行评估，并将其与没有发生交易行为的虚拟世界进行比较，来验证全球各地是否都享有充足的获得食品的权利。

来源：EurekAlert

发布日期：2019-02-28

全文链接：https://www.eurekalert.org/pub_releases/2019-02/dsia-nsu022819.php

学术文献

1．Evolution of Internet of Things (IoT) and its significant impact in the field of Precision Agriculture（物联网（IoT）的演变及其在精准农业领域的重大影响）

简介：During recent years, one of the most familiar name scaling new heights and creating a benchmark is Internet of Things (IoT). It is indeed the future of communication that has transformed Things (Objects) of the real world into smarter devices. The functional aspect of IoT is to unite every object of the world in such a manner that humans have the ability to control them via Internet. Furthermore, these objects also provide regular as well as timely updates on their current status to its end user. Although IoT concepts were proposed a couple of years ago, it may not be incorrect to quote that this term has become a benchmark for establishing communication among objects. In context to the present

standings of IoT, identification of the most prominent applications in the field of IoT have been highlighted and a comprehensive review has been done specifically in the field of Precision Agriculture. This article evaluates contributions made by various researchers and academicians over the past few years. Furthermore, existing challenges faced while performing agricultural activities have been highlighted along with future research directions to equip novel researchers of this domain to assess the current standings of IoT and to further improve upon them with more inspiring and innovative ideas.

来源：Computers and Electronics in Agriculture

发布日期：2019-02

全文链接：http://agri.ckcest.cn/file1/M00/06/60/CsgkOFyBAPCAJT-TAB9-Fb2IzOQ860.pdf

2．Digital Marketplace and FinTech to Support Agriculture Sustainability（数字市场和Fintech技术支持农业可持续发展）

简介：Agriculture plays an important in providing food security and sustainability for the people in any country. However, lack of funding and limited distribution channels to reach customers are frequent problems faced by farmers to meet the level of sustainability. Agriculture's sustainability can be strengthened by allowing an innovation of services such as Financial Technology (FinTech), and digital marketplace. Digital marketplace with Fintech enabled might transform agriculture's business process into more sustainable in term of funding and distribution. FinTech offers farmers convenient ways of getting sources of funding through crowdfunding and digital payment system. Thus, digital marketplace can act as a platform for FinTech to integrate the innovative financial solution into broader agriculture's ecosystem. The study proposes a modelling digital marketplace with FinTech enabled especially crowdfunding and payment system in order to support agriculture's sustainability. The model connects all actors (farmers, landowners, investors, and consumers) into a platform that can promote transparency, empowerment, resourcefulness, and public engagement in agriculture.

来源：Energy Procedia

发布日期：2019-01

全文链接：http://agri.ckcest.cn/file1/M00/06/60/CsgkOFyBAuWAZ30vAAqk5S9XalQ268.pdf

3．C5.0: Advanced Decision Tree (ADT) classification model for agricultural data analysis on cloud（C5.0：云计算农业数据分析的高级决策树（ADT）分类模型）

简介：Agriculture plays a crucial role in India's economy and around 70% of people earn their income through it and also provides large employment opportunities. The technological advancement has led to remarkable achievements in developing Agricultural based software applications to get faster information. But, many farmers are still applying the traditional methods of farming and hence the result of productivity becomes very low. Agriculture prediction process for organic and inorganic farms is an open issue and it

depends upon weather, soil fertility, water, seasons and commodity prices, etc. Soil fertility factor is paramount important to maintain the crop growth and increase the production. The soil fertility levels help the farmers to identify the deficiencies in the soil, namely nutrient content, soil type, pH value, EC (Electrical Conductivity) value and soil texture and to choose the right crops to increase the production. In this work, as a novelty, the soil fertility level is predicted by analyzing the Virudhunagar District Soil information and recommendations are offered for crop selection and sowing by using C5.0: Advanced Decision Tree (ADT) classifier algorithm. Using this technique, an Android-based mobile phone applications named as Design of Smart Information System (DSIS) application has been developed. The proposed application activates the Global Positioning System (GPS) to identify the user location. The performance of proposed model is analysed and it is compared with the existing classification model for agricultural data.

来源：Computers and Electronics in Agriculture

发布日期：2018-12-13

全文链接：http://agri.ckcest.cn/file1/M00/06/60/CsgkOFyA_5eAHbsDACLEtnzqHfo500.pdf