农业与资源环境信息工程专题

本期导读

➤ 前沿资讯

1. 人工智能预测极端天气

2. SoilWeb应用程序2.0随时随地提供有价值的土壤信息

➤ 学术文献

1. 对数据驱动的地球科学的深度学习和过程理解

➤ 会议论文

1. 基于物联网的智能农业现场监控系统

2. 农业和农村发展中的大数据可视化

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➤ 前沿资讯

1 .Using artificial intelligence to better predict severe weather（人工智能预测极端天气）

简介：When forecasting weather, meteorologists use a number of models and data sources to track shapes and movements of clouds that could indicate severe storms. However, with increasingly expanding weather data sets and looming deadlines, it is nearly impossible for them to monitor all storm formations -- especially smaller-scale ones -- in real time. Now, there is a computer model that can help forecasters recognize potential severe storms more quickly and accurately, thanks to a team of researchers at Penn State, AccuWeather, Inc., and the University of Almería in Spain. They have developed a framework based on machine learning linear classifiers -- a kind of artificial intelligence -- that detects rotational movements in clouds from satellite images that might have otherwise gone unnoticed. This AI solution ran on the Bridges supercomputer at the Pittsburgh Supercomputing Center.

来源：EurekAlert

发布日期：2019-07-02

全文链接：https://www.eurekalert.org/pub_releases/2019-07/ps-uai070219.php

2 .SoilWeb App 2.0 Offers Valuable Soil Info on the Go（SoilWeb应用程序2.0随时随地提供有价值的土壤信息）

简介：得益于创新的移动应用程序，全球最大的土壤调查数据库现在随时可用。美国农业部自然资源保护局（NRC）和加州大学戴维斯分校最近宣布，2.0版的SoilWeb应用程序可以从谷歌Play（Android）和苹果应用商店（iOS）免费下载。该应用程序是由美国农业部自然资源保护局和加州大学戴维斯分校合作开发的。凭借其嵌入式GPS系统，SoilWeb从用户所在位置的土壤中准确提供方便、即时的土壤信息。该应用程序使用户能够更方便地访问自19世纪90年代末在美国收集到的土壤调查信息。该应用程序以移动形式显示数据，帮助用户对正在研究的位置做出更明智的决定。

来源：USDA

发布日期：2019-06-29

全文链接：https://www.usda.gov/media/blog/2019/06/26/soilweb-app-20-offers-valuable-soil-info-go

➤ 学术文献

1．Deep learning and process understanding for data-driven Earth system science（对数据驱动的地球科学的深度学习和过程理解）

简介：Machine learning approaches are increasingly used to extract patterns and insights from the ever-increasing stream of geospatial data, but current approaches may not be optimal when system behaviour is dominated by spatial or temporal context. Here, rather than amending classical machine learning, we argue that these contextual cues should be

used as part of deep learning (an approach that is able to extract spatio-temporal features automatically) to gain further process understanding of Earth system science problems, improving the predictive ability of seasonal forecasting and modelling of long-range spatial connections across multiple timescales, for example. The next step will be a hybrid modelling approach, coupling physical process models with the versatility of data-driven machine learning.

来源：Nature
发布日期：2019-02-13
全文链接：http://agri.ckcest.cn/file1/M00/06/87/CsgkOFOdtcGAJVYaACf0zD5PCyQ233.pdf

➤ 会议论文

1．IoT Based Intelligent Agriculture Field Monitoring System（基于物联网的智能农业现场监控系统）

简介：Agriculture is becoming an important growing sector throughout the world due to increasing population. Major challenge in agriculture sector is to improve farm productivity and quality of farming without continuous manual monitoring to meet the rapidly growing demand for food. Apart from increasing population, the climate change is also a big concern in agricultural sector. The purpose of this research work is to propose a smart farming method based on Internet of Things (IoT) to deal with the adverse situations. The smart farming can be adopted which offer high precision crop control, collection of useful data and automated farming technique. This work presents an intelligent agriculture field monitoring system which monitors soil humidity and temperature. After processing the sensed data it takes necessary action based on these values without human intervention. Here temperature and moisture of the soil are measured and these sensed values are stored in ThingSpeak cloud for future data analysis.

来源：IEEE
发布日期：2018-08
全文链接：http://agri.ckcest.cn/file1/M00/06/87/CsgkOFOdtKeAKkZEAATSOT_bG8U309.pdf

2．Visualisation of Big Data in Agriculture and Rural Development（农业和农村发展中的大数据可视化）

简介：Big data technology is a new technological paradigm that is driving the entire economy, including low-tech industries such as agriculture where it is implemented under the banner of precision farming. Big data analytics system will then provide pilot managers with highly localized descriptive (better and more advanced way of looking at an operation), prescriptive (timely recommendations for operation improvement i.e., seed, fertilizer and other agricultural inputs application rates, soil analysis, and localized weather and disease/pest reports, based on real-time and historical data) and predictive plans (use

current and historical data sets to forecast future localized events and returns). Presentation will be focused on two completely new domains of Big Data Visualisation and Analysis for Agriculture.

来源：IEEE
发布日期:2018-07
全文链接:http://agri.ckcest.cn/file1/M00/06/87/Csgk0F0ds0GAN5hnACsjBer73Ic483.pdf