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前沿资讯

1．Bayer launches ForGround, a unique sustainable agriculture platform focused on transforming how farmers and companies collaborate（拜耳推出ForGround可持续农业平台，专注于改变农民和企业的合作方式）

简介：Today, Bayer announced the launch of ForGround, a farmer-first digital platform that will transform the way farms of all sizes can more easily make the transition to sustainable agricultural practices. ForGround offers growers tools, resources, discounts, as well as and the potential to earn revenue through the Bayer Carbon Program for the adoption of regenerative practices and to connect with businesses looking to advance their sustainability and carbon goals.Based on the successful foundation of the existing Bayer Carbon Program, ForGround will expand and evolve to go beyond carbon offsets to explore other ways that farmers can make a positive impact in their operations, through the adoption of regenerative agriculture practices and technologies, and the potential to connect with companies to help them meet their sustainability goals from foot printing to value chain interventions all the way to carbon offsets. ForGround offers tools, resources, and discounts to advance the adoption of climate smart practices that can transform value chains Potential benefits from transitioning to regenerative agriculture may include improved soil health, reduced water use, fewer inputs, increased weather resiliency and less soil erosion The platform has been built on Bayer's years of experience and knowledge in this area to leverage digital infrastructure that will allow companies to create, manage and track progress, taking advantage of Bayer's Climate FieldView™ Platform footprint and data capabilities

来源：SeedQuest

发布日期:2022-08-15

全文链接:http://agri.ckcest.cn/file1/M00/10/0D/CsgkOGL9mcGAOgroAAF6iOSD31A337.pdf

2．Data science, technology and A.I. coalesce in the field of plant robotics（机器人操作系统-数据科学、技术和人工智能在植物机器人领域的结合）

简介：A four-wheeled, phenotyping robot that operates autonomously or under human control, Watson is taking shape in Changying “Charlie” Li’s lab at the Phenomics and Plant Robotics Center (PPRC) on the University of Georgia’s Athens campus in collaboration with researchers in the College of Agricultural and Environmental Sciences.Watson’s progress highlights UGA’s pioneering role in integrative precision agriculture, an approach that applies automation technology to farming. The PPRC advances this role by facilitating interdisciplinary, collaborative research at CAES, the College of Engineering and other UGA units.“Watson can carry sensors and instruments to collect data in the field,” said Li, PPRC director and engineering professor. “We are using three RGB color cameras to collect color images of peanut plants. With those images, we can construct 3D models of the plants and measure morphologic traits such as canopy height, size and volume. The color images can also be used to detect leaf diseases. We plan to add additional sensors, such as a multispectral camera, to measure traits that cannot be measured by color images.”

来源：The University of Georgia

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全文链接:http://agri.ckcest.cn/file1/M00/03/3B/CsgkOYdUTTGAZuVIAAFtKmOCuT8702.pdf

学术文献

1．High-resolution Projection Dataset of Agroclimatic Indicators over Central Asia(中亚地区农业气候指标的高分辨率投影数据集)

简介：为了理解未来的气候变化对中亚农业的可能影响，本研究基于CMIP5的3个全球气候模式的9千米分辨率动力降尺度结果，计算了6个农业气候指数，并评估了它们在未来的变化(2031-2050 vs 1986-2005)．在计算这些指数之前，我们使用分位数映射法订正了模式数据．结果显示分位数映射法大大减小了各个指数的偏差．生长季长度、 夏日天数、 热浪天数和热夜天数在整个中亚将显著增加．然而，有效积温的未来变化具有空间异质性．这个高分辨率的中亚农业气候指数预估数据集可被用于评估未来气候变化给中亚农业带来的风险，对制定适应和减缓措施有参考价值.

来源：Advances in Atmospheric Sciences

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会议论文

1．A Data Cube of Big Satellite Image Time-Series for Agriculture Monitoring(用于农业监测的大卫星图像时间序列多维数据集)

简介：The modernization of the Common Agricultural Policy (CAP) requires the large scale and frequent monitoring of agricultural land. Towards this direction, the free and open satellite data (i.e., Sentinel missions) have been extensively used as the sources for the required high spatial and temporal resolution Earth observations. Nevertheless, monitoring the CAP at large scales constitutes a big data problem and puts a strain on CAP paying agencies that need to adapt fast in terms of infrastructure and know-how. Hence, there is a need for efficient and easy-to-use tools for the acquisition, storage, processing and exploitation of big satellite data. In this work, we present the Agriculture monitoring Data Cube (ADC), which is an automated, modular, end-to-end framework for discovering, pre-processing and indexing optical and Synthetic Aperture Radar (SAR) images into a multidimensional cube. We also offer a set of powerful tools on top of the ADC, including i) the generation of analysis-ready feature spaces of big satellite data to feed downstream machine learning tasks and ii) the support of Satellite Image Time-Series (SITS) analysis via services pertinent to the monitoring of the CAP (e.g., detecting trends and events, monitoring the growth status etc.). The knowledge extracted from the SITS analyses and the machine learning tasks returns to the data cube, building scalable country-specific knowledge bases that can efficiently answer complex and multi-faceted geospatial queries.

来源：2022 IEEE 14th Image, Video, and Multidimensional Signal Processing Workshop (IVMSP)

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全文链接:http://agri.ckcest.cn/file1/M00/10/0D/CsgkOGL9o2KASObFAD8-SQTy-sg028.pdf

2．Deep Learning and Earth Observation to Support the Sustainable Development Goals: Current approaches, open challenges, and future opportunities（支持可持续发展目标的深度学习和地球观测：当前方法、公开挑战和未来机遇）

简介：The synergistic combination of deep learning (DL) models and Earth observation (EO) promises significant advances to support the Sustainable Development Goals (SDGs). New developments and a plethora of applications are already changing the way humanity will face the challenges of our planet. This article reviews current DL approaches for EO data, along with their applications toward monitoring and achieving the SDGs most impacted by the rapid development of DL in EO. We systematically review case studies to achieve zero hunger, create sustainable cities, deliver tenure security, mitigate and adapt to climate change, and preserve biodiversity. Important societal, economic, and environmental implications are covered. Exciting times are coming when algorithms and Earth data can help in our endeavor to address the climate crisis and support more sustainable development.

来源：IEEE Geoscience and Remote Sensing Magazine

发布日期:2022-01-14

全文链接:http://agri.ckcest.cn/file1/M00/10/0D/CsgkOGL9oeCAWJPQAD5o1WcircI617.pdf