



2019年第2期总169期

农牧业信息化专题

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政策法规

1. 国家智能制造标准体系建设指南（2018年版）

简介：制造业是国民经济的主体，是立国之本、兴国之器、强国之基。智能制造是落实我国制造强国战略的重要举措，加快推进智能制造，是加速我国工业化和信息化深度融合、推动制造业供给侧结构性改革的重要着力点，对重塑我国制造业竞争新优势具有重要意义，“智能制造、标准先行”，标准化工作是实现智能制造的重要技术基础。为指导当前和未来一段时间智能制造标准化工作，解决标准缺失、滞后、交叉重复等问题，落实“加快制造强国建设”，工业和信息化部、国家标准化管理委员会在2015年共同组织制定了《国家智能制造标准体系建设指南（2015年版）》并建立动态更新机制。按照标准体系动态更新机制，扎实构建满足产业发展需求、先进适用的智能制造标准体系，推动装备质量水平的整体提升，工业和信息化部、国家标准化管理委员会共同组织制定了《国家智能制造标准体系建设指南（2018年版）》，包括总体要求、建设思路、建设内容和组织实施四个部分，并附上智能制造相关名词术语和缩略语（附件1）、智能制造系统架构映射及示例解析（附件2）和已发布、制定中的智能制造基础共性标准和关键技术标准（附件3）。

来源：工业和信息化部

发布日期：2018-10-18

全文链接：

<http://agri.ckcest.cn/file1/M00/06/5A/Csgk0FwnH4OABMgqAEe2fH6p96I642.pdf>

前沿资讯

1. AEF achieves new ISO standard for camera connections (AEF实现了新的ISO相机连接标准)

简介：全球农机行业在电子技术方面的合作，产生了一个新的ISO标准，以消除远程摄像系统和ISOBUS终端的不兼容性。农业工业电子基金会（AEF）召集了一个多家制造商的项目团队，负责解决这一问题。随着机器变得越来越大、越来越复杂，远程可视化监控已被公认为管理马铃薯和其他蔬菜收获机、自动喷雾器、砂浆涂抹器和肥料撒播机、打包机-包装机和类似复杂设备应用过程的实用工具。AEF相机系统项目团队，包括拖拉机、机具、相机系统和连接器的国际制造商代表，描述了一个模拟系统的视频接口来解决这个问题。许多拖拉机和机具制造商已经在生产设备上采用了国际AEF标准，这也成为了新的ISO 20112- 1:18 0标准的基础。因此，AEF表示，农民可以将符合新标准的摄像系统连接到ISOBUS终端和其他显示器上，无论其供应商或品牌从而提供更多的供应商选择和更可靠的安装。AEF认为，与操作人员不得不在田地和农家空地上“盲目”操纵大型机器相比，这将鼓励更多的用户使用远程可视化监控，从而有利于现场操作和安全。

来源：FUTUREFARMING.com

发布日期：2018-12-28

全文链接：

<http://agri.ckcest.cn/file1/M00/06/5A/Csgk0FwnIjOAZ-YpAARAcc1yu6E339.pdf>

2. 意大利采取措施推动人工智能发展

简介: 近日, 意大利政府决定推出一系列重要措施, 促进人工智能领域的发展。根据罗兰·贝格公司 (Roland Berger) 一份关于全球人工智能发展领域初创企业数量排名的报告, 美国以1393家名列榜首, 中国以383家列第二, 以色列、英国、加拿大分别以362家、245家、131家跻身前5位, 而意大利只有22家, 在参与排名的20个国家中排在第19位。意政府及社会各界认为, 人工智能是创建智慧国家的基础, 同时也是执政第一大党“五星运动”主导的意政府经济计划的重点。意经济发展部表示, 深入认识和应对解决人工智能问题是政府的优先事项, 必须增加该领域的公共和私人投资, 发展与之密切相关的技术。因此, 为推动人工智能技术的发展, 意政府决定尽快采取措施, 加大支持力度, 以缩小差距并快速发展。一是制订人工智能发展国家战略, 从宏观政策上加强引导和规划。经济发展部已公开征集成员, 建立专门工作组, 负责协助政府制定国家人工智能战略。工作组将由来自企业界、人工智能领域行业协会、科研机构、社会领域 (智库、工会和第三产业等)、经济发展部等5个方面各10名代表成员组成。草案发布后, 将接受公众咨询。二是加大投入。近日, 意政府决定向经济发展部拨款1亿欧元, 支持基于5G通信技术的人工智能、区块链、物联网和超宽带技术研发的技术推广。同时, 意大利政府还在2019年预算法中, 提出了设立人工智能和区块链专项基金的计划, 确保人工智能领域未来几年都将有比较稳定的引导资金投入。三是建立人工智能国家实验室。为加强人工智能领域的网络协作, 在意政府支持下, 来自 43所意大利大学的600多名研究人员联合建立意大利人工智能和智能系统国家实验室。该实验室凝聚了意人工智能领域主要的大学和科研机构, 主要目标是通过加强研发、人才培养以及与工业部门的合作, 建立全国人工智能领域协作网络, 形成良性生态系统, 并成为意人工智能行业初创企业的主要诞生地。

来源: 科技部

发布日期: 2018-12-21

全文链接:

http://agri.ckcest.cn/file1/M00/06/5A/Csgk0FwnllaAWgUWAAIgGM_Dig079.pdf

3 . Small family-run livestock farms stand out in Cordoba's dehesa (在科尔多瓦的dehesa, 家庭经营的小型畜牧场引人注目)

简介: A dehesa is a distinctive ecosystem in the Mediterranean areas of the Iberian Peninsula labeled High Nature Value due to the value of its ecosystem services and its role in conserving biodiversity. An image of vast land sprinkled with holm oaks and cork oaks where extensive farm animals graze is the most common one that comes to mind when describing the topic of the dehesa, but what occurs when we zoom in on this image? In search of a thorough analysis of the situation of dehesa farms in Los Pedroches valley and the Guadiato Valley, a group of researchers at the Animal Production Department at the University of Cordoba made up of Francisco Maroto, Augusto Gómez, José E. Guerrero, Ana Garrido, José A. Adame and Dolores C. Pérez carried out a study that reveals which are the characteristics of a group of dehesa farms in the province of Cordoba in the beef industry associated with feeding co-ops. Small farms (224 ha) among which most are owned (73%), most use family labor force (61%) and combine different livestock species, the most common combination being beef cattle and Iberian swine (53%), are the characteristics that appear

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upon taking a closer look at the dehesa. What is more, farms like these show more intense production depending on the increase in livestock density (up to 0.73 units per hectare) with the consequent yearly increase in farming area needed to feed this livestock (47% of arable land). We can see that, rather than the traditional idea of a dehesa farm as a large landowning farm with little productivity, actually in this case, a small family-owned farm is more common, with a tendency toward intensifying production. This study is part of a comprehensive analysis of the entire chain of production, starting with managing livestock on the dehesa and ending with marketing the product, including exporting. Analyzing the starting point and integrating all the information as a whole is what will allow for improving a productive system in which, in addition to protecting environmental resources that characterize the dehesa as an ecosystem, it becomes necessary to shield the financial stability of livestock businesses (while considering the family aspect and the importance of the task of land management). The fact that these cattle farms belong to a feeding co-op, which integrates the rest of the chain of production, allows for directing their development with a broader perspective. Thus, via feedlot rules, livestock breed standardization can be favored for marketing reasons. In fact, there has been a shift toward more productive breeds for meat when traditionally other native breeds were used that were better suited to the environment but produced less meat. At the same time, thanks to associating with the cooperative, smaller farms that have a more difficult time competing in a global market can take part in the industrialization and sales process. From the need to compete within a global market comes progressive intensification (while still being extensive farming) making it necessary to include feed from outside the dehesa in order not to incur deterioration by overgrazing, which an increase in the amount of livestock could entail. Identifying the situation of these beef cattle farms associated with feeding co-ops paves the way toward being able to integrate traditional dehesa methods used by those who best know it as well as the introduction of industrial techniques. Using both methods facilitates facing financial issues in the current market. Stability for farmers that have traditionally farmed in this area is what will allow for sustaining the dehesa and anchoring inhabitants in the rural areas of Los Pedroches and Guadiato Valley.

来源: EurekAlert

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全文链接:

<http://agri.ckcest.cn/file1/M00/06/5A/Csgk0FwnIR6AK0oJAAHETi3SVFs111.pdf>

4. 欧盟发布人工智能协调计划

简介: 据欧盟官网12月7日消息, 为落实今年4月公布的《欧盟人工智能战略》, 欧盟今天发布欧盟及其成员国《人工智能协调计划》, 以促进欧洲人工智能的研发和应用。该计划主题为“人工智能欧洲造”(AI made in Europe)。预计到2020年, 欧盟及其成员国公共部门和私人部门将在人工智能方面投资200亿欧元。其中欧委会通过欧洲战略投资基金、地平线2020计划和欧洲投资基金对人工智能领域定向投资, 计划2020年先期投资1亿欧元。成员国通过国家政策性银行资助和项目形式开展投资。欧洲创新理事会通过加强其旗舰计划支持人工智能领域颠覆式创新活动, 计划在2019-2020年资助1亿欧元。此外, 鼓励成员国利用创新券、小额资助和贷款形式助力中小企业数字转型, 包括

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整合人工智能在产品、生产流程和商业模式中的应用。该计划主要在以下四个关键领域发力：增加投资、提供更多数据、培养人才和确保信任。在计划下还提出联合行动，以促进成员国、挪威和瑞士之间更密切和有效的合作。按照计划，“人工智能欧洲造”有两大关键原则，一是“设计伦理”（ethics by design）即人工智能在设计进程之初就必须在《通用数据保护条例》基础上，遵守伦理和道德法律原则、竞争法等。二是“设计安全”（security by design），即人工智能在设计之初必须考虑保护网络安全和有利于相关执法活动的便利化。

来源：科技部

发布日期：2018-12-19

全文链接：

http://agri.ckcest.cn/file1/M00/06/5A/Csgk0FwnIAeAXW5qAAI_sd1TfSA266.pdf

➤ 学术文献

1 . Flexible Laser-Induced Graphene for Nitrogen Sensing in Soil (柔性激光诱导石墨烯用于土壤氮素传感)

简介：Flexible graphene electronics are rapidly gaining interest, but their widespread implementation has been impeded by challenges with ink preparation, ink printing, and postprint annealing processes. Laser-induced graphene (LIG) promises a facile alternative by creating flexible graphene electronics on polyimide substrates through the one-step laser writing fabrication method. Herein, we demonstrate the use of LIG, created with a low-cost UV laser, for electrochemical ion-selective sensing of plant available nitrogen (i.e., both ammonium and nitrate ions: NH_4^+ and NO_3^-) in soil samples. The laser used to create the LIG was operated at distinct pulse widths (10, 20, 30, 40, and 50 ms) to maximize the LIG electrochemical reactivity. Results illustrated that a laser pulse width of 20 ms led to a high percentage of sp^2 carbon (77%) and optimal peak oxidation current of 120 μA during cyclic voltammetry of ferro/ferricyanide. Therefore, LIG electrodes created with a 20 ms pulse width were consequently functionalized with distinct ionophores specific to NH_4^+ (nonactin) or NO_3^- (tridodecylmethylammonium nitrate) within poly(vinyl chloride)-based membranes to create distinct solid contact ion-selective electrodes (SC-ISEs) for NH_4^+ and NO_3^- ion sensing, respectively. The LIG SC-ISEs displayed near Nernstian sensitivities of 51.7 \pm 7.8 mV/dec (NH_4^+) and 54.8 \pm 2.5 mV/dec (NO_3^-), detection limits of 28.2 25.0 /1M (NH_4^+) and 20.6 \pm 14.8 μM (NO_3^-), low long-term drift of 0.93 mV/h (NH_4^+ sensors) and 5.3 pV/h (NO_3^- sensors), and linear sensing ranges of 10⁻⁵-10⁻¹ M for both sensors. Moreover, soil slurry sensing was performed, and recovery percentages of 96% and 95% were obtained for added NH_4^+ and NO_3^- , respectively. These results, combined with a facile fabrication that does not require metallic nanoparticle decoration, make these LIG electrochemical sensors appealing for a wide range of in-field or point-of-service applications for soil health management.

来源：ACS APPLIED MATERIALS & INTERFACES

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全文链接：

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