

OPERARIO SENSORIZADO Y ROBÓTICA COLABORATIVA

BOLETÍN DE VIGILANCIA TECNOLÓGICA.

Octubre - Diciembre 2021. **CTAG**

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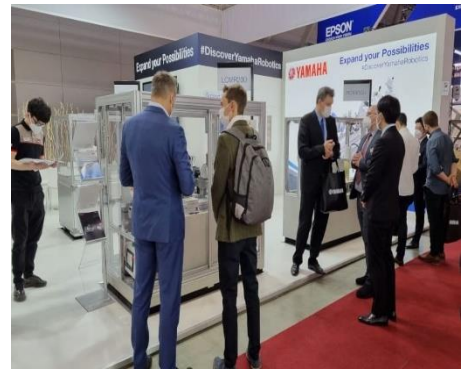
SECCIÓN I. OPERARIO SENSORIZADO

NOTICIAS

19/10/2021

Tecnologías robóticas avanzadas y asequibles de Yamaha en Motek 2021

Motek, el escaparate europeo de la automatización industrial más avanzada presentó una de las primeras oportunidades en casi dos años para que los expertos en robótica de la región se reunieran cara a cara. A la vez que protege a sus clientes, socios y empleados, Yamaha ha seguido trabajando en innovaciones de producto, incluyendo un software avanzado que simplifica el control y la programación, así como robots SCARA como la última serie YK-XE. La serie YK-XE, diseñada para ser asequible y eficaz, puede soportar cargas de entre 4 y 10 kg y manipular artículos como textiles, alimentos y componentes de alta tecnología en actividades que van desde el embalaje y la logística hasta el montaje de productos.



<https://www.infopl.net/noticias/item/110276-tecnologias-roboticas-avanzadas-asequibles-yamaha-motek-2021>

17/11/2021

Airbus lanza Mission+, el primer asistente de vuelo electrónico que maximiza la eficiencia del vuelo

Navblue, empresa filial de operaciones de vuelo de Airbus, ha lanzado Mission+, el primer asistente de vuelo electrónico (EFA) que proporciona todos los datos e información que necesitan para realizar su misión, a través de una solución digital modular. Este enfoque centrado en la misión integra datos y documentación de gestión de vuelo, gráficos de navegación y mapas del aeropuerto, condiciones meteorológicas, datos de la aeronave, que generalmente solo están disponibles para los pilotos a través de múltiples fuentes.



<https://actualidad aeroespacial.com/airbus-lanza-mission-el-primer-asistente-de-vuelo-electronico-que-maximiza-la-eficiencia-del-vuelo/>



22/11/2021

Siemens Adds NVH System Prediction Capabilities For Early Design and Virtual Prototyping

Siemens Digital Industries Software has introduced system NVH prediction, a new Simcenter software application that can bring the benefits of a comprehensive digital twin approach to accurately and easily predict the interior and exterior Noise, Vibration and Harshness (NVH) performance of a vehicle before a physical prototype is available for any type of vehicle: hybrid, fully electric or internal combustion engine (ICE). This new Simcenter application helps engineers front load full vehicle NVH analysis and detect potential component NVH performance issues earlier by using measured and simulated component models to build a virtual prototype assembly.



<https://metrology.news/siemens-adds-nvh-system-prediction-capabilities-for-early-design-and-virtual-prototyping/>

14/12/2021

Investigaciones de la Estación: Probando nuevas tecnologías

Los miembros de la tripulación a bordo de la Estación Espacial Internacional llevaron a cabo investigaciones científicas durante la semana del 6 de diciembre que incluyeron probar el apoyo operativo de la inteligencia artificial, monitorear los cambios en el sistema vascular y demostrar un sistema de transferencia de calor.

La estación espacial ha sido habitada de forma continua por humanos durante 21 años y ha apoyado muchos avances científicos. El laboratorio en órbita proporciona una plataforma para la investigación de larga duración en microgravedad y para aprender a vivir y trabajar en el espacio, experiencia que apoya Artemis, el programa de la NASA para avanzar hacia la Luna y Marte.



<https://ciencia.nasa.gov/investigaciones-de-la-estacion-probando-nuevas-tecnologias>



PUBLICACIONES CIENTÍFICAS

Octubre/2021

Balancing collaborative human–robot assembly lines to optimise cycle time and ergonomic risk

Kathryn E. Stecke, Mahdi Mokhtarzadeh

Human–robot collaboration can enhance productivity of production lines and reduce human ergonomic risk. The numbers and types of robots and stations in which robots are allocated need to be determined. Operations should be scheduled carefully when a human and robot work on a part in a station to obtain a feasible operation allocation with the highest efficiency and lowest ergonomic risk. A mixed-integer linear programming model, constraint programming model, and Benders decomposition algorithm were developed to analyse advantages of collaborative robots in assembly lines. An energy expenditure method was used to evaluate ergonomic risk. By scheduling and balancing collaborative human–robot assembly lines, operational advantages and scheduling constraints from human–robot collaboration were studied when immobile and mobile robots are used. Regression lines were developed that can help managers determine how many and what types of robots are best for a line and what the impact of robot mobility on robot and line performance can be. The best configuration for equipping a line with collaborative robots is when (number of robots)/(number of stations) is near .7 and about 37% of robots are mobile. Robots can be efficiently used in lines with both a small and large number of passive resources and in simple and mixed-model lines.

<https://www.tandfonline.com/doi/abs/10.1080/00207543.2021.1989077>

Noviembre/2021

Intelligence augmentation: rethinking the future of work by leveraging human performance and abilities

David Harborth, Katharina Kümpers

Nowadays, digitalization has an immense impact on the landscape of jobs. This technological revolution creates new industries and professions, promises greater efficiency and improves the quality of working life. However, emerging technologies such as robotics and artificial intelligence (AI) are reducing human intervention, thus advancing automation and eliminating thousands of jobs and whole occupational images. To prepare employees for the changing demands of work, adequate and timely training of the workforce and real-time support of workers in new positions is necessary. Therefore, it is investigated whether user-oriented technologies, such as augmented reality (AR) and virtual reality (VR) can be applied “on-the-job” for such training and support—also known as intelligence augmentation (IA). To address this problem, this work synthesizes results of a systematic literature review as well as a practically oriented search on augmented reality and virtual reality use cases within the IA context.

<https://link.springer.com/article/10.1007/s10055-021-00590-7>



Diciembre/2021

Quality Control 4.0: a way to improve the quality performance and engage shop floor operators

Cláudia Sousa Silva, António Fernando Borges, José Magano

Organizations must focus on increasingly complex and customized products and production processes integrated into technological and digital evolution. Thus, shop floor operators have a more significant number of complex tasks with responsibility for their quality control, looking for high productivity levels. However, there are human limitations to deal with the increased amount of information/data resulting from the integration of new technologies. As such, the main research objective is to answer the following research question “How can the combination of recent smart technologies with the human factor contribute to employees' involvement at the shop floor level and thus improve quality control?” This study follows a qualitative research approach by developing a singular case study in CPMG PSA Group – Peugeot Citroën, where two innovative information technology (IT) projects were implemented following the continuous improvement methodology PDCA cycle (Deming, 1986). This work contributed to highlighting the human-centered approach in the discussion of Quality 4.0 development. The main theoretical contribution of this research is the identification of a set of key elements that should be present in the integration of the information technologies in quality control, namely: Prioritizing the quality problems supported by the fundamentals knowledge and tools of traditional quality management (QM); building multidisciplinary teams at different organization levels; following approaches that promote continuous improvement; developing the human-centered and user-friendly perspective; implementing solutions as directly as possible in the workstation; finally, enabling an effective communication and motivation strategies

<https://www.emerald.com/insight/content/doi/10.1108/IJQRM-05-2021-0138/full/html>



SECCIÓN II. ROBÓTICA COLABORATIVA

NOTICIAS

07/10/2021

Nissan Cantabria implanta con éxito células robotizadas de Bin Picking de Ingemotions

Nissan Cantabria ha conseguido implementar con éxito la tecnología Bin Picking robotizada al comienzo de sus líneas de producción. La fábrica de los Corrales de Buena ha contado con la experiencia y conocimiento de Ingemotions para implantar dos células Bin Picking, que se completarán con una tercera actualmente en proceso de instalación. Este trabajo convierte a Nissan Cantabria en la primera planta de la Alianza Renault-Nissan-Mitsubishi en Europa que ha sido capaz de automatizar con éxito inicios de línea. El Bin Picking es una solución innovadora que combina técnicas de robótica y visión artificial en 3D y que tiene por objetivo conseguir automatizar los comienzos de línea de producción de las empresas.



<https://www.infopl.net/noticias/item/110221-nissan-cantabria-implanta-celulas-robotizadas-bin-picking-ingemotions>

15/11/2021

Nuevo robot de manipulación Motoman GP8L

Yaskawa presenta en nuevo robot Motoman GP8L de Yaskawa es la solución ideal para la automatización logística, mbalaje o vaciado de contenedores, Sus características distintivas son un cuerpo de diseño delgado, buen alcance y tiempos de ciclo que se pueden lograr rápidamente. El GP8L universal y flexible de 6 ejes ofrece una enorme maniobrabilidad, un tamaño reducido y un largo alcance de 1.636 mm. El modelo de nuevo diseño con una carga útil suficiente de 8 kg se puede utilizar en cualquier lugar donde los manipuladores de robots industriales clásicos, como el Motoman GP7 o GP12, tengan brazos demasiado cortos o sean demasiado voluminosos.



<https://www.infopl.net/noticias/item/110404-nuevo-robot-manipulacion-motoman-gp8l>



05/12/2021

MEDA y MOXIE, dos instrumentos en Marte para ayudar a las futuras misiones tripuladas

Para llegar a Marte la humanidad necesita hacer un gran esfuerzo de imaginación y desarrollo. Un ejemplo de este tipo de trabajo cooperativo internacional al más alto nivel, que exige la exploración espacial son los instrumentos científicos MEDA -fabricado en España dentro del Instituto Nacional de Técnica Aeroespacial (INTA)- y MOXIE, desarrollado por el Instituto de Tecnología de Massachusetts (MIT). Ambos, se encuentran activos actualmente dentro de la misión de la NASA en el rover Perseverance sobre el planets rojo dentro del programa de exploración humana.



<https://www.rtve.es/television/20211205/ultima-frontera-entrevista-meda-moxie-dos-instrumentos-marte-para-ayudar-futuras-misiones-tripuladas/2233004.shtml>

13/12/2021

New Robotics In Manufacturing Research Centre Announced

A new national robotics research centre will receive a share of £25m (\$33m) to improve collaborative technology and help businesses unlock the full potential of automated industrial manufacturing. The Made Smarter Innovation Research Centre for Smart, Collaborative Industrial Robotics led by the UK's Loughborough University aims to advance smart manufacturing by eliminating barriers and accelerating widespread use of smart collaborative robotics technology to unlock the full potential of industry in productivity, quality, and adaptability. The centre will bring together a team of world-class experts from Loughborough University, Cranfield University, the University of Strathclyde, the University of Warwick, and the University of Bristol.



<https://metrology.news/new-robotics-in-manufacturing-research-centre-announced/>



PUBLICACIONES CIENTÍFICAS

Noviembre/ 2021

Ergonomics and Safety in the Design of Industrial Collaborative Robotics

Sofia Pinheiro, Ana Correia Simões, Ana Pinto, Bram Boris Van Acker, Klaas Bombeke, David Romero, Mário Vaz, Joana Santos

A systematic literature review was conducted to identify relevant ergonomic and safety factors for designing collaborative workspaces in industrial settings. Background: The growing use of smart and collaborative robots in manufacturing brings some challenges for the human-robot interaction design. Human-centered manufacturing solutions will improve physical and mental well-being, performance, productivity and sustainability. Method: A systematic review of the literature was performed based on the protocol of Preferred Reporting Items for Systematic Reviews and Meta-Analyses. Results: After a search in the databases Scopus and Web of Science, applying inclusion and exclusion criteria, 33 publications in the English language, published between the years 2010 and 2020, remained in the final analysis. Publications were categorized in cognitive ergonomic factors (13), safety factors (10), physical ergonomic factors (6) and organizational ergonomic factors (4). The analysis of results reinforced that to optimize the design of collaborative workstations it is imperative to have a holistic perspective of collaboration, integrating multiple key factors from areas such as engineering, ergonomics, safety, sociology and psychological as well as manufacturing efficiency and productivity.

https://link.springer.com/chapter/10.1007/978-3-030-89617-1_42

Noviembre/ 2021

Autonomous Robots and Utilization in Logistics Process

Ömer Faruk Görçün

The autonomous robots are required in our logistics operations? It is one of the crucial questions that asked to him by logistics managers. Depending on technological developments, some requirements, which can be defined as speed, lower cost, and high quality, have become more important to stay in a highly competitive environment for companies and supply chains compared with the past. Autonomous robotic systems can help to reach these aims. They can provide a more safe working environment in warehouses, distribution centers, and other logistics facilities. In addition to that, they can provide opportunities for carrying out lower costly, speedy, and quality logistics operations. Furthermore, robotic systems continue to improve, and creating more specific robotics that will be used in the field of logistics will be possible in the near future. Moreover, robotic systems becoming smart and autonomous thanks to artificial intelligence, developed sensors, and trainability. In the future, requirements for human force may reduce in



logistics operations since robotics may carry out logistics activities autonomously depending on these technological improvements. Finally, autonomous robots can provide opportunities for carrying out more quality and excellent logistics operations to logistics managers and staff in the near future.

https://link.springer.com/chapter/10.1007/978-981-16-5644-6_6

Diciembre/2021

Security and safety assurance of collaborative manufacturing in industry 4.0

Z. M. Bi, Bin Chen, Lida Xu, Chong Wu, C. Malott, M. Chamberlin

Industry 4.0 provides an ideal platform to support a direct interaction of humans and machines in adapting changes and uncertainties in system operations. However, a physical human-machine interaction must assure security and safety. The safety requirements of collaborative manufacturing are explored and the techniques to assure safety in different collaboration modes are investigated to identify the challenges of safety assurance of human-machine collaborations in shared workspaces. In addition, system-level safety requirements of collaborative manufacturing are discussed to reveal the importance of sustaining similar safety levels for all system components and tools in developing an integrated collaborative system.

<https://www.tandfonline.com/doi/abs/10.1080/17517575.2021.2008512>



SECCIÓN III. EVENTOS INDUSTRIA 4.0



EMAF 2021

1-4 diciembre 2021, Oporto (Portugal)

Oporto acoge una nueva edición de la Feria de Maquinaria, Equipos y Servicios para la Industria. La 18ª edición de EMAF - Feria Internacional de Máquinas, Equipamientos y Servicios para la Industria vuelve a presentar la vanguardia de las soluciones y tecnologías del futuro durante 4 días. EMAF es el mayor evento en Portugal del sector industrial. La participación de las principales empresas de máquinas y equipamientos para la industria del mundo la han convertido en una de las principales ferias de Europa de su especialidad.

<https://emaf.exponor.pt/>



Advanced Factories 2022

29-31 marzo 2022, Barcelona (España)

La empresa Nebext-Next Business Exhibitions es la organizadora de este salón industrial, que combinará congreso y exposición en la ciudad de Barcelona. La próxima edición de Advanced Factories, de ámbito nacional, tendrá lugar del 29 al 31 de marzo de 2022 y ofrecerá soluciones de fabricación avanzada, principalmente en los sectores propios de la máquina-herramienta, como los de máquinas, herramientas, componentes, accesorios, automatización de procesos y fabricación, metrología y control de calidad.

<https://www.advancedfactories.com/>





Metromeet

7-8 abril 2022, Bilbao

Metromeet invites the professionals of Industrial Dimensional Metrology to share their knowledge and experiences in the Conference. The Call for Papers has started on July 1st and will end on November 30th, 2021. Participate as a speaker at Metromeet will bring you the possibility of establishing direct contact with directors and senior executives of companies related to the manufacturing and metrology industry. Metromeet will allow you to improve your business network and build relationships with potential customers, from the vantage position of being recognized as an expert in Industrial Dimensional Metrology.

<https://metromeet.org/?lang=es>



Hannover Messe

25-29 abril 2022, Munich

HANNOVER MESSE will finally be staged as a physical trade show again from 25 to 29 April 2022 - supplemented by a comprehensive range of digital services for exhibiting companies. By linking the physical trade show with new digital products and a hygiene concept that provides exhibitors and visitors maximum security, it is finally "back to the future" of industrial production under the lead theme of Industrial Transformation.

<https://www.hannovermesse.de/en/>





ConnectedFactories Use cases and demonstrators of Digitalisation of manufacturing event

18 febrero 2022, Online

We would like to invite you to Save the Date and register for the next ConnectedFactories online event: Use cases and demonstrators of Digitalisation of manufacturing on the 18th of February 2022. This event will focus on key results, use cases and demonstrators from projects that show the path towards the digital transformation of manufacturing (e.g. ZDMP - Zero Defect Manufacturing Platform + Industry 4 factory Solutions; QU4LITY - Digital Reality in Zero Defect Manufacturing; EFPF - European Connected Factory Platform for Agile Manufacturing + European Factory Foundation).

<https://www.effra.eu/events/connectedfactories-use-cases-and-demonstrators-digitalisation-manufacturing-event>

