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Recent developments of artificial intelligence for banana: application areas, learning algorithms, and future challenges

Bananas are the world's most traded fruits. Several analytical models using artificial intelligence (AI) have been developed to resolve challenges facing the banana supply chain. The number of publications in this field has steadily increased each year. However, a literature review regarding the trends of recent AI developments is not available. Thus, this study reviews the current scenario of scientific research involving AI in the stages of the banana supply chain (pre-harvest, harvest, post-harvest, processing and retail). This review covers literature published between 2015 and 2020 from online databases. Fifty-two relevant studies were retrieved from 23 countries. Consequently, we propose an AI-performance framework based on real applications implemented for bananas: the application domain, learning algorithms, performance metrics, and reported impacts. This paper discovers 11 AI-application areas for bananas, such as ripeness, leaf diseases, quality grading, crop type, crop yield, and soil control. Moreover, this review summarizes the main functionality of learning algorithms found in the literature (ANN, CNN, SVM, and K-NN). Finally, the future challenges are discussed. This comprehensive review will help researchers understand AI applications in the banana sector and analyze the knowledge gap for future studies.

📖 Engenharia Agricola

🔗 10.1590/1809-4430-Eng.Agric.v42nepe20210144/2022

SJR Agricultural and Biological Sciences

Ⓠ Segundo (Q2)

Ⓒ Estefani Almeyda, William Ipanaqué

Thrips incidence prediction in organic banana crop with Machine learning

The organic banana is one of the most popular products worldwide and its popularity is mainly due to its excellent nutritional properties and tasty flavor. Peru is considered one of the major producers and exporters of this product, being the city of Piura the main region with most of the national agro-producers. It is also considered a key factor in the development of the economy of this region as it creates job opportunities because of the productive chain required in the process (harvest, post-harvest, and export). The main problem faced by producers is the existence of pests such as Red spot thrips, Black Sigatoka, and others, which affect the production and the quality of the final product. Therefore, this article aims to propose an alternative solution, using the 4.0 Industry technology as well as the installation of an IoT sensor network in banana plantations in order to develop a model which estimates the classification of the pest incidence level based on Machine learning techniques, making use of the atmospheric variables measured with the IoT sensor network as input data. In the research, we have used The Support Vector Machine techniques, which have successfully achieved models with a high level of accuracy. The implementation of this system aims to help producers improve the management of pest control by scheduling spraying dates more effectively, optimizing not only the quality of the product but also reducing costs.

📄 Heliyon

🔗 10.1016/j.heliyon.2021.e08575

SJR Multidisciplinary

Ⓠ Primero (Q1)

Ⓒ José Manrique

Innovative Design Methodology for Patient-Specific Short Femoral Stems

The biomechanical performance of hip prostheses is often suboptimal, which leads to problems such as strain shielding, bone resorption and implant loosening, affecting the long-term viability of these implants for articular repair. Different studies have highlighted the interest of short stems for preserving bone stock and minimizing shielding, hence providing an alternative to conventional hip prostheses with long stems. Such short stems are especially valuable for younger patients, as they may require additional surgical interventions and replacements in the future, for which the preservation of bone stock is fundamental. Arguably, enhanced results may be achieved by combining the benefits of short stems with the possibilities of personalization, which are now empowered by a wise combination of medical images, computer-aided design and engineering resources and automated manufacturing tools. In this study, an innovative design methodology for custom-made short femoral stems is presented. The design process is enhanced through a novel app employing elliptical adjustment for the quasi-automated CAD modeling of personalized short femoral stems. The proposed methodology is validated by completely developing two personalized short femoral stems, which are evaluated by combining in silico studies (finite

element method (FEM) simulations), for quantifying their biomechanical performance, and rapid prototyping, for evaluating implantability.

- Materials
- 10.3390/ma15020442
- SJR Materials Science, Physics and Astronomy
- Q Segundo (Q2)
- © William Solórzano Requejo, Carlos Ojeda, Andrés Díaz Lantada

Online monitoring of nonlinear profiles using a Gaussian process model with heteroscedasticity

There is extensive research in the monitoring of a process whose characteristics are represented as profiles. However, most current techniques require all observations from each profile to determine the process state. We study the use of a Shewhart chart based on a Gaussian process model with heteroscedasticity for the online monitoring of profiles, while these are being developed, where the central line is the predictive mean and the control limits are based on the prediction band. The advantage is that we do not have to wait until a profile ends to make process corrections. Our results indicate that our method is effective.

- Quality Engineering
- 10.1080/08982112.2021.1998530
- SJR Engineering
- Q Primero (Q1)
- © Valeria Quevedo, Geoffrey Vining

Context-Aware Systems Architecture (caSA)

Context-aware systems are becoming increasingly mainstream as more and more technology allows real-time collection of daily life data and it is more and more affordable to provide useful services to citizens in various situations of need. However, developers in this field are not well supported. Naturally we have inherited a number of methods and tools from past software engineering efforts to create previous computing systems. However, the most recent generation of systems dominated by sensing supported context-awareness integrating a variety of data sources and with a higher expectation of personalized services delivered at the right time, place and in the right form, are not well supported. Developers need more guidance and support to pinpoint those valuable contexts and to work out ways of detecting them and activating the right services associated with these contexts. Our community has reported on various systems they created however not much is emerging in a way of a methodology, a standard, a transferable body of advice and guidance which can help teams next time they need to develop a new system. In this article we explain a couple of complementary methodologies which we have

tried and tested through development of different context-aware projects. We argue these are of practical usefulness and provide an initial valid point of discussion for our community to create evolved versions of these which can be tested more widely to identify good practice in the area.

- Cybernetics and Systems
- 10.1080/01969722.2021.1985226
- SJR Computer Science
- Q Segundo (Q2)
- © Juan Carlos Augusto, Mario Quinde, Chimezie Oguego, José Giménez

The Context-Aware Reasoning Health Emergency (CARE) Notification System

Context-aware reasoning (C-AR) systems already provide users with preventive and reactive services aiding them in managing their health conditions. However, there is a gap in the services C-AR systems provide regarding the notification of health emergencies once they occur. This research aims to address this gap by proposing the Context-Aware Reasoning Emergency (CARE) notification system as a comprehensive solution allowing the personalisation of health emergency notification protocols. CARE personalised services consider several stakeholders of the occurring emergency and can adapt to their personal and health contexts. The proposal is validated following the Health IT Usability Evaluation Model and with real users with experience in dealing with health emergencies as patients and care providers. The validation results are positive and encourage further work on the subject.

- Lecture Notes in Computer Science
- 10.1007/978-3-031-05431-0_22
- SJR Computer Scienc
- Q Segundo (Q2)
- © Mario Quinde, Miguel Mendoza, Antonio Criollo, Gerardo Castillo

The Coastal El Niño Event of 2017 in Ecuador and Peru: A Weather Radar Analysis

The coastal regions of South Ecuador and Peru belong to the areas experiencing the strongest impact of the El Niño Southern Oscillation phenomenon. However, the impact and dynamic development of weather patterns during those events are not well understood, due to the sparse observational networks. In spite of neutral to cold conditions after the decaying 2015/16 El Niño in the central Pacific, the coastal region was hit by torrential rainfall in 2017 causing floods, erosion and landslides with many fatalities and significant damages to infrastructure. A new network of X-band weather radar systems in South Ecuador and North Peru allowed, for the first time, the

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spatio-temporally high-resolution monitoring of rainfall dynamics, also covering the 2017 event. Here, we compare this episode to the period 2014–2018 to point out the specific atmospheric process dynamics of this event. We found that isolated warming of the Niño 1 and 2 region sea surface temperature was the initial driver of the strong rainfall, but local weather patterns were modified by topography interacting with the synoptic situation. The high resolution radar data, for the first time, allowed to monitor previously unknown local spots of heavy rainfall during ENSO-related extreme events, associated with dynamic flow convergence initiated by low-level thermal breezes. Altogether, the coastal El Niño of

2017, at the same time, caused positive rainfall anomalies in the coastal plain and on the eastern slopes of the Andes, the latter normally associated only with La Niña events. Thus, the 2017 event must be attributed to the La Niña Modoki type.

- 🗋 Remote Sensing
- 🔗 10.3390/rs14040824
- SJR Earth and Planetary Sciences
- Ⓠ Primero (Q1)
- Ⓒ Rütger Rollenbeck, Johanna Orellana-Alvear, Jörg Bendix, Rodolfo Rodriguez, Franz Pucha-Cofrep, Mario Guallpa, Andreas Fries, Rolando Célleri

FACULTAD DE CIENCIAS ECONÓMICAS Y EMPRESARIALES

- ● **TítuloThe Grand Challenge of Human Health: A Review and an Urgent Call for Business–Health Research**
- 📰 Considering the urgency of addressing grand challenges that affect human health and achieving the ambitious health targets set by the United Nations' Sustainable Development Goals (SDGs), the role of business in improving health has become critical. Yet, our systematic review of the business–health literature reveals that business research focuses primarily on occupational health and safety, health care organizations, and health regulations. To embrace the health externalities generated by business activities, we propose that future research should investigate the conditions under which business (a) articulates and participates in health challenges, (b) engages in multilevel actions toward tackling health challenges, and (c) improves health outcomes and its impact on the health of external stakeholders, including customers and local communities. We also urge business scholars to engage with the public health research community to increase impact.

- 🗋 Business and Society
- 🔗 0.1177/00076503211073519
- SJR Business, Management and Accounting, Social Sciences
- Ⓠ Primero (Q1)
- Ⓒ Junghoon Park, Ivan Montiel, Bryan W. Husted, Remy Balarezo

- ● **Bundling Sequentially Released Durable Goods**
- 📰 Suppose two durables are sequentially released and suppose that consumer valuations of these goods are positively correlated. By the time the second good is released, high-valuation buyers are out of the market for the first good. Therefore, a bundle can be targeted at the low-valuation consumers without violating the high-valuation consumers' incentive compatibility constraint. We test the model's predictions on data from retail

DVD sales in the 2000's. Consistent with theory, our estimates suggest that mixed bundling increases revenues, especially when the bundle components are similar (which in turn suggests positive correlation of valuations).

- 🗋 Journal of Industrial Economics
- 🔗 10.1111/joie.12290
- SJR Business, Management and Accounting, Economics, Econometrics and Finance
- Ⓠ Primero (Q1)
- Ⓒ Luís Cabral, Gabriel Natividad

- ● **The transition toward the business formality of the Peruvian MSEs: How does the perception of entrepreneurs and the sector influence?**
- 📰 Purpose: The formalization of a company is a process that requires compliance with standards established by government institutions. In developing countries, many businesses start this process, but do not finish it, with different levels of formality. The objective of this research is to analyze how the perception of entrepreneurs about bureaucratic procedures and the sector determine the level of formality regarding an established company that has taken the first step to formality. Design/methodology/approach: The National Survey of Micro and Small Enterprises (MSEs) is used with a sample of 4,619 Peruvian MSEs with more than three years of operation within the manufacturing and services sector. The data are analyzed with the ordered logistic regression technique.
Findings: The results show that the more favorable the perception of entrepreneurs about the ease of bureaucratic procedures, the higher the level of business formality; and companies in the manufacturing sector are less formal than those in the services sector. In addition, the perceptions of entrepreneurs positively moderate the level of formality in the case of companies in the manufacturing sector.
Originality/value: Levels of formality in established

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companies are analyzed, defined by the compliance degree with the requirements to be a formal company. The literature on business informality in emerging countries is expanded, particularly in Latin America, incorporating the analysis of the formalization process.

Academia Revista Latinoamericana de Administracion

🔗 10.1108/ARLA-05-2021-0106

SJR Business, Management and Accounting; Decision Sciences; Social Sciences; Economics, Econometrics and Finance

Ⓠ Segundo (Q2)

© Brenda Silupu, Belen Usero, Ángeles Montoro-Sánchez

FACULTAD DE COMUNICACIÓN

Journalistic framing on abortion in Peru (2015-2019): A comparative analysis between the press of the metropolitan Lima and Piura regions

Este artículo muestra los resultados de una investigación académica sobre el modo en que la prensa peruana aborda el tema del aborto. Se ha realizado un análisis de contenido para detectar los encuadres, los temas y las fuentes periodísticas presentes en 160 textos publicados en el quinquenio 2015-2019 por los diarios El Comercio, Perú 21, La República, La Hora, Correo y El Tiempo. Los tres primeros forman parte de la prensa más leída en la región de Lima metropolitana, mientras que los tres últimos están entre los diarios más leídos en la región de Piura. Estas dos regiones son las más pobladas del país andino. Una de las variables del análisis de contenido son los encuadres genéricos utilizados por la prensa: provida, proaborto y neutro/ambiguo. Los resultados muestran que cinco de los seis diarios seleccionados –todos excepto El Comercio– utilizaron mayoritariamente encuadres provida, es decir, opuestos al aborto inducido. Por otra parte, los tres diarios que forman parte de la prensa más leída en la región de Piura utilizaron porcentualmente encuadres más provida que los tres diarios que forman parte de la prensa más leída en la región de Lima metropolitana. En cuanto al tipo de fuentes a las que recurrieron los periodistas para informar sobre el aborto, pertenecen mayoritariamente a los ámbitos político y religioso, mientras que las del ámbito científico quedaron relegadas a un tercer lugar.

Revista de Comunicación

🔗 10.26441/RC20.2-2021-A10

SJR Social Sciences

Ⓠ Segundo (Q2)

© Enrique García Romero, Fernando Huamán Flores, Henry Wilfredo Palomino Moreno

Storytelling corporativo: una revisión crítica de los enfoques de investigación y la metodología en la literatura académica del 2011 al 2020

Los académicos de diferentes campos del conocimiento están de acuerdo en que el storytelling ha ganado especial relevancia en el contexto actual. Esto resulta evidente en la comunicación corporativa, donde se ha instaurado ya el término de storytelling corporativo, para hacer referencia a las historias que las empresas cuentan a sus diferentes grupos de interés (stakeholders). En este campo, se han encontrado diversas investigaciones académicas que desde diferentes enfoques y con distintas metodologías tratan de dar luces sobre la naturaleza, los alcances y las limitaciones del storytelling en el mundo de la empresa. Esta investigación presenta una revisión crítica de esta literatura académica y destaca que la ausencia de unidad conceptual y de aproximaciones metodológicas validadas por la comunidad científica han hecho del storytelling un tópico del que se escribe mucho, aunque sin ofrecer un conocimiento articulado o soluciones prácticas para su aplicación en el desarrollo de la estrategia de comunicación de la empresa.

Palabra clave

🔗 10.5294/pacla.2022.25.2.2

SJR Arts and Humanities, Social Sciences

Ⓠ Segundo (Q2)

© Tomás Atarama-Rojas, Kelly Robledo-Dioses, Alberto López-Hermida Russo

The political activity analysis in social media during the first electoral round of the 2021 general elections in Peru

Las elecciones generales de 2021 en Perú se desarrollaron en un contexto inusual generado por diversos factores. Además de realizarse en el año del bicentenario de la independencia del país y de contar con dieciocho candidatos presidenciales, el proceso electoral estuvo marcado por una profunda crisis política y por la pandemia de la COVID-19. En este contexto, la presente investigación tiene como objetivo comprender cómo se gestionó la comunicación política de los candidatos y sus partidos políticos en las redes sociales, durante la primera vuelta de estas elecciones presidenciales. Para esto, se aplica un análisis orientado a conocer la presencia y la actividad de los candidatos y los partidos políticos en redes sociales. Los hallazgos revelan un alto nivel de presencia de candidatos y partidos políticos, una actividad heterogénea y un claro fenómeno de personalización en la

comunicación política, y la concentración de las publicaciones especialmente en Facebook y Twitter.

📄 Revista de Comunicación

🔗 10.26441/RC21.1-2022-A14

SJR Social Sciences

🅠 Segundo (Q2)

© Álvaro Montúfar-Calle, Tomás Atarama-Rojas, Giancarlo Saavedra-Chau

FACULTAD DE HUMANIDADES

For the history of languages in Peru: Linguistic news and etymologies in the reports of Fannie B. Ward (1890-1891)

La historia del castellano en el Perú ha sido todavía poco estudiada, salvo en lo que respecta a la llegada del idioma y su progresiva imposición en la sociedad virreinal, así como las políticas lingüísticas de la corona española dirigidas a la evangelización en las lenguas generales de los naturales, en lugar del castellano. El contacto con el quechua es el aspecto quizás más desarrollado de la historia lingüística peruana, junto a los trabajos sobre el español peruano del siglo XVIII de Buesa Oliver y, especialmente, de Carrión Ordóñez. Respecto al periodo que nos ocupa, Eva Guggenheimer aporta una reflexión sobre la preeminencia del castellano en el proceso emancipadory sobre el castellano hablado en el siglo XIX; tenemos, además, algunos acercamientos en los trabajos de Rivarola, sobre palabras y costumbres, junto a unas observaciones sobre fraseología limeña decimonónica de Augusto Alcocer.

📄 Boletin de la Academia Peruana de la Lengua

🔗 10.46744/bapl.202102.020

SJR Arts and Humanities, Social Sciences

🅠 Sin cuartil

© Carlos Arrizabalaga

Francisco de Quevedo corrector: el criterio de las variantes de autor en dos sonetos de Heráclito cristiano (1613) y Polimnia (1648)

Este artículo indaga por las variantes introducidas por Francisco de Quevedo en dos sonetos del Heráclito cristiano (1613), los famosos salmos XVII y XIX, cuyas versiones finales aparecen en la musa Polimnia de El Parnaso español (1648). Con el análisis comparativo de las incidencias temáticas, estilísticas y estructurales de las variantes, se concluye la existencia de un criterio estético común en los movimientos operados por el poeta. Con ello, se detalla por qué las variantes aportan una mejoría de ciertas directrices expresivas ya presentes en las versiones primigenias.

📄 Iberoromania

🔗 10.1515/iber-2022-0011

SJR Arts and Humanities

🅠 Tercero (Q3)

© Renato Guizado-Yampi

Javier Sologuren and the two Garcilasos: Reception and Intertextuality in La gruta de la sirena

Este artículo estudia las relaciones intertextuales que establece Javier Sologuren (Lima, 1921-2004) en su poemario La gruta de la sirena (1961, 1971) con dos autores españoles del Renacimiento: el poeta Garcilaso de la Vega y el Inca Garcilaso de la Vega, cada uno de los cuales es referido en los poemas que abren la primera y la segunda sección del conjunto, respectivamente. Del análisis de los poemas y de la estructura del poemario, se observará cómo el poeta peruano reconfigura su sujeto lírico apoyándose en la figura y elementos de la obra de ambos autores. Asimismo, se indagará el porqué de la afinidad a los dos Garcilasos, de donde se explica cómo Sologuren entiende e interpreta sus obras.

📄 Hipogrifo

🔗 10.13035/H.2022.10.01.15

SJR Arts and Humanities; Social Sciences

🅠 Primero (Q1)

© Renato Guizado-Yampi

Lope de Aguirre According to Torrente Ballester: A Falangist Representation of the Spanish Revolution

Analiza la biografía y el drama dedicado por el escritor español Gonzalo Torrente Ballester al conquistador rebelde Lope de Aguirre. Pese a la ruptura del autor con el drama histórico conservador y a la complejidad con que retrata a su héroe, se considera poco importante su carga crítica con el franquismo, defendida por algunos estudiosos. Destaca en cambio cómo ambas obras se atienen a la visión franquista de las fuerzas republicanas y socialistas derrotadas en la reciente guerra civil. Sostiene esta interpretación en la estructura y varios fragmentos clave de las obras, y en la comparación con otros textos críticos y literarios de Torrente en aquella época, además de con dos importantes novelas falangistas de esa época: Eugenio o la proclamación de la primavera de Rafael García Serrano y Madrid de corte a checa de Agustín de Foxá.

📄 Revista Letral

🔗 0.30827/RL.VI28.21130

SJR Arts and Humanities

🅠 Primero (Q1)

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