

The Rise and Progress of Western Civilization: What about Islamic Civilization

Gugun Gumelar¹, Hilmi Aripin², Imam Tabroni³, Amina Intes⁴

¹ Sekolah Tinggi Agama Islam Dr. KH. EZ. Muttaqien Purwakarta Jawa Barat, Indonesia

² Sekolah Tinggi Agama Islam Dr. KH. EZ. Muttaqien Purwakarta Jawa Barat, Indonesia

³ Sekolah Tinggi Agama Islam Dr. KH. EZ. Muttaqien Purwakarta Jawa Barat, Indonesia

⁴ University of Southern Denmark, Denmark

ABSTRACT

Background. Since the 15th century AD, the course of human civilization has been clear, with Western civilization surpassing its Islamic counterpart. Even today, the strides made by Western civilization continue to be icons of global progress.

Purpose. The roots of this civilization can be traced back to Europe, where over the course of six centuries, a series of transformative events took place, including the Renaissance, Industrial Revolution, Aufklarung, and French Revolution.

Method. Muslims achieved significant progress during their classical period after a centuries-long process. Therefore, it is not surprising that Europe has achieved great progress in politics, culture and technological advancement, as it has had access to this knowledge for a long period of time.

Results. When comparing Western and Islamic civilizations, it is important to note that Islamic civilization reached great heights during its classical period.

Conclusion. In the classical era, Western civilization teetered on the brink of darkness, plunging many Europeans into an identity crisis. Meanwhile, Islamic civilization flourished, and Europeans eagerly drew knowledge from its teachings. The 14th to 15th centuries ushered in a period of progress and growth for Western civilization, which influenced other cultures as well. Today, after more than five centuries, Western civilization maintains its dominant position not only over Islamic and Eastern civilizations, but also other civilizations. The 14th to 15th century Renaissance.

KEYWORDS

Awakening, Civilization, Progress

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Correspondence:

Gugun Gumelar,
gugungumelar@gmail.com

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INTRODUCTION

As mentioned (Mazza dkk., 2020), the period of progress in the West (Europe) has lasted more than five (Otto dkk., 2021). During that (Moriguchi dkk., 2020), Western civilization continued to lead all civilizations in the (Marshall dkk., 2020), including Islamic and other Eastern (Weng dkk., 2020). Signs that this civilization would experience a revival and progress displacing other civilizations were seen from the occurrence of several events since the 14th century AD that could be considered



as new phenomena that had never happened before in (Aringer dkk., 2019). In order of (Y. Wang dkk., 2019), it can be stated as (Hajek dkk., 2019).

1. The Phenomenon of the New Renaissance in Europe from the 14th to the Early 16th Century CE.

Renaissance means rebirth or (Droulia & Charalampopoulos, 2022). The point was to bring Europeans back to the ancient Greek and Roman civilizations that were submerged for almost eight centuries as Europe sank into the darkness of the Middle (Chew dkk., 2020). The process of identifying and rediscovering the identity of the ancient Greek and Roman civilization that was forgotten by Europeans for several centuries from the 5th century AD to the end of the 13th century AD, was then born and re-emerged in the early 19th century. 14th century AD to early 16th century AD. The subsequent emergence of Individualism, Rationalism and Secularism as common features, the emergence of various changes in all aspects of European social life was (Al-Ayyoub dkk., 2019). This is called the (Hu dkk., 2020).

2. Ocean Exploration and Discovery of New Territories

The second event that marked the beginning of the rise and progress of Western civilization was the exploration of the seas and the discovery of new territories by (Hu dkk., 2020), in this case the Spanish and (Liu dkk., 2019), followed by the Dutch and (Wallace dkk., 2019).

Although Europe was not the most advanced region in the world at the beginning of the 15th century AD, the ocean exploration activities carried out by Europeans were greatly influenced by three things: (1) the development of geography and astronomy owned by Europeans; (2) supported by advances in shipping technology; (3) They are very persistent in finding gold in new places, victory in various wars with Muslims (Glory), and expanding the influence of (Sharma dkk., 2021).

3. Aufklärung: the cultural movement towards the age of Enlightenment

Emerging in the 18th century, the phenomenon of "aufklarung" colored the fabric of European (Perkins dkk., 2020). In (Baak dkk., 2020), "aufklarung" refers to the (Li dkk., 2020). Broadly (Qunaibi dkk., 2021), it was a cultural movement that took root and developed in European society as a means to combat and eliminate all forms of superstitious (Guess dkk., 2020), (Anwar dkk., 2019), and myths that went against reason and common (Botchkarev, 2019).

As a cultural movement that emerged and developed in Europe in the 18th century AD, the Enlightenment Movement cannot be separated from the role of the (Benabid dkk., 2019), (Otto dkk., 2021), Dutch and German (Korten, 2020). The Enlightenment (Peng dkk., 2020), especially the emphasis on (Alom dkk., 2019), reading and arithmetic that the bourgeoisie gave to European (Arnett dkk., 2019).

Some of the advances in Europe between the 17th and 19th centuries AD, The period spanning the 17th to 19th centuries AD witnessed a striking surge of European progress. Indicators of this progress were manifold, with the advent of pioneering scientific discoveries being at the forefront. The Renaissance was the catalyst for a significant historical transformation, in which Europe emerged from the dark ages of the 16th and 17th centuries AD. A thirst for knowledge motivated Europeans to unravel the mysteries of nature, cross oceans and explore new territories. The result of these endeavors was a plethora of discoveries in various fields of science and life, including Christopher Columbus' landmark expedition of 1492 AD, The discovery of the Americas in 1492, followed by

Vasco da Gama's navigation to the East via the Cape of Good Hope six years later, was a pivotal moment in ("2020 Alzheimer's Disease Facts and Figures," 2020). These milestones allowed Europe to make significant inroads into the world of (Hall Dykgraaf dkk., 2021), a development that made the old Muslim-controlled routes (Fettweis dkk., 2019).

Signs of progress in Europe were also reflected in the rapid economic growth of European (C. Wang dkk., 2020). Signs of European progress in the 18th and 19th centuries ju.

1. Islam's Role in Promoting European Revival and Progress

The rise of Europe is inseparable from Islam's contribution to (Fanouriakis dkk., 2020). Many Europeans studied with Muslims for ("2020 Alzheimer's Disease Facts and Figures," 2020), and the emergence of efforts to develop scientific and intellectual traditions through translation and reintroduction of Greek and Roman civilizations allowed Europeans to lead more advanced lives free from religious dogma. It was there that the transformation of civilization took (Clyne & Troughton, 2019), as many scientific activities developed and encouraged Europeans to understand the identity of their "ancestral civilization", namely the rationalism of the Greeks and the ability of the Romans to organize and develop (Friedler dkk., 2019).

2. Forms of Spread and Transformation of Islamic Science and Civilization to European Civilization.

The relationship between science and religion in Islam is far from contradictory. In fact, it can be described as a synergistic relationship that encourages mutual (Longo dkk., 2019). The birth of Islamic science cannot be separated from the harmonious marriage between the spirit of the Qur'anic revelation and the pre-existing knowledge inherited from various (He dkk., 2020). Seyyed Husein Nast asserts that this spiritual energy causes the transformation of existing knowledge into a new substance that is at once different and continuous with its (Renda dkk., 2020).

RESEARCH METHODOLOGY

For this article on "The Rise and Progress of Western Civilization: What About Islam", the manuscript review method was used. The author relied on secondary data obtained through literature review from various books and journals. The aim was to create an informative and accurate text.

The origins of this article can be attributed to the work of several authors, including two journals and several books. One of the journals titled "The Influence of Islamic Civilization on the Western World" investigates the role that Islamic civilization played in shaping the European Renaissance, which ultimately led to the rise of Europe. In his book "The Making of Humanity", Robert acknowledges that Europe's progress owes much to the influence of Islam and its civilization.

With this in mind, the author seeks to further explore this fascinating subject. Presented next is a journal entry titled "The Emergence and Development of Western Civilization with Islam". It delves into the aufklarung movement that marked the cultural landscape of Europe since the 18th century. Aufklarung, a German word meaning "enlightenment", is comprehensively explored, highlighting its impact on the progress and evolution of civilization.

To ensure accuracy, the data collection process for this research utilized three main techniques: editing, organizing, and finding. Editing, the first stage, involves reviewing and refining the data collected to ensure clarity and completeness, as well as to ensure that the data is accurate.

RESULT AND DISCUSSION

1. The term Renaissance is a term used to express the expression reborn. It denotes the revival of Greco-Roman culture. During the 14th and 15th centuries in Europe, a group of scholars and scientists initiated a movement to examine the science, art, literature, architecture, and philosophy of the Greco-Roman era with a new perspective. The aim of this movement was to strengthen the teachings of Christianity and change the dogmatic perception of life during the Middle Ages to a more rational view.

During the Renaissance, it was not only the clergy who wrote literary works. Ordinary people began to write in their native language as well. Dante Alighieri, an Italian writer, composed *La Divina Commedia* (The Holy Comedy) in Italian. Francesco Petrarch and Giovanni Boccaccio collected and researched Greek and Latin literature before reworking it in Italian. During the 16th century, famous artists such as Botticelli, Titian, Raphael, Leonardo da Vinci, and Michelangelo emerged. Michelangelo stood out not only as a painter but also as a sculptor. The general public was given an insight into the intellectual climate of the ancient Greeks and Romans, including their freedom to express their ideas in public.

European civilization experienced a period of decline after the ancient Greek and Roman civilizations. This decline led to the dominance of Christian spiritual civilization and the power of churches and monasteries in Europe. As a result.

2. Ocean Exploration and Discovery of New Areas

The exploration of the oceans and the discovery of new regions by Europeans, particularly the Spanish and Portuguese, and later the Dutch and English, marked the second important moment in the rise and progress of Western civilization.

Although Europe was not the most advanced region in the world at the beginning of the 15th century AD, European sea exploration activities were greatly influenced by three aspects: (1) the development of European geographical and astronomical knowledge; eagerness to find gold in new places, win wars to defeat Muslims, and spread Christianity.

In 1487 AD, Bartholomew Diaz rounded the Cape of Good Hope. Thus, he had entered the Indian Ocean. Furthermore, in 1497 AD Vasco da Gama after passing the Cape of Good Hope, on his next voyage, he reached the Indian Ocean and at the direction of an Arab who was paid handsomely, he reached Kalikut on the west coast of India. In 1497 AD, Vasco da Gama arrived in India. In 1503, Alfonso de Albuquerque departed for India and in 1510 AD, managed to conquer Goa on the West coast of the Indian coast which later became a permanent Portuguese base. Furthermore, in April 1511 AD, Albuquerque made a voyage from Goa to Malacca. He captured the city of Malacca. He stayed in the city until November 1511 AD.

In 1492 AD, Queen Isabella came to power over Spain, having conquered the city of Granada, which was the last stronghold of the Muslims. As a sign of victory, she ordered Christopher Columbus to embark on a voyage with his ship and crew in search of uncharted territory. Christopher Columbus sailed westward with the aim of reaching India. However, he eventually arrived at the Bahama Islands in Central America, where he met the islanders, who were initially mistaken for Indians and later became known as such.

In 1487, Bartholomew Diaz successfully navigated around the Cape of Good Hope, thus opening a route to the Indian Ocean. Following in his footsteps, Vasco da Gama, in 1497, also passed the Cape of Good Hope and reached the Indian Ocean. Guided by a well-paid Arab, he eventually arrived at Kalikut on the west coast of India. In 1503 Alfonso de Albuquerque began his journey to India, and by 1510, he had completed the conquest of Goa, which was not inhabited by Christians. As a result, both countries sought the Pope's intervention to mediate

their dispute over the division of territory. The Pope, however, was not opposed to the idea of dividing the world between these two interested nations.

Following the blessing of Pope Alexander VI in 1494, the Treaty of Tordesilas was established. This treaty divided the world into two parts, with the Verdi Islands serving as the western boundary. According to the treaty, the Portuguese controlled the eastern part of the world, while Spain controlled the western part. The exact location of the eastern boundary remains uncertain, as no Western country has yet reached it. Moreover, after the signing of the treaty of Tordesilas, the Portuguese strictly guarded their sea lanes to the East. For about a hundred years, other Western countries, such as France, the Netherlands and England, were content to buy spices from the port of Lisbon.

In 1520 AD, members of the Magellan expedition, who were Spanish, sailed through the strait that bears his name and continued across the vast expanse of the Pacific Ocean. A year later, in 1521 AD, the Spanish explorers stopped in Tidore on their way back to their homeland. It was in Tidore that an unexpected encounter between the Portuguese and Spanish took place. The Portuguese viewed the arrival of the Spaniards as a violation of the Treaty of Tordesillas, while the Spaniards believed that their presence did not violate the treaty as their expeditions consistently traveled west. The chance encounter between the Portuguese and Spanish during Magellan's voyage highlighted the fact that the Earth was indeed round and that the eastern boundary set out in the Treaty of Tordesilas was ambiguous. As a result, both countries decided.

3. Aufklärung: the cultural movement towards the age of enlightenment

The phenomenon known as the aufklärung, which had a profound impact on European society, emerged in the 18th century. At its core, the aufklärung can be defined as the pursuit of enlightenment. However, its significance goes beyond this simple definition. Aufklärung can be seen as a cultural movement that emerged and developed in European society, aiming to challenge and eliminate all forms of irrational beliefs, biases, and misconceptions that contradict rationality. The Enlightenment, a cultural phenomenon that emerged and developed in 18th-century Europe, was closely linked to the influence of the bourgeoisie in countries such as France, England, the Netherlands and Germany. The wealth and leisure time afforded to this social class allowed them to devote themselves to scientific endeavors, with a particular emphasis on education, literacy, and numeracy, which they generously provided to European society.

Europe experienced a period of enlightenment in the 18th century due to several contributing factors. One such factor was the widespread prosperity in European society, particularly among the bourgeoisie. Throughout the 17th century, leading European countries such as England, France and the Netherlands experienced a steady increase in prosperity. This prosperity was most visible in urban societies, particularly among the bourgeoisie or upper middle class. Their wealth gave them significant influence, even within their own social groups, which was not only a source of wealth, but also a source of influence.

The Rise and Progress of Europe in Relation to the Islamic World Flashback to Islam's Role in Promoting the Rise and Progress of Europe.

1. Islam's Role in Europe's Rise and Progress

The impact of Islam on the Renaissance in Europe cannot be overstated. The cultivation of scientific and intellectual traditions through the translation and reintroduction of Greek and Roman civilizations was greatly influenced by the many Europeans who studied alongside Muslims for several centuries. These interactions led to progress in

European society, as individuals were freed from religious restrictions and embraced a more progressive way of life. This transformative period in civilization occurred as scientific pursuits flourished, inspiring Europeans to explore the roots of their "ancestral civilization" and embrace the rationalism of the Greeks and the organizational prowess, architectural achievements, and legal systems of the Romans.

Western (European) progress actually stems from the jewel of science and rational thinking methods. One of the channels through which Islamic civilization entered Europe was Islamic Spain. When Islam flourished in Spain, many Europeans came there to study and then translate the scientific works of Muslim scientists. This started as early as the 12th century AD, when they returned to their respective countries, they established universities on the Islamic model and taught the sciences learned in Islamic universities. In later developments, this situation gave birth to the European Renaissance, Reformation and Rationalism (EE, 2013).

The role of Islam in encouraging the rise and progress of Western civilization can also be reflected in the field of art development. Architecture. Istan.

2. Forms of Spread and Transformation of Islamic Science and Civilization to European Civilization.

The relationship between Islam and science is not contradictory, in fact it can be said to be very complementary and complementary. Saeed Hussain Nasr believes that "the emergence of Islamic science is due to the combination of the spirit revealed in the Qur'an and the existing knowledge of various civilizations inherited from Islam through its psychic energy is transformed into a new substance that is at the same time different and: continuous with the substance that existed before.

It should be emphasized again that when Islam was in Europe, many Europeans learned from Muslims. Muslim scientists themselves greatly encouraged Europeans' desire to learn science. This proves that when Islam was in Europe, not a single Muslim scholar was ever killed or murdered before the Roman Church's court of faith for opposing views such as Copernicus, Giordano Bruno, and Galileo Galilei. On the contrary, Muslim scholars who were grounded in monotheism viewed the laws of nature as sunnah, objective, regular, and orderly. They did not confuse faith with the scientific method or distort the facts.

The spread and transformation of Islamic knowledge and civilization in European civilization was also achieved through educational activities carried out by higher education institutions. When Islam was still present in Europe, many great universities outnumbered European Christian universities for centuries. The most famous were the Universities of Córdoba, Seville, Malaga and Granada. The University of Córdoba has

CONCLUSION

From the 16th century AD to the present day, Western civilization has continued to progress. This progress was initially marked by the rise of the Renaissance influence, the exploration and discovery of previously unknown territories, and the realization of Enlightenment ideals across Europe. It is evident that Europe has made significant strides forward. This can be observed through the introduction of various innovative scientific discoveries and the rapid economic development experienced by European countries. Europe's progress is essentially linked to the role played by Islam, especially when Islam was present in the European region. During this time there was a transfer and transformation of Islamic civilization through the facilitation of translation and educational efforts undertaken by Muslim scholars for the benefit of Europeans.

AUTHORS' CONTRIBUTION

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.

Author 2: Conceptualization; Data curation; In-vestigation.

Author 3: Data curation; Investigation.

Author 4: Formal analysis; Methodology; Writing - original draft.

REFERENCES

- 2020 Alzheimer's disease facts and figures. (2020). *Alzheimer's & Dementia*, 16(3), 391–460. <https://doi.org/10.1002/alz.12068>
- Al-Ayyoub, M., Khamaiseh, A. A., Jararweh, Y., & Al-Kabi, M. N. (2019). A comprehensive survey of arabic sentiment analysis. *Information Processing & Management*, 56(2), 320–342. <https://doi.org/10.1016/j.ipm.2018.07.006>
- Alom, M. Z., Taha, T. M., Yakopcic, C., Westberg, S., Sidike, P., Nasrin, M. S., Hasan, M., Van Essen, B. C., Awwal, A. A. S., & Asari, V. K. (2019). A State-of-the-Art Survey on Deep Learning Theory and Architectures. *Electronics*, 8(3), 292. <https://doi.org/10.3390/electronics8030292>
- Anwar, S., Bascou, N. A., Menekse, M., & Kardgar, A. (2019). A Systematic Review of Studies on Educational Robotics. *Journal of Pre-College Engineering Education Research (J-PEER)*, 9(2). <https://doi.org/10.7771/2157-9288.1223>
- Aringer, M., Costenbader, K., Daikh, D., Brinks, R., Mosca, M., Ramsey-Goldman, R., Smolen, J. S., Wofsy, D., Boumpas, D. T., Kamen, D. L., Jayne, D., Cervera, R., Costedoat-Chalumeau, N., Diamond, B., Gladman, D. D., Hahn, B., Hiepe, F., Jacobsen, S., Khanna, D., ... Johnson, S. R. (2019). 2019 European League Against Rheumatism/American College of Rheumatology Classification Criteria for Systemic Lupus Erythematosus. *Arthritis & Rheumatology*, 71(9), 1400–1412. <https://doi.org/10.1002/art.40930>
- Arnett, D. K., Blumenthal, R. S., Albert, M. A., Buroker, A. B., Goldberger, Z. D., Hahn, E. J., Himmelfarb, C. D., Khera, A., Lloyd-Jones, D., McEvoy, J. W., Michos, E. D., Miedema, M. D., Muñoz, D., Smith, S. C., Virani, S. S., Williams, K. A., Yeboah, J., & Ziaeian, B. (2019). 2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Circulation*, 140(11). <https://doi.org/10.1161/CIR.0000000000000678>
- Baak, M., Koopman, R., Snoek, H., & Klous, S. (2020). A new correlation coefficient between categorical, ordinal and interval variables with Pearson characteristics. *Computational Statistics & Data Analysis*, 152, 107043. <https://doi.org/10.1016/j.csda.2020.107043>
- Benabid, A. L., Costecalde, T., Eliseyev, A., Charvet, G., Verney, A., Karakas, S., Foerster, M., Lambert, A., Morinière, B., Abroug, N., Schaeffer, M.-C., Moly, A., Sauter-Starace, F., Ratel, D., Moro, C., Torres-Martinez, N., Langar, L., Oddoux, M., Polosan, M., ... Chabardes, S. (2019). An exoskeleton controlled by an epidural wireless brain-machine interface in a tetraplegic patient: A proof-of-concept demonstration. *The Lancet Neurology*, 18(12), 1112–1122. [https://doi.org/10.1016/S1474-4422\(19\)30321-7](https://doi.org/10.1016/S1474-4422(19)30321-7)
- Botchkarev, A. (2019). A New Typology Design of Performance Metrics to Measure Errors in Machine Learning Regression Algorithms. *Interdisciplinary Journal of Information, Knowledge, and Management*, 14, 045–076. <https://doi.org/10.28945/4184>
- Chew, N. W. S., Lee, G. K. H., Tan, B. Y. Q., Jing, M., Goh, Y., Ngiam, N. J. H., Yeo, L. L. L., Ahmad, A., Ahmed Khan, F., Napoleon Shanmugam, G., Sharma, A. K., Komalkumar, R. N., Meenakshi, P. V., Shah, K., Patel, B., Chan, B. P. L., Sunny, S., Chandra, B., Ong, J. J. Y., ... Sharma, V. K. (2020). A multinational, multicentre study on the psychological outcomes and associated physical symptoms amongst healthcare workers during COVID-19

- outbreak. *Brain, Behavior, and Immunity*, 88, 559–565. <https://doi.org/10.1016/j.bbi.2020.04.049>
- Clyne, T. W., & Troughton, S. C. (2019). A review of recent work on discharge characteristics during plasma electrolytic oxidation of various metals. *International Materials Reviews*, 64(3), 127–162. <https://doi.org/10.1080/09506608.2018.1466492>
- Droulia, F., & Charalampopoulos, I. (2022). A Review on the Observed Climate Change in Europe and Its Impacts on Viticulture. *Atmosphere*, 13(5), 837. <https://doi.org/10.3390/atmos13050837>
- Fanouriakis, A., Kostopoulou, M., Cheema, K., Anders, H.-J., Aringer, M., Bajema, I., Boletis, J., Frangou, E., Houssiau, F. A., Hollis, J., Karras, A., Marchiori, F., Marks, S. D., Moroni, G., Mosca, M., Parodis, I., Praga, M., Schneider, M., Smolen, J. S., ... Boumpas, D. T. (2020). 2019 Update of the Joint European League Against Rheumatism and European Renal Association–European Dialysis and Transplant Association (EULAR/ERA–EDTA) recommendations for the management of lupus nephritis. *Annals of the Rheumatic Diseases*, 79(6), 713–723. <https://doi.org/10.1136/annrheumdis-2020-216924>
- Fettweis, G., Hassler, M., Wittig, R., Matus, E., Damjanecvic, S., Haas, S., Pauls, F., Nam, S., & Grigoryan, N. (2019). A Low-Power Scalable Signal Processing Chip Platform for 5G and Beyond—Kachel. *2019 53rd Asilomar Conference on Signals, Systems, and Computers*, 896–900. <https://doi.org/10.1109/IEEECONF44664.2019.9048785>
- Friedler, S. A., Scheidegger, C., Venkatasubramanian, S., Choudhary, S., Hamilton, E. P., & Roth, D. (2019). A comparative study of fairness-enhancing interventions in machine learning. *Proceedings of the Conference on Fairness, Accountability, and Transparency*, 329–338. <https://doi.org/10.1145/3287560.3287589>
- Guess, A. M., Lerner, M., Lyons, B., Montgomery, J. M., Nyhan, B., Reifler, J., & Sircar, N. (2020). A digital media literacy intervention increases discernment between mainstream and false news in the United States and India. *Proceedings of the National Academy of Sciences*, 117(27), 15536–15545. <https://doi.org/10.1073/pnas.1920498117>
- Hajek, P., Phillips-Waller, A., Przulj, D., Pesola, F., Myers Smith, K., Bisal, N., Li, J., Parrott, S., Sasieni, P., Dawkins, L., Ross, L., Goniewicz, M., Wu, Q., & McRobbie, H. J. (2019). A Randomized Trial of E-Cigarettes versus Nicotine-Replacement Therapy. *New England Journal of Medicine*, 380(7), 629–637. <https://doi.org/10.1056/NEJMoa1808779>
- Hall Dykgraaf, S., Desborough, J., De Toca, L., Davis, S., Roberts, L., Munindradasa, A., McMillan, A., Kelly, P., & Kidd, M. (2021). “A decade’s worth of work in a matter of days”: The journey to telehealth for the whole population in Australia. *International Journal of Medical Informatics*, 151, 104483. <https://doi.org/10.1016/j.ijmedinf.2021.104483>
- He, J., Evans, N. M., Liu, H., & Shao, S. (2020). A review of research on plant-based meat alternatives: Driving forces, history, manufacturing, and consumer attitudes. *Comprehensive Reviews in Food Science and Food Safety*, 19(5), 2639–2656. <https://doi.org/10.1111/1541-4337.12610>
- Hu, R., Qiu, H., Zhang, H., Wang, P., Du, X., Ma, J., Wu, T., Lu, C., Zhou, X., & Cui, G. (2020). A Polymer-Reinforced SEI Layer Induced by a Cyclic Carbonate-Based Polymer Electrolyte Boosting 4.45 V LiCoO₂/Li Metal Batteries. *Small*, 16(13), 1907163. <https://doi.org/10.1002/smll.201907163>
- Korten, C. (2020). A house divided: The implications of land expropriated during the Napoleonic years—A case study in the Papal States. *Journal of Modern European History*, 18(2), 207–224. <https://doi.org/10.1177/1611894420909015>
- Li, K., Zhao, B., Bai, J., Ma, H., Fang, Z., Zhu, X., & Sun, Y. (2020). A High-Energy-Density Hybrid Supercapacitor with P-Ni(OH)₂@Co(OH)₂ Core–Shell Heterostructure and Fe₂O₃ Nanoneedle Arrays as Advanced Integrated Electrodes. *Small*, 16(32), 2001974. <https://doi.org/10.1002/smll.202001974>
- Liu, X., Faes, L., Kale, A. U., Wagner, S. K., Fu, D. J., Bruynseels, A., Mahendiran, T., Moraes, G., Shamdas, M., Kern, C., Ledsam, J. R., Schmid, M. K., Balaskas, K., Topol, E. J.,

- Bachmann, L. M., Keane, P. A., & Denniston, A. K. (2019). A comparison of deep learning performance against health-care professionals in detecting diseases from medical imaging: A systematic review and meta-analysis. *The Lancet Digital Health*, 1(6), e271–e297. [https://doi.org/10.1016/S2589-7500\(19\)30123-2](https://doi.org/10.1016/S2589-7500(19)30123-2)
- Longo, M., Zatterale, F., Naderi, J., Parrillo, L., Formisano, P., Raciti, G. A., Beguinot, F., & Miele, C. (2019). Adipose Tissue Dysfunction as Determinant of Obesity-Associated Metabolic Complications. *International Journal of Molecular Sciences*, 20(9), 2358. <https://doi.org/10.3390/ijms20092358>
- Marshall, J. C., Murthy, S., Diaz, J., Adhikari, N. K., Angus, D. C., Arabi, Y. M., Baillie, K., Bauer, M., Berry, S., Blackwood, B., Bonten, M., Bozza, F., Brunkhorst, F., Cheng, A., Clarke, M., Dat, V. Q., De Jong, M., Denholm, J., Derde, L., ... Zhang, J. (2020). A minimal common outcome measure set for COVID-19 clinical research. *The Lancet Infectious Diseases*, 20(8), e192–e197. [https://doi.org/10.1016/S1473-3099\(20\)30483-7](https://doi.org/10.1016/S1473-3099(20)30483-7)
- Mazza, C., Ricci, E., Biondi, S., Colasanti, M., Ferracuti, S., Napoli, C., & Roma, P. (2020). A Nationwide Survey of Psychological Distress among Italian People during the COVID-19 Pandemic: Immediate Psychological Responses and Associated Factors. *International Journal of Environmental Research and Public Health*, 17(9), 3165. <https://doi.org/10.3390/ijerph17093165>
- Moriguchi, T., Harii, N., Goto, J., Harada, D., Sugawara, H., Takamino, J., Ueno, M., Sakata, H., Kondo, K., Myose, N., Nakao, A., Takeda, M., Haro, H., Inoue, O., Suzuki-Inoue, K., Kubokawa, K., Ogihara, S., Sasaki, T., Kinouchi, H., ... Shimada, S. (2020). A first case of meningitis/encephalitis associated with SARS-Coronavirus-2. *International Journal of Infectious Diseases*, 94, 55–58. <https://doi.org/10.1016/j.ijid.2020.03.062>
- Otto, C. M., Nishimura, R. A., Bonow, R. O., Carabello, B. A., Erwin, J. P., Gentile, F., Jneid, H., Krieger, E. V., Mack, M., McLeod, C., O’Gara, P. T., Rigolin, V. H., Sundt, T. M., Thompson, A., & Toly, C. (2021). 2020 ACC/AHA Guideline for the Management of Patients With Valvular Heart Disease: Executive Summary: A Report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. *Circulation*, 143(5). <https://doi.org/10.1161/CIR.0000000000000932>
- Peng, X., Dong, K., Ye, C., Jiang, Y., Zhai, S., Cheng, R., Liu, D., Gao, X., Wang, J., & Wang, Z. L. (2020). A breathable, biodegradable, antibacterial, and self-powered electronic skin based on all-nanofiber triboelectric nanogenerators. *Science Advances*, 6(26), eaba9624. <https://doi.org/10.1126/sciadv.aba9624>
- Perkins, R. B., Guido, R. S., Castle, P. E., Chelmow, D., Einstein, M. H., Garcia, F., Huh, W. K., Kim, J. J., Moscicki, A.-B., Nayar, R., Saraiya, M., Sawaya, G. F., Wentzensen, N., & Schiffman, M. (2020). 2019 ASCCP Risk-Based Management Consensus Guidelines for Abnormal Cervical Cancer Screening Tests and Cancer Precursors: *Journal of Lower Genital Tract Disease*, 24(2), 102–131. <https://doi.org/10.1097/LGT.0000000000000525>
- Qunaibi, E. A., Helmy, M., Basheti, I., & Sultan, I. (2021). A high rate of COVID-19 vaccine hesitancy in a large-scale survey on Arabs. *eLife*, 10, e68038. <https://doi.org/10.7554/eLife.68038>
- Renda, F., Armanini, C., Lebastard, V., Candelier, F., & Boyer, F. (2020). A Geometric Variable-Strain Approach for Static Modeling of Soft Manipulators With Tendon and Fluidic Actuation. *IEEE Robotics and Automation Letters*, 5(3), 4006–4013. <https://doi.org/10.1109/LRA.2020.2985620>
- Sharma, M., Batra, K., & Batra, R. (2021). A Theory-Based Analysis of COVID-19 Vaccine Hesitancy among African Americans in the United States: A Recent Evidence. *Healthcare*, 9(10), 1273. <https://doi.org/10.3390/healthcare9101273>
- Wallace, S. J., Worrall, L., Rose, T., Le Dorze, G., Breitenstein, C., Hilari, K., Babbitt, E., Bose, A., Brady, M., Cherney, L. R., Copland, D., Cruice, M., Enderby, P., Hersh, D., Howe, T., Kelly, H., Kiran, S., Laska, A.-C., Marshall, J., ... Webster, J. (2019). A core outcome set

- for aphasia treatment research: The ROMA consensus statement. *International Journal of Stroke*, 14(2), 180–185. <https://doi.org/10.1177/1747493018806200>
- Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., McIntyre, R. S., Choo, F. N., Tran, B., Ho, R., Sharma, V. K., & Ho, C. (2020). A longitudinal study on the mental health of general population during the COVID-19 epidemic in China. *Brain, Behavior, and Immunity*, 87, 40–48. <https://doi.org/10.1016/j.bbi.2020.04.028>
- Wang, Y., Zhu, H., & Kannan, K. (2019). A Review of Biomonitoring of Phthalate Exposures. *Toxics*, 7(2), 21. <https://doi.org/10.3390/toxics7020021>
- Weng, W., Yang, J., Zhang, Y., Li, Y., Yang, S., Zhu, L., & Zhu, M. (2020). A Route Toward Smart System Integration: From Fiber Design to Device Construction. *Advanced Materials*, 32(5), 1902301. <https://doi.org/10.1002/adma.201902301>

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