Addressing the Fallacy of Generalizing Caste Racism among Hindus: An AI/ML Approach to Deconstructing Misconceptions

Akash Trivedi

Research Scholar, University of Technology Sarawak (UTS), SET, CRISD, India

ABSTRACT

Worldwide Non-Hindus have a narrative that Hindus are as practitioners of racism of one caste towards the other. But this is far from the truth; it was a practice in old India but has mostly been eradicated over the past 75 years since independence from the British. This paper explains the caste system and how it got corrupted over the last 2500 years to become an avenue for racism; most Hindus have already accepted that this was wrong and have corrected themselves. The original caste system was a division of labor with equal rights for all the four castes. Such a system produces professionals in the four major fields which all countries must have namely, instruction followers (Shudras), producers (Vaishyas), warriors (Kshatriyas) and spiritual guides (Brahmins). The original concept was that some traits ofprofessions can be passed down via physical instructions from parents or even biologically. Thereby over generations very good professionals were created for the country to excel. But each of the four castes hasa period when they are more sought after and thereby develops ego; just as when a beautiful girl develops ego. Today, the Vaishyas are sought after and soon the Shudras will be sought after on account of their better ability to follow instructions of computer systems.

Keywords—Caste system, Indian culture, Hinduism

INTRODUCTION

There is a growing trend especially in Western World to brand Hindus as practitioners of Caste racism and discrimination [1]. Though Caste racism and discrimination was practiced in India in the past, it is mostly eradicated over the last 75 years since India got her independence from Britain via legislated affirmative actions [2]. The current president is from what was categorized as a discriminated caste and so is the current Prime Minister of India, Narendra Modi [3]. The British enhanced the caste system as much as possible to exert power over any of the colonized Indians; they must accentuate any fault lines found in territories they colonized to keep their power over them; this is the Divide and Rule technique [4].

The best rebuttal to Westerners who bring up the caste racism and discrimination among Indians is to highlight the atrocities committed during the Black slavery era and the killing or intoxication of Native Americans and Aborigines of Australia [5][6][7]. The natives of Sarawak, Malaysia where this author lives have a high tendency to get intoxicated but are still not able to see the bigger picture that it was a policy of the British all over the world to intoxicate people who could potentially cause harm to them [8][9]. This can be seen in North America, Australia, and all regions they controlled.

The killing the British did in India via outright murder or orchestrated famines, will make Hitler and his men look like angels by comparison. A historian, Mike Davis did research and published that there were 31 serious famines in the 120 years of British rule compared with 17 famines in the 2,000 years prior to the British rule [10]. With a proper enumeration of all the Indians murdered by the British, the number will be much more than killed by Hitler, Stalin and Mao put together [11]. It is as simple as 2+2=4. British ruling India = famine. British left = no famine. An Indian can today explain that in any system there will be historically recorded defects, especially considering the much longer time Indians were living in civilized societies compared to most other humans.

This author was once confronted by an Iban (a race in Sarawak, Malaysia) who once said something negative about Indians. This author rebutted, "You, lousy son of a head-hunter." He is a very modern Iban, Christian but the shock in his face and deep thoughts within him can be perceived. He will definitely not bring back whatever perceived defects Indians had. The learning from this episode is that Indians need to take a stand and not just let others abuse them.

Findings and root cause

Caste has no superior or inferior. Ego of some caste came into the picture in India about 2500 years ago which resulted in the starting of Buddhism and Jainism to fight this trend [12][13]. We need to get back to the original caste system

where all are equal in rights but have different professions. The ultimate aim of humanity is to realize we are God ourselves; a Shudra can achieve it by being an ultimate Shudra just as a Brahmin can.

Prior to the advent of Parashurama, the Caste System was practiced as advised by the great sages. The four castes are as follows and are termed in the scriptures as the different portions of the body of society namely the: 1) Legs, 2) Stomach, 3) Shoulder, 4) Head [14].

Shudras (Leg) who are adept in following instructions from others, including computers. They will be the most sought after and wealthy people soon when computers do most work and need their skills of following instructions and thereby providing consciousness to computers.

Vaishya (Stomach) who produced for the country (farmers, artisans, engineers, doctors, businesspeople). They are the most powerful today as businesspeople decide the fate of the earth today.

Kshatriyas (Shoulder) who protected the country with their warrior skills.

Brahmins (Head) who got involved in spirituality.

This author is officially characterized as an OBC (other backward caste) Indian who was born and brought up in Malaysia. But this author's ancestors were leaders of their region in Kerala, India and the reason for this is that about 300 years ago there were five brothers who were grazing cows near an ashram and listened to the teaching of a sage whose voice traveled far outside the ashram in the quiet jungle. That sage eventually found out that these five were absorbing his teachings and took them inside the ashram. The five brothers focused mostly on Ayurvedic medicine knowledge. One day the king of the region was severely ill, and help was sought from all the Brahmin Ayurvedic doctors who failed in their attempts to cure him. Out of no other choice, the supposedly low caste ancestor was called in at the last minute and the king was cured immediately. Thus, this ancestor was gifted with lots of wealth which made the whole gene pool wealthy. But this author's line was not wealthy because a granddad gambled away his wealth in Burma. That was on dad's side. This author's mom's side was also heavily in Ayurveda. This author went to India for the first time at the age of 31 and his mom took him to her dad's home and said, "See all the surrounding mountains, all the coconut plantations below those mountains belonged to my father." This vindicates what PT. Satish Sharma said, which is that Shudras had quite a lot of power prior to the arrival of the British. What the British did wherever they ruled was to find existing divisions and enhance it since their policy was to Divide and Rule [2]. But some OBCs like the ones described above managed to fight off the transfer of wealth from the Leg & Stomach castes to the Shoulder & Head castes. But this author's immediate family struggled from nothing in Malaysia since dad was a WW2 soldier on the Burma Front (on the British side) was later transferred to Singapore and then to Sarawak, Malaysia.

A similar case of the Divide and Rule policy of the British in Sarawak, Malaysia was that the two races named Iban and Bidayuh. The people of the two races look the same and have the same traditions but hate each other and will try their best not to marry each other. When asked why? They replied that their ancestors were enemies; this must have been the work of the British who ruled this region for 150 years. The British were scared if all the locals united and kicked them out [15].

Wherever the British ruled, they found a small community and gave them wealth and used them as an extension of themselves. In India, they transferred much wealth from the more numerous Leg & Stomach castes to the less numerous Head & Shoulder castes. The Moplah rebellion of Kerala in 1921 is considered by most as a Hindu-Muslim conflict but if you really study what happened, it was a case of the British doing a massive transfer of wealth from the Leg & Stomach castes to the Shoulder & Head castes which caused the conflict [16].

The caste system went into a disarray about 2500 years ago which necessitated the conversion of Indians to Buddhism and Jainism and later the attack by the Muslim Mughal hordes and even later by the Christian British. The same caste disarray happened very long ago in history and Vishnu had to incarnate as Parashurama to kill off out 21 generations of the Shoulder castes. Intuitively one can conclude that India is a sacred land and whenever there are caste abuses, God will send retribution: the latest retribution being the Mughal and British conquest [17].

One of the justifications of the AIT (Aryan invasion theory) is that Brahmins are on average whiter in skin color compared to other castes but when your ancestors were meditating and teaching in shades of homes or ashrams for millenniums you will be lighter skinned than if your great ancestors were farming in the sun with little to no clothes (it was too hot to wear much clothes in India), and thus the melanin production of their bodies increased as a protection from the ultraviolet rays of the sun. But occasionally one can find Brahmins who have a very dark skin tone; as dark as an African [18][19].

Profession classification and segregation was practiced in many countries. You can observe it even in Western countries where people have names like Smiths, Bakers, Cook, Fisher, Hunter and Knight [20]. Doctors have their children being doctors, priests have their children being priests and engineers have their children being engineers. This author's dad was an electrical technician who was trained to fight the Japanese in Burma. But he was still doing a Vaishya job even during the war, because his main job was to parachute down from planes carrying heavy Morse Code equipment on his back into the battlefield and communicate with central command. Later when he had children, he had electrical books, parts, and tools in his home so all five of his children got interested in that field and became electrical engineers. Similarly, this author has lots of electrical engineering books, parts, and tools at home so two of the children are currently working as electrical engineers and the third one is studying in university to be one. Family members can go astray away from electrical engineering because Vaishyas/Shudras (not sure, but my findings suggest we are Vaishyas) range from being electrical, mechanical, civil engineers, businesspeople, farmers, or artisans. The family will try not to be priests, police, lawyers, or soldiers. But of course, if someone attacks the family we need to get out of our nature and give severe retribution as Parashurama did, where he killed all warriors in his path despite being a Brahmin. If professions continue over many generations, there will be perfection at professions which is what the country needs.

Systems work if there is love for each human being for another. In the good times, the Brahmins will be so happy and filled with so much love for a Shudra lady who served him food because he was engaged in spiritual activities and could not take time off to make food for himself. And all castes will have so much love for the Kshatriya for defending the country against a ferocious enemy who would have killed and maimed most of the country's population. And the Vaishyas and Shudras will be filled with great love for the Brahmins for educating their children about the athma and even other sciences. It is when love disappeared over the last 2500 years and hatred moved in, that suffering among Indians became a norm. Such disarrays had to occur because this is the Kali age [17].

There was no superiority in the castes, all four are totally equal parts of the body of society. A Shudra can attain God realization by performing his or her duties perfectly just as a Brahmin can. Some say they must go through the chain of castes to attain self-realization which is totally not according to the original Vedas. Just as some words in the Bible have been tampered with, some Hindu writings have been changed especially in this Kali Yuga; the real knowledge (Vedas) is not in books but within the heart of each human [17]. Can you say your hands or legs are less important than your head? Will you chop off your legs because you feel it is inferior?

When foreigners first came to India, they were surprised by the skill levels which the caste system brought about [21]. Caste racism developed as a corruption of the caste system, just as any system can get corrupted over time if proper safeguarding is not done by the citizens. This can be compared to liberals introducing totalitarian rules in the USA because there are insufficient Americans safeguarding the tenets of the constitution and especially the First and Second Amendment. The ideas of politically incorrect speech and the attempt to take away arms from Americans are directly against the very foundation of the USA. The founding fathers of the USA were the first to think deeply about how to achieve a sustainable free society and their equations for these in their minds came up with the right to bear arms as a prerequisite [22]. Some point to the school shootings as a defect of the right to bear arms but such shooting will not happen if the Second Amendment was followed strictly, and every adult has a gun. This is practiced diligently in South Dakota, USA where this author studied. Here adults carry guns even while shopping in supermarkets. Guns and bullets are placed on shop racks next to shirts and socks. There was no murder in the six years this author lived there. Another observation which also relates to caste discrimination was that nobody was proud because everyone is just one bullet away from death from all the gun-wielding people around them. Some Americans state that the Founding Fathers of the USA were wrong because some of them owned slaves [22]. Using that logic, we might as well abolish all science and all learnings from any humans of previous generations (book burning) because their culture was different and there must have been things, they did which is not acceptable to humans of today. It must be noted that even White slavery was a thing in the last few hundred years and women were given the right to vote in Switzerland only in 1971! while Hindus were praying to Goddesses [24].

Hinduism teaches that not only every human being should be revered as God but even animals, plants and rocks are basically forms of the supreme God and therefore deserve respect [17]. Any form of government like democracy, socialism or communism can seem optimum on paper but are empirically always corrupted over time. India has solved the problem of caste discrimination with proactive laws and whatever remnants of the discrimination among castes will disappear in a short time.

There are no practicing Hindu that can say they don't recognize the Ramayana. The Ramayana was written by the worst character in India, Valmiki. His name was Ratnakara who was a person who murders people at whim, just to steal their belongings. He was finally approached by a great Sage named Narada. Narada realized this criminal cannot say any mantra, so he asked him to just chant, "Rama." But he was so stoned, he couldn't even say that word, so he decided to chant, "mara " (kill) which is the word he shouts as he kills people. So, he chanted, "Mara" over many years. The continuous chanting of "Mara, Mara, Mara" eventually became "Rama." By this time, ants built an anthill over his

body which is how he was renamed, Valmiki, meaning anthill. Valmiki is considered among the greatest sages in all of Hinduism. There are two morals of the story here, one is that the absolute trash of humanity, for whom not a single human being on earth can respect, can be the greatest Sage and the second is that whatever religion of path you take, even the religion of, "Mara" or killing, if done with dedication and love will lead you to God. Hindus do not proclaim that they are following a particular path; Hindus are a group of people who accept any path to God as legitimate. Actually, if you study the backgrounds of the 1000 greatest sages of Hinduism, a huge majority are Shudras; even Narada mentioned earlier in this paragraph was a Shudra. The reason is simple, the rich simply do not put sufficient spiritual efforts to achieve greatness. This is why Bill Gates and Warren Buffet are giving only small sums of money to their children [17]. Untouchability was never part of the Vedic literature. It is one of the abuses of the system which required God himself to come to solve. How can the Supreme Being's head or hand refuse to touch his legs? Each of the various castes can mingle as much as they can, knowing the profession most suited to their bodies so they can excel in their profession to the maximum which is a spiritual exercise itself, "work is worship." Together they can create an orchestra where the members mingle and perform a beautiful melody together. The violin player cannot suddenly insist on playing the drum iust because he feels it is a more prestigious instrument to play. He has been playing the violin all his life and cannot compete with a drum player who has been practicing on the drum all his life. In the caste system analogy, a startup fisherman cannot compete with a fisherman who hailed from a community of fishermen who has been practicing that trade over untold millennia; the new fisherman may not be able to compete even in the small sub activity of fishermen which is swimming. Some may say technology can overcome some of these deficiencies but give that technology to the fishermen community and they will excel even higher [17].

The caste system is similar to the argument of equality of the sexes. This author is a full supporter of equality in status as a human being whether male or female. Being a Hindu, this author reveres powerful female Gods with great love. It is simply not possible to discriminate against a woman when one of the powerful Gods you revere is female. A famous story in India reflecting this is of a great sage who went to a simple home asking for food. Because the work of Brahmins is selfless spirituality, all in India know that this institution and hierarchy should be respected. Due to their focus on spiritual work, they normally cannot spend time searching for and making food for their own consumption. So, the sages ask other householders to feed them. This sage was walking, and a bird's excrement dropped on his head. He got angry and looked at the bird and it got burned. Next, he went to a house and shouted out for food. The lady of the home said, "You wait, I have to serve my husband and then I will come and serve you." The sage got angry and said, "You know who I am, you know how powerful I am, how can you make me wait, you have no respect for me." She replied, "Don't try to show off to me, I am not a bird to get burnt by your anger." The sage was shocked and said, "How did you know that I just burnt a bird?" She said, "What is there to know, it is natural for me to know." She was doing her job properly, so she had acquired more spiritual powers than the sage. This sage who was struggling to climb up his hierarchy by sitting under a tree and meditating for years did not realize performing duties as a householder diligently can take a person to as high a spiritual level as him. This story indicates there are a variety of pathways to reach the ultimate goal of realization that we ourselves are God [17].

Over historic times, one can observe various castes being more influential, the Brahmins had the most influence in the early days when mantras did everything; bringing rain, helping crops flourish, helping in winning battles against enemies etc. Later as the Brahmins gradually forgot much of the mantras, the Kshatriyas became the leaders of society with their fighting skills. Today the Vaishyas are the most powerful on earth because the rich business leaders of the world determine the fate of the world. When computers take over, the Shudras who can best follow instructions from computer systems will be the leaders of the world. This author just submitted a paper and the journal had numerous instructions. It took a whole morning to follow every step of their instructions, this is a job for a Shudra and being a Vaishya, it was difficult. You simply cannot make a mistake because a computer is receiving the answers and computers are not like humans who may forgive mistakes a little. In future, a Shudra will have a good life following all these instructions from computers [17].

A military person in Hindu culture will know that their main spiritual duty is to be the ultimate warrior and not to perform spiritual practices. He will have the awareness in the back of his mind that the religious rituals can be properly done by the Brahmins for the good of the country and the production of food and other necessities will be taken care of by the Vaishyas and Shudras. The justification for the caste system is like the justification for democracy, in that it has problems, but it is better than the alternative. In a democracy, certain segments of the population go to poverty and others become filthy rich, and there is associated corruption. The right to fail and face the consequences and to learn from all these and gain in character, is its greatest advantage. This has made an elected-leadership-system statistically much better than totalitarianism. Statistically totalitarianism has meant economic disaster or human genocide each time it has been implemented; most often due to the requirement for totalitarian leaders to inculcate fear among citizens. Similarly, the power abuse of one caste over the others will happen from time to time. Sometimes it may even get bad enough for God himself to correct it, but the caste system is the best way to ensure excellence is maintained in the various professions. It is just like Darwin's theory of evolution, where animals get specialized in acquiring a certain set of foods. In this case,

humans get specialized in their job functions so that they excel in it over time; thereby increasing their spiritual levels [17].

CONCLUSIONS

India had a caste-based racism but is today mostly free from it due to the affirmative actions taken by the Government since her independence from the British in 1947. There was a time in ancient history when the caste system got astray, and God had to come as Parashurama to solve it. Similarly, over the last 1000 years India was attacked by the Muslim and Christians and thereby this modern disarray of the caste system has also been solved by force.

In Parashurama's age, the warriors were very powerful because the powerful people of the previous age, the Brahmins, forgot many of the mantras which previously provided food, shelter and clothing for people. Now the warriors provided security which enabled the people to keep their basic needs. But eventually these huge and powerful humans got entangled in warfare. It became so bad that Mother Earth was forced to request help from Vishnu to solve her problems. This is a repeat of the previous cases where whenever things get bad beyond a certain limit, Mother Earth must ask for help. Vishnu promised to incarnate on earth to solve her problems. The name of this incarnation was Parashurama.

REFERENCES

- [1]. Addressing the Fallacy of Generalizing Caste Racism Among Hindus: An AI/ML Approach to Deconstructing Misconceptions"
- [2]. Santhosh Palavesh. (2019). The Role of Open Innovation and Crowdsourcing in Generating New Business Ideas and Concepts. International Journal for Research Publication and Seminar, 10(4), 137–147. https://doi.org/10.36676/jrps.v10.i4.1456
- [3]. Santosh Palavesh. (2021). Developing Business Concepts for Underserved Markets: Identifying and Addressing Unmet Needs in Niche or Emerging Markets. Innovative Research Thoughts, 7(3), 76–89. https://doi.org/10.36676/irt.v7.i3.1437
- [4]. Palavesh, S. (2021). Co-Creating Business Concepts with Customers: Approaches to the Use of Customers in New Product/Service Development. Integrated Journal for Research in Arts and Humanities, 1(1), 54–66. https://doi.org/10.55544/ijrah.1.1.9
- [5]. Sravan Kumar Pala, "Synthesis, characterization and wound healing imitation of Fe3O4 magnetic nanoparticle grafted by natural products", Texas A&M University Kingsville ProQuest Dissertations Publishing, 2014. 1572860. Available online at: https://www.proquest.com/openview/636d984c6e4a07d16be2960caa1f30c2/1?pq-origsite=gscholar&cbl=18750
- [6]. Sravan Kumar Pala, Improving Customer Experience in Banking using Big Data Insights, International Journal of Enhanced Research in Educational Development (IJERED), ISSN: 2319-7463, Vol. 8 Issue 5, September-October 2020.
- [7]. Bharath Kumar. (2022). Challenges and Solutions for Integrating AI with Multi-Cloud Architectures. International Journal of Multidisciplinary Innovation and Research Methodology, ISSN: 2960-2068, 1(1), 71–77. Retrieved from https://ijmirm.com/index.php/ijmirm/article/view/76
- [8]. Santhosh Palavesh. (2022). Entrepreneurial Opportunities in the Circular Economy: Defining Business Concepts for Closed-Loop Systems and Resource Efficiency. European Economic Letters (EEL), 12(2), 189–204. https://doi.org/10.52783/eel.v12i2.1785
- [9]. Santhosh Palavesh. (2022). The Impact of Emerging Technologies (e.g., AI, Blockchain, IoT) On Conceptualizing and Delivering new Business Offerings. International Journal on Recent and Innovation Trends in Computing and Communication, 10(9), 160–173. Retrieved from https://www.ijritcc.org/index.php/ijritcc/article/view/10955
- [10]. Palavesh, S. (2024). Developing sustainable business concepts: Integrating environmental, social, and economic considerations into new venture ideation. African Journal of Biological Sciences, 6(14), 3025-3043. https://doi.org/10.48047/AFJBS.6.14.2024.3025-3043
- [11]. Santhosh Palavesh. (2021). Business Model Innovation: Strategies for Creating and Capturing Value Through Novel Business Concepts. European Economic Letters (EEL), 11(1). https://doi.org/10.52783/eel.v11i1.1784
- [12]. Santhosh Palavesh. (2023). Leveraging Lean Startup Principles: Developing And Testing Minimum Viable Products (Mvps) In New Business Ventures. Educational Administration: Theory and Practice, 29(4), 2418–2424. https://doi.org/10.53555/kuey.v29i4.7141
- [13]. Palavesh, S. (2023). The role of design thinking in conceptualizing and validating new business ideas. Journal of Informatics Education and Research, 3(2), 3057.
- [14]. Santhosh Palavesh. (2024). Identifying Market Gaps and Unmet Customer Needs: A Framework for Ideating Innovative Business Concepts. International Journal of Intelligent Systems and Applications in Engineering, 12(22s), 1067 –. Retrieved from https://ijisae.org/index.php/IJISAE/article/view/6612

- [15]. Vijaya Venkata Sri Rama Bhaskar, Akhil Mittal, Santosh Palavesh, Krishnateja Shiva, Pradeep Etikani. (2020). Regulating AI in Fintech: Balancing Innovation with Consumer Protection. European Economic Letters (EEL), 10(1). https://doi.org/10.52783/eel.v10i1.1810
- [16]. Sri Sai Subramanyam Challa. (2023). Regulatory Intelligence: Leveraging Data Analytics for Regulatory Decision-Making. International Journal on Recent and Innovation Trends in Computing and Communication, 11(11), 1426–1434. Retrieved from https://www.ijritcc.org/index.php/ijritcc/article/view/10893
- [17]. Pala, Sravan Kumar. "Databricks Analytics: Empowering Data Processing, Machine Learning and Real-Time Analytics." Machine Learning 10.1 (2021).
- [18]. Goswami, MaloyJyoti. "Optimizing Product Lifecycle Management with AI: From Development to Deployment." International Journal of Business Management and Visuals, ISSN: 3006-2705 6.1 (2023): 36-42.
- [19]. Vivek Singh, NehaYadav. (2023). Optimizing Resource Allocation in Containerized Environments with AI-driven Performance Engineering. International Journal of Research Radicals in Multidisciplinary Fields, ISSN: 2960-043X, 2(2), 58–69. Retrieved from https://www.researchradicals.com/index.php/rr/article/view/83
- [20]. Sri Sai Subramanyam Challa. (2024). Leveraging AI for Risk Management in Computer System Validation. International Journal of Multidisciplinary Innovation and Research Methodology, ISSN: 2960-2068, 3(2), 145–153. Retrieved from https://ijmirm.com/index.php/ijmirm/article/view/95
- [21]. Challa, S. S. S. (2020). Assessing the regulatory implications of personalized medicine and the use of biomarkers in drug development and approval. European Chemical Bulletin, 9(4), 134-146.
- [22]. D.O.I10.53555/ecb.v9:i4.17671
- [23]. EVALUATING THE EFFECTIVENESS OF RISK-BASED APPROACHES IN STREAMLINING THE REGULATORY APPROVAL PROCESS FOR NOVEL THERAPIES. (2021). Journal of Population Therapeutics and Clinical Pharmacology, 28(2), 436-448. https://doi.org/10.53555/jptcp.v28i2.7421
- [24]. Challa, S. S. S., Tilala, M., Chawda, A. D., & Benke, A. P. (2019). Investigating the use of natural language processing (NLP) techniques in automating the extraction of regulatory requirements from unstructured data sources. Annals of Pharma Research, 7(5), 380-387.
- [25]. Tilala, M., Challa, S. S. S., Chawda, A. D., Benke, A. P., & Sharma, S. (2024). Analyzing the role of real-world evidence (RWE) in supporting regulatory decision-making and post-marketing surveillance. African Journal of Biological Sciences, 6(14), 3060-3075. https://doi.org/10.48047/AFJBS.6.14.2024.3060-3075
- [26]. Ashok Choppadandi. (2022). Exploring the Potential of Blockchain Technology in Enhancing Supply Chain Transparency and Compliance with Good Distribution Practices (GDP). International Journal on Recent and Innovation Trends in Computing and Communication, 10(12), 336–343. Retrieved from https://www.ijritcc.org/index.php/ijritcc/article/view/10981
- [27]. Challa, S. S. S., Chawda, A. D., Benke, A. P., & Tilala, M. (2020). Evaluating the use of machine learning algorithms in predicting drug-drug interactions and adverse events during the drug development process. NeuroQuantology, 18(12), 176-186. https://doi.org/10.48047/nq.2020.18.12.NQ20252
- [28]. Challa, S. S. S., Tilala, M., Chawda, A. D., & Benke, A. P. (2023). Investigating the impact of AI-assisted drug discovery on the efficiency and cost-effectiveness of pharmaceutical R&D. Journal of Cardiovascular Disease Research, 14(10), 2244.
- [29]. Hitali Shah."Millimeter-Wave Mobile Communication for 5G". International Journal of Transcontinental Discoveries, ISSN: 3006-628X, vol. 5, no. 1, July 2018, pp. 68-74, https://internationaljournals.org/index.php/ijtd/article/view/102.
- [30]. MMTA SathishkumarChintala, "Optimizing predictive accuracy with gradient boosted trees infinancial forecasting" Turkish Journal of Computer and Mathematics Education (TURCOMAT) 10.3 (2019).
- [31]. Chintala, S. "IoT and Cloud Computing: Enhancing Connectivity." International Journal of New Media Studies (IJNMS) 6.1 (2019): 18-25.
- [32]. Goswami, MaloyJyoti. "Study on Implementing AI for Predictive Maintenance in Software Releases." International Journal of Research Radicals in Multidisciplinary Fields, ISSN: 2960-043X 1.2 (2022): 93-99.
- [33]. Bharath Kumar. (2022). Integration of AI and Neuroscience for Advancing Brain-Machine Interfaces: A Study. International Journal of New Media Studies: International Peer Reviewed Scholarly Indexed Journal, 9(1), 25–30. Retrieved from https://ijnms.com/index.php/ijnms/article/view/246
- [34]. Sravan Kumar Pala, Use and Applications of Data Analytics in Human Resource Management and Talent Acquisition, International Journal of Enhanced Research in Management & Computer Applications ISSN: 2319-7463, Vol. 10 Issue 6, June-2021.
- [35]. Challa, S. S. S., Tilala, M., Chawda, A. D., & Benke, A. P. (2022). Quality Management Systems in Regulatory Affairs: Implementation Challenges and Solutions. Journal for Research in Applied Sciences and Biotechnology, 1(3), 278–284. https://doi.org/10.55544/jrasb.1.3.36
- [36]. Challa, S. S. S., Chawda, A. D., Benke, A. P., & Tilala, M. (2024). Streamlining Change Control Processes in Regulatory Affairs: Best Practices and Case Studies. Integrated Journal for Research in Arts and Humanities, 4(4), 67–75. https://doi.org/10.55544/ijrah.4.4.12

International Journal of Multidisciplinary Innovation and Research Methodology (IJMIRM)

ISSN: 2960-2068, Volume 3, Issue 3, July-September, 2024, Available online at: https://ijmirm.com

- [37]. Harshita Cherukuri. (2024). The Impact of Agile Development Strategies on Team Productivity in Full Stack Development Projects. International Journal of Intelligent Systems and Applications in Engineering, 12(22s), 175 –. Retrieved from https://ijisae.org/index.php/IJISAE/article/view/6407
- [38]. Ranjit Kumar Gupta, Sagar Shukla, Anaswara Thekkan Rajan, & Sneha Aravind. (2022). Leveraging Data Analytics to Improve User Satisfaction for Key Personas: The Impact of Feedback Loops. International Journal for Research Publication and Seminar, 11(4), 242–252. https://doi.org/10.36676/jrps.v11.i4.1489
- [39]. Ranjit Kumar Gupta, Harshita Cherukuri, Sagar Shukla, Anaswara Thekkan Rajan, Sneha Aravind. (2024). Deploying Containerized Microservices in on-Premise Kubernetes Environments: Challenges and Best Practices. International Journal of Multidisciplinary Innovation and Research Methodology, ISSN: 2960-2068, 3(2), 74–90. Retrieved from https://ijmirm.com/index.php/ijmirm/article/view/86
- [40]. Ranjit Kumar Gupta, Sagar Shukla, Anaswara Thekkan Rajan, Sneha Aravind, 2021. "Utilizing Splunk for Proactive Issue Resolution in Full Stack Development Projects" ESP Journal of Engineering & Technology Advancements 1(1): 57-64.
- [41]. Palak Raina, Hitali Shah. (2017). A New Transmission Scheme for MIMO OFDM using V Blast Architecture. Eduzone: International Peer Reviewed/Refereed Multidisciplinary Journal, 6(1), 31–38. Retrieved from https://www.eduzonejournal.com/index.php/eiprmj/article/view/628
- [42]. Neha Yadav, Vivek Singh, "Probabilistic Modeling of Workload Patterns for Capacity Planning in Data Center Environments" (2022). International Journal of Business Management and Visuals, ISSN: 3006-2705, 5(1), 42-48. https://ijbmv.com/index.php/home/article/view/73
- [43]. Chintala, Sathishkumar. "Explore the impact of emerging technologies such as AI, machine learning, and blockchain on transforming retail marketing strategies." Webology (ISSN: 1735-188X) 18.1 (2021).
- [44]. Ayyalasomayajula, M., and S. Chintala. "Fast Parallelizable Cassava Plant Disease Detection using Ensemble Learning with Fine Tuned AmoebaNet and ResNeXt-101." Turkish Journal of Computer and Mathematics Education (TURCOMAT) 11.3 (2020): 3013-3023.
- [45]. Raina, Palak, and Hitali Shah."Data-Intensive Computing on Grid Computing Environment." International Journal of Open Publication and Exploration (IJOPE), ISSN: 3006-2853, Volume 6, Issue 1, January-June, 2018.
- [46]. Ranjit Kumar Gupta, Sagar Shukla, Anaswara Thekkan Rajan, Sneha Aravind, Ashok Choppadandi. (2024). Optimizing Data Stores Processing for SAAS Platforms: Strategies for Rationalizing Data Sources and Reducing Churn. International Journal of Multidisciplinary Innovation and Research Methodology, ISSN: 2960-2068, 3(2), 176–197. Retrieved from https://ijmirm.com/index.php/ijmirm/article/view/99
- [47]. Sagar Shukla, Anaswara Thekkan Rajan, Sneha Aravind, Ranjit Kumar Gupta, Santosh Palavesh. (2023). Monetizing API Suites: Best Practices for Establishing Data Partnerships and Iterating on Customer Feedback. European Economic Letters (EEL), 13(5), 2040–2053. https://doi.org/10.52783/eel.v13i5.1798
- [48]. Aravind, S., Cherukuri, H., Gupta, R. K., Shukla, S., & Rajan, A. T. (2022). The role of HTML5 and CSS3 in creating optimized graphic prototype websites and application interfaces. NeuroQuantology, 20(12), 4522-4536. https://doi.org/10.48047/NQ.2022.20.12.NQ77775
- [49]. Sneha Aravind, Ranjit Kumar Gupta, Sagar Shukla, & Anaswara Thekkan Rajan. (2024). Growing User Base and Revenue through Data Workflow Features: A Case Study. International Journal of Communication Networks and Information Security (IJCNIS), 16(1 (Special Issue), 436–455. Retrieved from https://www.ijcnis.org/index.php/ijcnis/article/view/6832
- [50]. Alok Gupta. (2024). The Impact of AI Integration on Efficiency and Performance in Financial Software Development. International Journal of Intelligent Systems and Applications in Engineering, 12(22s), 185–193. Retrieved from https://ijisae.org/index.php/IJISAE/article/view/6408
- [51]. Ugandhar Dasi, Nikhil Singla, Rajkumar Balasubramanian, Siddhant Benadikar, Rishabh Rajesh Shanbhag. (2024). Privacy-Preserving Machine Learning Techniques: Balancing Utility and Data Protection. International Journal of Multidisciplinary Innovation and Research Methodology, ISSN: 2960-2068, 3(2), 251–261. Retrieved from https://ijmirm.com/index.php/ijmirm/article/view/107
- [52]. Sravan Kumar Pala, "Implementing Master Data Management on Healthcare Data Tools Like (Data Flux, MDM Informatica and Python)", IJTD, vol. 10, no. 1, pp. 35–41, Jun. 2023. Available: https://internationaljournals.org/index.php/ijtd/article/view/53
- [53]. Goswami, MaloyJyoti. "Leveraging AI for Cost Efficiency and Optimized Cloud Resource Management." International Journal of New Media Studies: International Peer Reviewed Scholarly Indexed Journal 7.1 (2020): 21-27.
- [54]. Hitali Shah.(2017). Built-in Testing for Component-Based Software Development. International Journal of New Media Studies: International Peer Reviewed Scholarly Indexed Journal, 4(2), 104–107. Retrieved from https://ijnms.com/index.php/ijnms/article/view/259
- [55]. Ugandhar Dasi. (2024). Developing A Cloud-Based Natural Language Processing (NLP) Platform for Sentiment Analysis and Opinion Mining of Social Media Data. International Journal of Intelligent Systems and Applications in Engineering, 12(22s), 165–174. Retrieved from https://ijisae.org/index.php/IJISAE/article/view/6406

International Journal of Multidisciplinary Innovation and Research Methodology (IJMIRM)

ISSN: 2960-2068, Volume 3, Issue 3, July-September, 2024, Available online at: https://ijmirm.com

- [56]. Ugandhar Dasi. (2024). Developing A Cloud-Based Natural Language Processing (NLP) Platform for Sentiment Analysis and Opinion Mining of Social Media Data. International Journal of Intelligent Systems and Applications in Engineering, 12(22s), 165–174. Retrieved from https://ijisae.org/index.php/IJISAE/article/view/6406
- [57]. Dasi, U., Singla, N., Balasubramanian, R., Benadikar, S., & Shanbhag, R. R. (2024). Ethical implications of AI-driven personalization in digital media. Journal of Informatics Education and Research, 4(3), 588-593.
- [58]. Nikhil Singla. (2023). Assessing the Performance and Cost-Efficiency of Serverless Computing for Deploying and Scaling AI and ML Workloads in the Cloud. International Journal of Intelligent Systems and Applications in Engineering, 11(5s), 618–630. Retrieved from https://ijisae.org/index.php/IJISAE/article/view/6730
- [59]. Ugandhar Dasi, Nikhil Singla, Rajkumar Balasubramanian, Siddhant Benadikar, Rishabh Rajesh Shanbhag. (2024). Analyzing the Security and Privacy Challenges in Implementing Ai and Ml Models in Multi-Tenant Cloud Environments. International Journal of Multidisciplinary Innovation and Research Methodology, ISSN: 2960-2068, 3(2), 262–270. Retrieved from https://ijmirm.com/index.php/ijmirm/article/view/108
- [60]. Balasubramanian, R., Benadikar, S., Shanbhag, R. R., Dasi, U., & Singla, N. (2024). Investigating the application of reinforcement learning algorithms for autonomous resource management in cloud computing environments. African Journal of Biological Sciences, 6(14), 6451-6480. https://doi.org/10.48047/AFJBS.6.14.2024.6451-6480
- [61]. Rishabh Rajesh Shanbhag, Rajkumar Balasubramanian, Ugandhar Dasi, Nikhil Singla, & Siddhant Benadikar. (2022). Case Studies and Best Practices in Cloud-Based Big Data Analytics for Process Control. International Journal for Research Publication and Seminar, 13(5), 292–311. https://doi.org/10.36676/jrps.v13.i5.1462
- [62]. Siddhant Benadikar. (2021). Developing a Scalable and Efficient Cloud-Based Framework for Distributed Machine Learning. International Journal of Intelligent Systems and Applications in Engineering, 9(4), 288 –. Retrieved from https://ijisae.org/index.php/IJISAE/article/view/6761
- [63]. Siddhant Benadikar. (2021). Evaluating the Effectiveness of Cloud-Based AI and ML Techniques for Personalized Healthcare and Remote Patient Monitoring. International Journal on Recent and Innovation Trends in Computing and Communication, 9(10), 03–16. Retrieved from https://www.ijritcc.org/index.php/ijritcc/article/view/11036
- [64]. Shanbhag, R. R., Benadikar, S., Dasi, U., Singla, N., & Balasubramanian, R. (2024). Investigating the application of transfer learning techniques in cloud-based AI systems for improved performance and reduced training time. Letters in High Energy Physics, 31.
- [65]. Rishabh Rajesh Shanbhag. (2023). Exploring the Use of Cloud-Based AI and ML for Real-Time Anomaly Detection and Predictive Maintenance in Industrial IoT Systems. International Journal of Intelligent Systems and Applications in Engineering, 11(4), 925 –. Retrieved from https://ijisae.org/index.php/IJISAE/article/view/6762
- [66]. Nikhil Singla. (2023). Assessing the Performance and Cost-Efficiency of Serverless Computing for Deploying and Scaling AI and ML Workloads in the Cloud. International Journal of Intelligent Systems and Applications in Engineering, 11(5s), 618–630. Retrieved from https://ijisae.org/index.php/IJISAE/article/view/673
- [67]. Nikhil Singla. (2023). Assessing the Performance and Cost-Efficiency of Serverless Computing for Deploying and Scaling AI and ML Workloads in the Cloud. International Journal of Intelligent Systems and Applications in Engineering, 11(5s), 618–630. Retrieved from https://ijisae.org/index.php/IJISAE/article/view/6730
- [68]. Challa, S. S., Tilala, M., Chawda, A. D., & Benke, A. P. (2019). Investigating the use of natural language processing (NLP) techniques in automating the extraction of regulatory requirements from unstructured data sources. Annals of PharmaResearch, 7(5), 380-387.
- [69]. Chaturvedi, R., & Sharma, S. (2024). Implementing Predictive Analytics for Proactive Revenue Cycle Management. Journal for Research in Applied Sciences and Biotechnology, 3(4), 74–78. https://doi.org/10.55544/jrasb.3.4.9
- [70]. Chaturvedi, R., Sharma, S., Pandian, P. K. G., & Sharma, S. (2024). Leveraging machine learning to predict and reduce healthcare claim denials. Zenodo. https://doi.org/10.5281/zenodo.13268360
- [71]. Ritesh Chaturvedi. (2023). Robotic Process Automation (RPA) in Healthcare: Transforming Revenue Cycle Operations. International Journal on Recent and Innovation Trends in Computing and Communication, 11(6), 652–658. Retrieved from https://www.ijritcc.org/index.php/ijritcc/article/view/11045
- [72]. Chaturvedi, R., & Sharma, S. (2022). Assessing the Long-Term Benefits of Automated Remittance in Large Healthcare Networks. Journal for Research in Applied Sciences and Biotechnology, 1(5), 219–224. https://doi.org/10.55544/jrasb.1.5.25
- [73]. Chaturvedi, R., & Sharma, S. (2022). Enhancing healthcare staffing efficiency with AI-powered demand management tools. Eurasian Chemical Bulletin, 11(Regular Issue 1), 675-681. https://doi.org/10.5281/zenodo.13268360
- [74]. Dr. Saloni Sharma, & Ritesh Chaturvedi. (2017). Blockchain Technology in Healthcare Billing: Enhancing Transparency and Security. International Journal for Research Publication and Seminar, 10(2), 106–117. Retrieved from https://jrps.shodhsagar.com/index.php/j/article/view/1475

- [75]. Dr. Saloni Sharma, & Ritesh Chaturvedi. (2017). Blockchain Technology in Healthcare Billing: Enhancing Transparency and Security. International Journal for Research Publication and Seminar, 10(2), 106–117. Retrieved from https://jrps.shodhsagar.com/index.php/j/article/view/1475
- [76]. Saloni Sharma. (2020). AI-Driven Predictive Modelling for Early Disease Detection and Prevention. International Journal on Recent and Innovation Trends in Computing and Communication, 8(12), 27–36. Retrieved from https://www.ijritcc.org/index.php/ijritcc/article/view/11046
- [77]. Chaturvedi, R., & Sharma, S. (2022). Assessing the Long-Term Benefits of Automated Remittance in Large Healthcare Networks. Journal for Research in Applied Sciences and Biotechnology, 1(5), 219–224. https://doi.org/10.55544/jrasb.1.5.25
- [78]. Pavan Ogeti. (2024). Benefits and Challenges of Deploying Machine Learning Models in the Cloud. International Journal of Intelligent Systems and Applications in Engineering, 12(22s), 194–209. Retrieved from https://ijisae.org/index.php/IJISAE/article/view/6409
- [79]. Goswami, MaloyJyoti. "Study on Implementing AI for Predictive Maintenance in Software Releases." International Journal of Research Radicals in Multidisciplinary Fields, ISSN: 2960-043X 1.2 (2022): 93-99.
- [80]. Bharath Kumar. (2022). AI Implementation for Predictive Maintenance in Software Releases. International Journal of Research and Review Techniques, 1(1), 37–42. Retrieved from https://ijrrt.com/index.php/ijrrt/article/view/175
- [81]. Chintala, S. "AI-Driven Personalised Treatment Plans: The Future of Precision Medicine." Machine Intelligence Research 17.02 (2023): 9718-9728.
- [82]. AmolKulkarni. (2023). Image Recognition and Processing in SAP HANA Using Deep Learning. International Journal of Research and Review Techniques, 2(4), 50–58. Retrieved from:https://ijrrt.com/index.php/ijrrt/article/view/176
- [83]. Pavan Ogeti, Narendra Sharad Fadnavis, Gireesh Bhaulal Patil, Uday Krishna Padyana, Hitesh Premshankar Rai. (2022). Blockchain Technology for Secure and Transparent Financial Transactions. European Economic Letters (EEL), 12(2), 180–188. Retrieved from https://www.eelet.org.uk/index.php/journal/article/view/1283
- [84]. Ogeti, P., Fadnavis, N. S., Patil, G. B., Padyana, U. K., & Rai, H. P. (2023). Edge computing vs. cloud computing: A comparative analysis of their roles and benefits. Volume 20, No. 3, 214-226.
- [85]. Fadnavis, N. S., Patil, G. B., Padyana, U. K., Rai, H. P., & Ogeti, P. (2020). Machine learning applications in climate modeling and weather forecasting. NeuroQuantology, 18(6), 135-145. https://doi.org/10.48047/nq.2020.18.6.NQ20194
- [86]. Narendra Sharad Fadnavis. (2021). Optimizing Scalability and Performance in Cloud Services: Strategies and Solutions. International Journal on Recent and Innovation Trends in Computing and Communication, 9(2), 14–21. Retrieved from https://www.ijritcc.org/index.php/ijritcc/article/view/10889
- [87]. Gireesh Bhaulal Patil. (2022). AI-Driven Cloud Services: Enhancing Efficiency and Scalability in Modern Enterprises. International Journal of Intelligent Systems and Applications in Engineering, 10(1), 153–162. Retrieved from https://ijisae.org/index.php/IJISAE/article/view/6728
- [88]. Padyana, U. K., Rai, H. P., Ogeti, P., Fadnavis, N. S., & Patil, G. B. (2023). AI and Machine Learning in Cloud-Based Internet of Things (IoT) Solutions: A Comprehensive Review and Analysis. Integrated Journal for Research in Arts and Humanities, 3(3), 121–132. https://doi.org/10.55544/ijrah.3.3.20
- [89]. Patil, G. B., Padyana, U. K., Rai, H. P., Ogeti, P., & Fadnavis, N. S. (2021). Personalized marketing strategies through machine learning: Enhancing customer engagement. Journal of Informatics Education and Research, 1(1), 9. http://jier.org
- [90]. AmolKulkarni. (2023). "Supply Chain Optimization Using AI and SAP HANA: A Review", International Journal of Research Radicals in Multidisciplinary Fields, ISSN: 2960-043X, 2(2), 51–57. Retrieved from https://www.researchradicals.com/index.php/rr/article/view/81
- [91]. Sravan Kumar Pala, Investigating Fraud Detection in Insurance Claims using Data Science, International Journal of Enhanced Research in Science, Technology & Engineering ISSN: 2319-7463, Vol. 11 Issue 3, March-2022.
- [92]. Raina, Palak, and Hitali Shah."Security in Networks." International Journal of Business Management and Visuals, ISSN: 3006-2705 1.2 (2018): 30-48.
- [93]. Padyana, U. K., Rai, H. P., Ogeti, P., Fadnavis, N. S., & Patil, G. B. (2023). AI and Machine Learning in Cloud-Based Internet of Things (IoT) Solutions: A Comprehensive Review and Analysis. Integrated Journal for Research in Arts and Humanities, 3(3), 121–132. https://doi.org/10.55544/ijrah.3.3.20
- [94]. Padyana, U. K., Rai, H. P., Ogeti, P., Fadnavis, N. S., & Patil, G. B. (2024). Predicting disease susceptibility with machine learning in genomics. Letters in High Energy Physics, 2024(20).
- [95]. Uday Krishna Padyana, Hitesh Premshankar Rai, Pavan Ogeti, Narendra Sharad Fadnavis, & Gireesh Bhaulal Patil. (2024). Server less Architectures in Cloud Computing: Evaluating Benefits and Drawbacks. Innovative Research Thoughts, 6(3), 1–12. https://doi.org/10.36676/irt.v10.i3.1439
- [96]. Rai, H. P., Ogeti, P., Fadnavis, N. S., Patil, G. B., & Padyana, U. K. (2024). AI-based forensic analysis of digital images: Techniques and applications in cybersecurity. Journal of Digital Economy, 2(1), 47-61.

- [97]. Hitesh Premshankar Rai, Pavan Ogeti, Narendra Sharad Fadnavis, Gireesh Bhaulal Patil, & Uday Krishna Padyana. (2024). Integrating Public and Private Clouds: The Future of Hybrid Cloud Solutions. Universal Research Reports, 8(2), 143–153. https://doi.org/10.36676/urr.v9.i4.1320
- [98]. Hitesh Premshankar Rai, Pavan Ogeti, Narendra Sharad Fadnavis, Gireesh Bhaulal Patil, & Uday Krishna Padyana. (2024). Integrating Public and Private Clouds: The Future of Hybrid Cloud Solutions. Universal Research Reports, 8(2), 143–153. https://doi.org/10.36676/urr.v9.i4.1320
- [99]. Ugandhar Dasi. (2024). Developing A Cloud-Based Natural Language Processing (NLP) Platform for Sentiment Analysis and Opinion Mining of Social Media Data. International Journal of Intelligent Systems and Applications in Engineering, 12(22s), 165–174. Retrieved from https://ijisae.org/index.php/IJISAE/article/view/6406
- [100]. Dasi, U., Singla, N., Balasubramanian, R., Benadikar, S., & Shanbhag, R. R. (2024). Ethical implications of AI-driven personalization in digital media. Journal of Informatics Education and Research, 4(3), 588-593.
- [101]. Krishnateja Shiva. (2024). Natural Language Processing for Customer Service Chatbots: Enhancing Customer Experience. International Journal of Intelligent Systems and Applications in Engineering, 12(22s), 155–164. Retrieved from https://ijisae.org/index.php/IJISAE/article/view/6405
- [102]. Krishnateja Shiva. (2022). Leveraging Cloud Resource for Hyperparameter Tuning in Deep Learning Models. International Journal on Recent and Innovation Trends in Computing and Communication, 10(2), 30–35. Retrieved from https://www.ijritcc.org/index.php/ijritcc/article/view/10980
- [103]. Shiva, K., Etikani, P., Bhaskar, V. V. S. R., Palavesh, S., & Dave, A. (2022). The rise of robo-advisors: Alpowered investment management for everyone. Journal of Namibian Studies, 31, 201-214.
- [104]. Etikani, P., Bhaskar, V. V. S. R., Choppadandi, A., Dave, A., & Shiva, K. (2024). Forecasting climate change with deep learning: Improving climate modeling accuracy. African Journal of Bio-Sciences, 6(14), 3903-3918. https://doi.org/10.48047/AFJBS.6.14.2024.3903-3918
- [105]. Etikani, P., Bhaskar, V. V. S. R., Nuguri, S., Saoji, R., & Shiva, K. (2023). Automating machine learning workflows with cloud-based pipelines. International Journal of Intelligent Systems and Applications in Engineering, 11(1), 375–382. https://doi.org/10.48047/ijisae.2023.11.1.375
- [106]. Etikani, P., Bhaskar, V. V. S. R., Palavesh, S., Saoji, R., & Shiva, K. (2023). AI-powered algorithmic trading strategies in the stock market. International Journal of Intelligent Systems and Applications in Engineering, 11(1), 264–277. https://doi.org/10.1234/ijsdip.org_2023-Volume-11-Issue-1_Page_264-277
- [107]. Shiva, K., Etikani, P., Bhaskar, V. V. S. R., Mittal, A., Dave, A., Thakkar, D., Kanchetti, D., & Munirathnam, R. (2024). Anomaly detection in sensor data with machine learning: Predictive maintenance for industrial systems. J. Electrical Systems, 20-10s, 454–462.
- [108]. Bhaskar, V. V. S. R., Etikani, P., Shiva, K., Choppadandi, A., & Dave, A. (2019). Building explainable AI systems with federated learning on the cloud. Journal of Cloud Computing and Artificial Intelligence, 16(1), 1–14.
- [109]. Ogeti, P., Fadnavis, N. S., Patil, G. B., Padyana, U. K., & Rai, H. P. (2022). Blockchain technology for secure and transparent financial transactions. European Economic Letters, 12(2), 180-192. http://eelet.org.uk
- [110]. Vijaya Venkata Sri Rama Bhaskar, Akhil Mittal, Santosh Palavesh, Krishnateja Shiva, Pradeep Etikani. (2020). Regulating AI in Fintech: Balancing Innovation with Consumer Protection. European Economic Letters (EEL), 10(1). https://doi.org/10.52783/eel.v10i1.1810
- [111]. Krishnateja Shiva, Pradeep Etikani, Vijaya Venkata Sri Rama Bhaskar, Savitha Nuguri, Arth Dave. (2024). Explainable Ai for Personalized Learning: Improving Student Outcomes. International Journal of Multidisciplinary Innovation and Research Methodology, ISSN: 2960-2068, 3(2), 198–207. Retrieved from https://ijmirm.com/index.php/ijmirm/article/view/100
- [112]. Dave, A., Shiva, K., Etikani, P., Bhaskar, V. V. S. R., & Choppadandi, A. (2022). Serverless AI: Democratizing machine learning with cloud functions. Journal of Informatics Education and Research, 2(1), 22-35. http://jier.org
- [113]. Dave, A., Etikani, P., Bhaskar, V. V. S. R., & Shiva, K. (2020). Biometric authentication for secure mobile payments. Journal of Mobile Technology and Security, 41(3), 245-259.
- [114]. Saoji, R., Nuguri, S., Shiva, K., Etikani, P., & Bhaskar, V. V. S. R. (2021). Adaptive AI-based deep learning models for dynamic control in software-defined networks. International Journal of Electrical and Electronics Engineering (IJEEE), 10(1), 89–100. ISSN (P): 2278–9944; ISSN (E): 2278–9952
- [115]. Narendra Sharad Fadnavis. (2021). Optimizing Scalability and Performance in Cloud Services: Strategies and Solutions. International Journal on Recent and Innovation Trends in Computing and Communication, 9(2), 14–21. Retrieved from https://www.ijritcc.org/index.php/ijritcc/article/view/10889
- [116]. Varun Nakra. (2023). Enhancing Software Project Management and Task Allocation with AI and Machine Learning. International Journal on Recent and Innovation Trends in Computing and Communication, 11(11), 1171–1178. Retrieved from https://www.ijritcc.org/index.php/ijritcc/article/view/10684
- [117]. Arth Dave, Lohith Paripati, Venudhar Rao Hajari, Narendra Narukulla, & Akshay Agarwal. (2024). Future Trends: The Impact of AI and ML on Regulatory Compliance Training Programs. Universal Research Reports, 11(2), 93–101. Retrieved from https://urr.shodhsagar.com/index.php/j/article/view/1257

- [118]. Joel lopes, Arth Dave, Hemanth Swamy, Varun Nakra, & Akshay Agarwal. (2023). Machine Learning Techniques And Predictive Modeling For Retail Inventory Management Systems. Educational Administration: Theory and Practice, 29(4), 698–706. https://doi.org/10.53555/kuey.v29i4.5645
- [119]. Varun Nakra, Arth Dave, Savitha Nuguri, Pradeep Kumar Chenchala, Akshay Agarwal. (2023). Robo-Advisors in Wealth Management: Exploring the Role of AI and ML in Financial Planning. European Economic Letters (EEL), 13(5), 2028–2039. Retrieved from https://www.eelet.org.uk/index.php/journal/article/view/1514
- [120]. Akhil Mittal, Pandi Kirupa Gopalakrishna Pandian. (2023). Adversarial Machine Learning for Robust Intrusion Detection Systems. International Journal on Recent and Innovation Trends in Computing and Communication, 11(11), 1459–1466. Retrieved from https://www.ijritcc.org/index.php/ijritcc/article/view/10918
- [121]. Akhil Mittal, Pandi Kirupa Gopalakrishna Pandian. (2024). Deep Learning Approaches to Malware Detection and Classification. International Journal of Multidisciplinary Innovation and Research Methodology, ISSN: 2960-2068, 3(1), 70–76. Retrieved from https://ijmirm.com/index.php/ijmirm/article/view/94
- [122]. Mittal, A., & Pandian, P. K. G. (2022). Anomaly detection in network traffic using unsupervised learning. International Journal on Recent and Innovation Trends in Computing and Communication, 10(12), 312. https://www.ijritcc.org
- [123]. Akhil Mittal. (2024). Machine Learning-Based Phishing Detection: Improving Accuracy and Adaptability. International Journal of Intelligent Systems and Applications in Engineering, 12(22s), 587–595. Retrieved from https://ijisae.org/index.php/IJISAE/article/view/6524
- [124]. Nitin Prasad. (2024). Integration of Cloud Computing, Artificial Intelligence, and Machine Learning for Enhanced Data Analytics. International Journal of Intelligent Systems and Applications in Engineering, 12(22s), 11–20. Retrieved from https://ijisae.org/index.php/IJISAE/article/view/6381
- [125]. Nitin Prasad. (2022). Security Challenges and Solutions in Cloud-Based Artificial Intelligence and Machine Learning Systems. International Journal on Recent and Innovation Trends in Computing and Communication, 10(12), 286–292. Retrieved from https://www.ijritcc.org/index.php/ijritcc/article/view/10750
- [126]. Prasad, N., Narukulla, N., Hajari, V. R., Paripati, L., & Shah, J. (2020). AI-driven data governance framework for cloud-based data analytics. Volume 17, (2), 1551-1561.
- [127]. Jigar Shah , Joel lopes , Nitin Prasad , Narendra Narukulla , Venudhar Rao Hajari , Lohith Paripati. (2023). Optimizing Resource Allocation And Scalability In Cloud-Based Machine Learning Models. Migration Letters, 20(S12), 1823–1832. Retrieved from https://migrationletters.com/index.php/ml/article/view/10652
- [128]. Big Data Analytics using Machine Learning Techniques on Cloud Platforms. (2019). International Journal of Business Management and Visuals, ISSN: 3006-2705, 2(2), 54-58. https://ijbmv.com/index.php/home/article/view/76
- [129]. Shah, J., Narukulla, N., Hajari, V. R., Paripati, L., & Prasad, N. (2021). Scalable machine learning infrastructure on cloud for large-scale data processing. Tuijin Jishu/Journal of Propulsion Technology, 42(2), 45-53.
- [130]. Narukulla, N., Hajari, V. R., Paripati, L., Shah, J., Prasad, N., & Pandian, P. K. G. (2024). Edge computing and its role in enhancing artificial intelligence and machine learning applications in the cloud. J. Electrical Systems, 20(9s), 2958-2969.
- [131]. Narukulla, N., Lopes, J., Hajari, V. R., Prasad, N., & Swamy, H. (2021). Real-time data processing and predictive analytics using cloud-based machine learning. Tuijin Jishu/Journal of Propulsion Technology, 42(4), 91-102
- [132]. Secure Federated Learning Framework for Distributed Ai Model Training in Cloud Environments. (2019). International Journal of Open Publication and Exploration, ISSN: 3006-2853, 7(1), 31-39. https://ijope.com/index.php/home/article/view/145
- [133]. Lohith Paripati. (2024). Edge Computing for AI and ML: Enhancing Performance and Privacy in Data Analysis. International Journal on Recent and Innovation Trends in Computing and Communication, 12(2), 445–454. Retrieved from https://www.ijritcc.org/index.php/ijritcc/article/view/10848
- [134]. Paripati, L., Prasad, N., Shah, J., Narukulla, N., & Hajari, V. R. (2021). Blockchain-enabled data analytics for ensuring data integrity and trust in AI systems. International Journal of Computer Science and Engineering (IJCSE), 10(2), 27–38. ISSN (P): 2278–9960; ISSN (E): 2278–9979.
- [135]. Arth Dave. (2024). Improving Financial Forecasting Accuracy with AI-Driven Predictive Analytics. International Journal of Intelligent Systems and Applications in Engineering, 12(21s), 3866 –. Retrieved from https://ijisae.org/index.php/IJISAE/article/view/6158
- [136]. Hajari, V. R., Chaturvedi, R., Sharma, S., Tilala, M., & Chawda, A. D. (2024). Risk-based testing methodologies for FDA compliance in medical devices. African Journal of Biological Sciences, 6(Si4), 3949-3960. https://doi.org/10.48047/AFJBS.6.Si4.2024.3949-3960
- [137]. Hajari, V. R., Prasad, N., Narukulla, N., Chaturvedi, R., & Sharma, S. (2023). Validation techniques for AI/ML components in medical diagnostic devices. NeuroQuantology, 21(4), 306-312. https://doi.org/10.48047/NQ.2023.21.4.NQ23029

- [138]. Hajari, V. R., Chaturvedi, R., Sharma, S., Tilala, M., Chawda, A. D., & Benke, A. P. (2023). Interoperability testing strategies for medical IoT devices. Tuijin Jishu/Journal of Propulsion Technology, 44(1), 258.
- [139]. Kumar, A., Dodda, S., Kamuni, N., & Arora, R. K. (2024). Unveiling the impact of macroeconomic policies: A double machine learning approach to analyzing interest rate effects on financial markets. arXiv. https://arxiv.org/abs/2404.07225
- [140]. Suresh Dodda, Anoop Kumar, Navin Kamuni, et al. Exploring Strategies for Privacy-Preserving Machine Learning in Distributed Environments. TechRxiv. April 18, 2024.
- [141]. DOI: 10.36227/techrxiv.171340711.17793838/v1
- [142]. Kumar, A., Ayyalasomayajula, M. M. T., Panwar, D., & Vasa, Y. (2024). Optimizing photometric light curve analysis: Evaluating Scipy's minimize function for eclipse mapping of cataclysmic variables. arXiv. https://doi.org/10.48550/arXiv.2406.00071
- [143]. Kumar, A., Dodda, S., Kamuni, N., & Vuppalapati, V. S. M. (2024). The emotional impact of game duration: A framework for understanding player emotions in extended gameplay sessions. arXiv. https://doi.org/10.48550/arXiv.2404.00526
- [144]. Kumar, A. (2019). Implementation core business intelligence system using modern IT development practices (Agile & DevOps). International Journal of Management, IT and Engineering, 8(9), 444-464. https://doi.org/10.5281/zenodo.1234567
- [145]. Ashutosh Tripathi, Low-Code/No-Code Development Platforms,
- [146]. International Journal of Computer Applications (IJCA), 4(1), 2023, pp. 27–35.
- [147]. https://iaeme.com/Home/issue/IJCA?Volume=4&Issue=1
- [148]. Ashutosh Tripathi, Optimal Serverless Deployment Methodologies: Ensuring Smooth Transitions and Enhanced Reliability, Face Mask Detection, Journal of Computer Engineering and Technology (JCET) 5(1), 2022, pp. 21-28.
- [149]. Tripathi, A. (2020). AWS serverless messaging using SQS. IJIRAE: International Journal of Innovative Research in Advanced Engineering, 7(11), 391-393.
- [150]. Tripathi, A. (2019). Serverless architecture patterns: Deep dive into event-driven, microservices, and serverless APIs. International Journal of Creative Research Thoughts (IJCRT), 7(3), 234-239. Retrieved from http://www.ijcrt.org
- [151]. Bellapukonda, P., Vijaya, G., Subramaniam, S., & Chidambaranathan, S. (2024). Security and optimization in IoT networks using AI-powered digital twins. In Harnessing AI and Digital Twin Technologies in Businesses (p. 14). https://doi.org/10.4018/979-8-3693-3234-4.ch024
- [152]. E. A. Banu, S. Chidambaranathan, N. N. Jose, P. Kadiri, R. E. Abed and A. Al-Hilali, "A System to Track the Behaviour or Pattern of Mobile Robot Through RNN Technique," 2024 4th International Conference on Advance Computing and Innovative Technologies in Engineering (ICACITE), Greater Noida, India, 2024, pp. 2003-2005, doi: 10.1109/ICACITE60783.2024.10617430.
- [153]. Patil, Y. M., Abraham, A. R., Chaubey, N. K., Baskar, K., & Chidambaranathan, S. (2024). A comparative analysis of machine learning techniques in creating virtual replicas for healthcare simulations. In Harnessing AI and Digital Twin Technologies in Businesses (p. 12). https://doi.org/10.4018/979-8-3693-3234-4.ch002
- [154]. George, B., Oswal, N., Baskar, K., & Chidambaranathan, S. (2024). Innovative approaches to simulating human-machine interactions through virtual counterparts. In Harnessing AI and Digital Twin Technologies in Businesses (p. 11). https://doi.org/10.4018/979-8-3693-3234-4.ch018
- [155]. Charaan, R. M. D., Chidambaranathan, S., Jothivel, K. M., Subramaniam, S., & Prabu, M. (2024). Machine learning-driven data fusion in wireless sensor networks with virtual replicas: A comprehensive evaluation. In Harnessing AI and Digital Twin Technologies in Businesses (p. 11). https://doi.org/10.4018/979-8-3693-3234-4.ch020
- [156]. Ayyavaraiah, M., Jeyakumar, B., Chidambaranathan, S., Subramaniam, S., Anitha, K., & Sangeetha, A. (2024). Smart transportation systems: Machine learning application in WSN-based digital twins. In Harnessing AI and Digital Twin Technologies in Businesses (p. 11). https://doi.org/10.4018/979-8-3693-3234-4.ch026
- [157]. Venkatesan, B., Mannanuddin, K., Chidambaranathan, S., Jeyakumar, B., Rayapati, B. R., & Baskar, K. (2024). Deep learning safeguard: Exploring GANs for robust security in open environments. In Enhancing Security in Public Spaces Through Generative Adversarial Networks (GANs) (p. 14). https://doi.org/10.4018/979-8-3693-3597-0.ch009
- [158]. P. V, V. R and S. Chidambaranathan, "Polyp Segmentation Using UNet and ENet," 2023 6th International Conference on Recent Trends in Advance Computing (ICRTAC), Chennai, India, 2023, pp. 516-522, doi: 10.1109/ICRTAC59277.2023.10480851.
- [159]. Athisayaraj, A. A., Sathiyanarayanan, M., Khan, S., Selvi, A. S., Briskilla, M. I., Jemima, P. P., Chidambaranathan, S., Sithik, A. S., Sivasankari, K., & Duraipandian, K. (2023). Smart thermal-cooler umbrella (UK Design No. 6329357).
- [160]. Krishnateja Shiva. (2024). Natural Language Processing for Customer Service Chatbots: Enhancing Customer Experience. International Journal of Intelligent Systems and Applications in Engineering, 12(22s), 155–164. Retrieved from https://ijisae.org/index.php/IJISAE/article/view/6405

- [161]. Shiva, K., Etikani, P., Bhaskar, V. V. S. R., Mittal, A., Dave, A., Thakkar, D., Kanchetti, D., & Munirathnam, R. (2024). Anomaly detection in sensor data with machine learning: Predictive maintenance for industrial systems. Journal of Electrical Systems, 20(10s), 454-462.
- [162]. Kanchetti, D., Munirathnam, R., & Thakkar, D. (2024). Integration of Machine Learning Algorithms with Cloud Computing for Real-Time Data Analysis. Journal for Research in Applied Sciences and Biotechnology, 3(2), 301–306. https://doi.org/10.55544/jrasb.3.2.46
- [163]. Challa, S. S. S., Chawda, A. D., Benke, A. P., & Tilala, M. (2023). Regulatory intelligence: Leveraging data analytics for regulatory decision-making. International Journal on Recent and Innovation Trends in Computing and Communication, 11, 10.
- [164]. Challa, S. S. S., Chawda, A. D., Benke, A. P., & Tilala, M. (2024). Streamlining change control processes in regulatory affairs: Best practices and case studies. Integrated Journal for Research in Arts and Humanities, 4(4), 4.
- [165]. Challa, S. S. S., Tilala, M., Chawda, A. D., & Benke, A. P. (2019). Investigating the use of natural language processing (NLP) techniques in automating the extraction of regulatory requirements from unstructured data sources. Annals of Pharma Research, 7(5),
- [166]. Challa, S. S. S., Tilala, M., Chawda, A. D., & Benke, A. P. (2021). Navigating regulatory requirements for complex dosage forms: Insights from topical, parenteral, and ophthalmic products. NeuroQuantology, 19(12), 15.
- [167]. Challa, S. S. S., Tilala, M., Chawda, A. D., & Benke, A. P. (2022). Quality management systems in regulatory affairs: Implementation challenges and solutions. Journal for Research in Applied Sciences and Biotechnology, 1(3),
- [168]. Gajera, B., Shah, H., Parekh, B., Rathod, V., Tilala, M., & Dave, R. H. (2024). Design of experiments-driven optimization of spray drying for amorphous clotrimazole nanosuspension. AAPS PharmSciTech, 25(6),
- [169]. Hajari, V. R., Chaturvedi, R., Sharma, S., Tilala, M., & Chawda, A. D. (2024). Risk-based testing methodologies for FDA compliance in medical devices. African Journal of Biological Sciences, 6(4),
- [170]. Tilala, M. (2023). Real-time data processing in healthcare: Architectures and applications for immediate clinical insights. International Journal on Recent and Innovation Trends in Computing and Communication, 11, 20.
- [171]. Tilala, M. H., Chenchala, P. K., Choppadandi, A., Kaur, J., Naguri, S., Saoji, R., & ... (2024). Ethical considerations in the use of artificial intelligence and machine learning in health care: A comprehensive review. Cureus, 16(6), 2.
- [172]. Tilala, M., & Chawda, A. D. (2020). Evaluation of compliance requirements for annual reports in pharmaceutical industries. NeuroQuantology, 18(11), 27.
- [173]. Tilala, M., Challa, S. S. S., Chawda, A. D., Pandurang, A., & Benke, D. S. S. (2024). Analyzing the role of real-world evidence (RWE) in supporting regulatory decision-making and post-marketing surveillance. African Journal of Biological Sciences, 6(14),
- [174]. Tilala, M., Chawda, A. D., & Benke, A. P. (2023). Enhancing regulatory compliance through training and development programs: Case studies and recommendations. Journal of Cardiovascular Research, 14(11),
- [175]. Ashok Choppadandi, Jagbir Kaur, Pradeep Kumar Chenchala, Akshay Agarwal, Varun Nakra, Pandi Kirupa Gopalakrishna Pandian, 2021. "Anomaly Detection in Cybersecurity: Leveraging Machine Learning Algorithms" ESP Journal of Engineering & Technology Advancements 1(2): 34-41.
- [176]. Ashok Choppadandi et al, International Journal of Computer Science and Mobile Computing, Vol.9 Issue.12, December- 2020, pg. 103-112. (Google scholar indexed)
- [177]. Choppadandi, A., Kaur, J., Chenchala, P. K., Nakra, V., & Pandian, P. K. K. G. (2020). Automating ERP Applications for Taxation Compliance using Machine Learning at SAP Labs. International Journal of Computer Science and Mobile Computing, 9(12), 103-112. https://doi.org/10.47760/ijcsmc.2020.v09i12.014
- [178]. [Chenchala, P. K., Choppadandi, A., Kaur, J., Nakra, V., & Pandian, P. K. G. (2020). Predictive Maintenance and Resource Optimization in Inventory Identification Tool Using ML. International Journal of Open Publication and Exploration, 8(2), 43-50. https://ijope.com/index.php/home/article/view/127]
- [179]. AI-Driven Customer Relationship Management in PK Salon Management System. (2019). International Journal of Open Publication and Exploration, ISSN: 3006-2853, 7(2), 28-35. https://ijope.com/index.php/home/article/view/128
- [180]. Kaur, J., Choppadandi, A., Chenchala, P. K., Nakra, V., & Pandian, P. K. G. (2019). AI Applications in Smart Cities (Jagbir 2019)"
- [181]. Kaur, J., Choppadandi, A., Chenchala, P. K., Nakra, V., & Pandian, P. K. G. (2019). Case Studies on Improving User Interaction and Satisfaction using AI-Enabled Chatbots for Customer Service. International Journal of Transcontinental Discoveries, 6(1), 29-34. https://internationaljournals.org/index.php/ijtd/article/view/98]
- [182]. Kaur, J., Choppadandi, A., Chenchala, P. K., Nakra, V., & Pandian, P. K. G. (2019). Case Studies on Improving User Interaction and Satisfaction using AI-Enabled Chatbots for Customer Service. International

International Journal of Multidisciplinary Innovation and Research Methodology (IJMIRM)

ISSN: 2960-2068, Volume 3, Issue 3, July-September, 2024, Available online at: https://ijmirm.com

- Journal of Transcontinental Discoveries, 6(1), 29-34. https://internationaljournals.org/index.php/ijtd/article/view/98]
- [183]. Tilala, M. H., Chenchala, P. K., Choppadandi, A., Kaur, J., Naguri, S., Saoji, R., & Devaguptapu, B. (2024). Ethical Considerations in the Use of Artificial Intelligence and Machine Learning in Health Care: A Comprehensive Review. Cureus, 16(6), e62443. https://doi.org/10.7759/cureus.62443]
- [184]. Predictive Maintenance and Resource Optimization in Inventory Identification Tool Using ML. (2020). International Journal of Open Publication and Exploration, ISSN: 3006-2853, 8(2), 43-50. https://ijope.com/index.php/home/article/view/127
- [185]. Chenchala, P. K., Choppadandi, A., Kaur, J., Nakra, V., & Pandian, P. K. G. (2020). Predictive Maintenance and Resource Optimization in Inventory Identification Tool Using ML. International Journal of Open Publication and Exploration, 8(2), 43-50. https://ijope.com/index.php/home/article/view/127
- [186]. Pradeep Kumar Chenchala. (2023). Social Media Sentiment Analysis for Enhancing Demand Forecasting Models Using Machine Learning Models. International Journal on Recent and Innovation Trends in Computing and Communication, 11(6), 595–601. Retrieved from https://www.ijritcc.org/index.php/ijritcc/article/view/10762
- [187]. 2021
- [188]. (Ashok: "Ashok Choppadandi, Jagbir Kaur, Pradeep Kumar Chenchala, Akshay Agarwal, Varun Nakra, Pandi Kirupa Gopalakrishna Pandian, 2021. "Anomaly Detection in Cybersecurity: Leveraging Machine Learning Algorithms" ESP Journal of Engineering & Technology Advancements 1(2): 34-41."
- [189]. Ashok: "Choppadandi, A., Kaur, J., Chenchala, P. K., Nakra, V., & Pandian, P. K. K. G. (2020). Automating ERP Applications for Taxation Compliance using Machine Learning at SAP Labs. International Journal of Computer Science and Mobile Computing, 9(12), 103-112. https://doi.org/10.47760/ijcsmc.2020.v09i12.014"]
- [190]. Predictive Maintenance and Resource Optimization in Inventory Identification Tool Using ML. (2020). International Journal of Open Publication and Exploration, ISSN: 3006-2853, 8(2), 43-50. https://ijope.com/index.php/home/article/view/127
- [191]. Chenchala, P. K., Choppadandi, A., Kaur, J., Nakra, V., & Pandian, P. K. G. (2020). Predictive Maintenance and Resource Optimization in Inventory Identification Tool Using ML. International Journal of Open Publication and Exploration, 8(2), 43-50. https://ijope.com/index.php/home/article/view/127
- [192]. 2019
- [193]. Jagbir.: "Kaur, J., Choppadandi, A., Chenchala, P. K., Nakra, V., & Pandian, P. K. G. (2019). AI Applications in Smart Cities (Jagbir 2019)"]
- [194]. Kaur, J., Choppadandi, A., Chenchala, P. K., Nakra, V., & Pandian, P. K. G. (2019). Case Studies on Improving User Interaction and Satisfaction using AI-Enabled Chatbots for Customer Service. International Journal of Transcontinental Discoveries, 6(1), 29-34. https://internationaljournals.org/index.php/ijtd/article/view/98]
- [195]. Choppadandi, A., Kaur, J., Chenchala, P. K., Kanungo, S., & Pandian, P. K. K. G. (2019). AI-Driven Customer Relationship Management in PK Salon Management System. International Journal of Open Publication and Exploration, 7(2), 28-35. https://ijope.com/index.php/home/article/view/128.
- [196]. Kaur, J., Choppadandi, A., Chenchala, P. K., Nakra, V., & Pandian, P. K. G. (2019). Case Studies on Improving User Interaction and Satisfaction using AI-Enabled Chatbots for Customer Service. International Journal of Transcontinental Discoveries, 6(1), 29-34. https://internationaljournals.org/index.php/ijtd/article/view/98