DAFTAR PUSTAKA

[1] D. Zhang, S. Mishra, E. Brynjolfsson, J. Etchemendy, D. Ganguli, B. Grosz, T. Lyons, J. Manyika, J. C. Niebles, M. Sellitto, Y. Shoham, J. Clark, and R. Perrault, "The ai index 2021 annual report," 2021. [Online]. Available: https://doi.org/10.48550/arXiv.2103.06312

[2] A. Banerjee, S. Kabadi, and D. Karimov, "The transformative power of ai: Projected impacts on the global economy by 2030," *Review of Artificial Intelligence in Education*, vol. 4, no. 00, p. e020, Sep. 2023. [Online]. Available: http://dx.doi.org/10.37497/rev.artif.intell.educ.v4i00.20

[3] G. Velarde, "Artificial intelligence trends and future scenarios: Relations between statistics and opinions," in *2021 IEEE Third International Conference on Cognitive Machine Intelligence (CogMI)*. IEEE, Dec. 2021, p. 64–70. [Online]. Available: http://dx.doi.org/10.1109/CogMI52975.2021.00017

[4] S. M. Mian, M. S. Khan, M. Shawez, and A. Kaur, "Artificial intelligence (ai), machine learning (ml) amp; deep learning (dl): A comprehensive overview on techniques, applications and research directions," in *2024 2nd International Conference on Sustainable Computing and Smart Systems (ICSCSS)*. IEEE, Jul. 2024, p. 1404–1409. [Online]. Available: http://dx.doi.org/10.1109/ICSCSS60660.2024.10625198

[5] S.-L. Wamba-Taguimdje, S. Fosso Wamba, J. R. Kala Kamdjoug, and C. E. Tchatchouang Wanko, "Influence of artificial intelligence (ai) on firm performance: the business value of ai-based transformation projects," *Business Process Management Journal*, vol. 26, no. 7, p. 1893–1924, May 2020. [Online]. Available: http://dx.doi.org/10.1108/BPMJ-10-2019-0411

[6] S. Raisch and S. Krakowski, "Artificial intelligence and management: The automation–augmentation paradox," *Academy of Management Review*, vol. 46, no. 1, p. 192–210, Jan. 2021. [Online]. Available: http://dx.doi.org/10.5465/amr.2018.0072

[7] T. V. Fridgeirsson, H. T. Ingason, H. I. Jonasson, and H. Jonsdottir, "An authoritative study on the near future effect of artificial intelligence on project management knowledge areas," *Sustainability*, vol. 13, no. 4, p. 2345, Feb. 2021. [Online]. Available: http://dx.doi.org/10.3390/su13042345

[8] R. Bargavi, *AI for Optimal Decision-Making in Industry 4.0*. CRC Press, Jul. 2024, p. 185–205. [Online]. Available: http://dx.doi.org/10.1201/9781003432319-11

[9] A. Aldoseri, K. N. Al-Khalifa, and A. M. Hamouda, "Ai-powered innovation in digital transformation: Key pillars and industry impact,"

Sustainability, vol. 16, no. 5, p. 1790, Feb. 2024. [Online]. Available: http://dx.doi.org/10.3390/su16051790

[10] M. Javaid, A. Haleem, R. P. Singh, R. Suman, and E. S. Gonzalez, "Understanding the adoption of industry 4.0 technologies in improving environmental sustainability," *Sustainable Operations and Computers*, vol. 3, p. 203–217, 2022. [Online]. Available: http://dx.doi.org/10.1016/j.susoc.2022.01.008

[11] I. Taboada, A. Daneshpajouh, N. Toledo, and T. de Vass, "Artificial intelligence enabled project management: A systematic literature review," *Applied Sciences*, vol. 13, no. 8, p. 5014, Apr. 2023. [Online]. Available: http://dx.doi.org/10.3390/app13085014

[12] S. Uddin, S. Yan, and H. Lu, "Machine learning and deep learning in project analytics: methods, applications and research trends," *Production Planning amp; Control*, p. 1–20, Mar. 2024. [Online]. Available: http://dx.doi.org/10.1080/09537287.2024.2320790

[13] Y. Kim, J. Lee, E.-B. Lee, and J.-H. Lee, "Application of natural language processing (nlp) and text-mining of big-data to engineering-procurement-construction (epc) bid and contract documents," in *2020 6th Conference on Data Science and Machine Learning Applications (CDMA)*. IEEE, Mar. 2020, p. 123–128. [Online]. Available: http://dx.doi.org/10.1109/CDMA47397.2020.00027

[14] S. Uddin, S. Ong, and H. Lu, "Machine learning in project analytics: a data-driven framework and case study," *Scientific Reports*, vol. 12, no. 1, Sep. 2022. [Online]. Available: http://dx.doi.org/10.1038/s41598-022-19728-x

[15] M. L. Prasetyo, R. A. Peranginangin, N. Martinovic, M. Ichsan, and H. Wicaksono, "Artificial intelligence in open innovation project management: A systematic literature review on technologies, applications, and integration requirements," *Journal of Open Innovation: Technology, Market, and Complexity*, vol. 11, no. 1, p. 100445, Mar. 2025. [Online]. Available: http://dx.doi.org/10.1016/j.joitmc.2024.100445

[16] S. Fisher and L. C. Rosella, "Priorities for successful use of artificial intelligence by public health organizations: a literature review," *BMC Public Health*, vol. 22, no. 1, Nov. 2022. [Online]. Available: http://dx.doi.org/10.1186/s12889-022-14422-z

[17] M. Ridha and K. Haura Maharani, "Implementation of artificial intelligence chatbot in optimizing customer service in financial technology company pt. finaccel finance indonesia," in *The 5th International Conference on Vocational Education Applied Science and Technology 2022*, ser. ICVEAST 2022. MDPI, Dec. 2022, p. 21. [Online]. Available: http://dx.doi.org/10.3390/proceedings2022083021

[18] V. Setlur, A. Kanyuka, and A. Srinivasan, "Olio: A semantic search interface for data repositories," in *Proceedings of the 36th Annual ACM Symposium on User Interface Software and Technology*, ser. UIST '23. ACM, Oct. 2023, p. 1–16. [Online]. Available: http://dx.doi.org/10.1145/3586183.3606806

[19] J. Skrebeca, P. Kalniete, J. Goldbergs, L. Pitkevica, D. Tihomirova, and A. Romanovs, "Modern development trends of chatbots using artificial intelligence (ai)," in *2021 62nd International Scientific Conference on Information Technology and Management Science of Riga Technical University (ITMS)*. IEEE, Oct. 2021. [Online]. Available: http://dx.doi.org/10.1109/ITMS52826.2021.9615258

[20] M. Dharani, J. Jyostna, E. Sucharitha, R. Likitha, and S. Manne, "Interactive transport enquiry with ai chatbot," in *2020 4th International Conference on Intelligent Computing and Control Systems (ICICCS)*. IEEE, May 2020. [Online]. Available: http://dx.doi.org/10.1109/ICICCS48265.2020.9120905

[21] A. Soetiyono, Y. Kurnia, and R. Kurnia, "Pengaruh penggunaan chatbot dan asisten virtual terhadap peningkatkan kepuasan pelanggan serta dampaknya terhadap pengambilan keputusan pembelian," *eCo-Buss*, vol. 6, no. 3, p. 1367–1381, Apr. 2024. [Online]. Available: http://dx.doi.org/10.32877/eb.v6i3.1169

[22] I. M. Enholm, E. Papagiannidis, P. Mikalef, and J. Krogstie, "Artificial intelligence and business value: a literature review," *Information Systems Frontiers*, vol. 24, no. 5, p. 1709–1734, Aug. 2021. [Online]. Available: http://dx.doi.org/10.1007/s10796-021-10186-w

[23] M. Pichler and F. Hartig, "Machine learning and deep learning—a review for ecologists," *Methods in Ecology and Evolution*, vol. 14, no. 4, p. 994–1016, Feb. 2023. [Online]. Available: http://dx.doi.org/10.1111/2041-210X.14061

[24] M. H. Jarrahi, "Artificial intelligence and the future of work: Human-ai symbiosis in organizational decision making," *Business Horizons*, vol. 61, no. 4, p. 577–586, Jul. 2018. [Online]. Available: http://dx.doi.org/10.1016/j.bushor.2018.03.007

[25] U. Lichtenthaler, "An intelligence-based view of firm performance: Profiting from artificial intelligence," *Journal of Innovation Management*, vol. 7, no. 1, p. 7–20, May 2019. [Online]. Available: http://dx.doi.org/10.24840/2183-0606_007.001_0002

[26] Y. H. Ghadage and S. D. Shelke, "Speech to text conversion for multilingual languages," in *2016 International Conference on Communication and Signal Processing (ICCSP)*. IEEE, Apr. 2016, p. 0236–0240. [Online]. Available: http://dx.doi.org/10.1109/ICCSP.2016.7754130

[27] I. S. Nugroho and A. Voutama, "Implementasi chat bot untuk pelayanan pelanggan yang terintegrasi web toko komputer," *JATI (Jurnal Mahasiswa Teknik Informatika)*, vol. 8, no. 3, p. 3132–3136, May 2024. [Online]. Available: http://dx.doi.org/10.36040/jati.v8i3.9630

[28] CV. Inovasi Artificial Intelligence Indonesia (AI.DECE). Company website. [Online]. Available: https://ai-dece.ai

[29] ——, "2025 Company Document of AI.DECE," Available from: CV. Inovasi Artificial Intelligence Indonesia, internal report.

[30] S. Vidivelli, M. Ramachandran, and A. Dharunbalaji, "Efficiency-driven custom chatbot development: Unleashing langchain, rag, and performance-optimized llm fusion," *Computers, Materials amp; Continua*, vol. 80, no. 2, p. 2423–2442, 2024. [Online]. Available: http://dx.doi.org/10.32604/cmc.2024.054360

[31] I. M. Ibrahim, M. S. Attallah, S. O. Abdel Hamid, S. T. Zween, and I. Abuhadrous, "Leveraging large language models for document analysis and decision-making in ai chatbots," *Advanced Sciences and Technology Journal*, vol. 2, no. 1, p. 1–16, Jan. 2025. [Online]. Available: http://dx.doi.org/10.21608/astj.2025.342484.1034

[32] S. Pokhrel, S. Ganesan, T. Akther, and L. Karunarathne, "Building customized chatbots for document summarization and question answering using large language models using a framework with openai, lang chain, and streamlit," *Journal of Information Technology and Digital World*, vol. 6, no. 1, p. 70–86, Mar. 2024. [Online]. Available: http://dx.doi.org/10.36548/jitdw.2024.1.006

[33] H. Touvron and et al., "Llama 2: Open foundation and fine-tuned chat models," 2023. [Online]. Available: https://doi.org/10.48550/arXiv.2307.09288

[34] G. K. Hoon, L. J. Yong, and G. K. Yang, *Interfacing Chatbot with Data Retrieval and Analytics Queries for Decision Making*. Springer Singapore, Jun. 2019, p. 385–394. [Online]. Available: http://dx.doi.org/10.1007/978-981-13-8323-6_32

[35] K. Olawore, M. McTear, and Y. Bi, *Development and Evaluation of a University Chatbot Using Deep Learning: A RAG-Based Approach*. Springer Nature Switzerland, 2025, p. 96–111. [Online]. Available: http://dx.doi.org/10.1007/978-3-031-88045-2_7

[36] F. Liu, Z. Kang, and X. Han, "Optimizing rag techniques for automotive industry pdf chatbots: A case study with locally deployed ollama models," 2024. [Online]. Available: https://doi.org/10.48550/arXiv.2408.05933

[37] R. Akkiraju and et al., "Facts about building retrieval augmented generation-based chatbots," 2024. [Online]. Available: https://doi.org/10.48550/arXiv.2407.07858

[38] M. S. Salim, S. I. Hossain, T. Jalal, D. K. Bose, and M. J. I. Basher, "Llm based qa chatbot builder: A generative ai-based chatbot builder for question answering," *SoftwareX*, vol. 29, p. 102029, Feb. 2025. [Online]. Available: http://dx.doi.org/10.1016/j.softx.2024.102029

[39] S. Montagna, G. Aguzzi, S. Ferretti, M. F. Pengo, L. C. Klopfenstein, M. Ungolo, and M. Magnini, "Llm-based solutions for healthcare chatbots: a comparative analysis," in *2024 IEEE International Conference on Pervasive Computing and Communications Workshops and other Affiliated Events (PerCom Workshops)*. IEEE, Mar. 2024, p. 346–351. [Online]. Available: http://dx.doi.org/10.1109/PerComWorkshops59983.2024.10503257

[40] O. I. Sheremet, O. V. Sadovoi, K. S. Sheremet, and Y. V. Sokhina, "Effective documentation practices for enhancing user interaction through gpt-powered conversational interfaces," *Applied Aspects of Information Technology*, vol. 7, no. 2, p. 135–150, May 2024. [Online]. Available: http://dx.doi.org/10.15276/aait.07.2024.10

[41] J. J. Pan, J. Wang, and G. Li, "Survey of vector database management systems," 2023. [Online]. Available: https://doi.org/10.48550/arXiv.2310.14021

[42] O. Cárdenas, S. Falconi, E. Tusa, and A. Rodríguez, "Development of a chatbot model for health telecare: Integration of langchain, embeddings with openai, and pinecone using the question answering technique," *Journal of Applied Research and Technology*, vol. 22, no. 3, p. 389–402, Jun. 2024. [Online]. Available: http://dx.doi.org/10.22201/icat.24486736e.2024.22.3.2367

[43] H. Haeruddin, S. Sabariman, and V. Su, "Designing a chatbot application using the flask framework and rule-based algorithm," *Jurnal Teknologi Dan Sistem Informasi Bisnis*, vol. 7, no. 1, p. 133–42, Jan. 2025. [Online]. Available: http://dx.doi.org/10.47233/jteksis.v7i1.1820

[44] J. Ye, X. Chen, N. Xu, C. Zu, Z. Shao, S. Liu, Y. Cui, Z. Zhou, C. Gong, Y. Shen, J. Zhou, S. Chen, T. Gui, Q. Zhang, and X. Huang, "A comprehensive capability analysis of gpt-3 and gpt-3.5 series models," 2023. [Online]. Available: https://doi.org/10.48550/arXiv.2303.10420

[45] F. Soygazi and D. Oguz, "An analysis of large language models and langchain in mathematics education," in *Proceedings of the 2023 7th International Conference on Advances in Artificial Intelligence*, ser. ICAAI 2023. ACM, Oct. 2023, p. 92–97. [Online]. Available: http://dx.doi.org/10.1145/3633598.3633614

[46] R. K. Malviya, V. Javalkar, and R. Malviya, "Scalability and performance benchmarking of langchain, llamaindex, and haystack for enterprise ai customer support systems," in *IJGIS Fall of 2024 Conference*. The New World Foundation. [Online]. Available: http://dx.doi.org/10.21428/e90189c8.43aeb06e

[47] C. Jeong, "A study on the implementation of generative ai services using an enterprise data-based llm application architecture," 2023. [Online]. Available: https://doi.org/10.48550/arXiv.2309.01105

[48] S. Prabhune and D. J. Berndt, "Deploying large language models with retrieval augmented generation," 2024. [Online]. Available: https://doi.org/10.48550/arXiv.2411.11895

[49] A. S. Lubis, Y. Yulinda, A. Qaedi Hutagalung, A. Dilham, F. R. Sofiyah, and J. L. Marpaung, "The chatbot artificial intelligence as the alternative customer services strategic to improve the customer relationship management in real-time responses," *International Journal of Economics and Business Research*, vol. 27, no. 5, 2024. [Online]. Available: http://dx.doi.org/10.1504/IJEBR.2024.10064925

[50] M. Ehrenpreis and J. DeLooper, "Implementing a chatbot on a library website," *Journal of Web Librarianship*, vol. 16, no. 2, p. 120–142, Apr. 2022. [Online]. Available: http://dx.doi.org/10.1080/19322909.2022.2060893

[51] D. Ferreira, F. Portela, and M. F. Santos, *A Step Towards the Use of Chatbots to Support the Enterprise Decision-Making Processes*. Springer International Publishing, 2021, p. 308–317. [Online]. Available: http://dx.doi.org/10.1007/978-3-030-72654-6_30

[52] A. Miklosik, N. Evans, and A. M. A. Qureshi, "The use of chatbots in digital business transformation: A systematic literature review," *IEEE Access*, vol. 9, p. 106530–106539, 2021. [Online]. Available: http://dx.doi.org/10.1109/ACCESS.2021.3100885

[53] M. Rizwan, L. Carlsson, and M. Loni, "Personabot: Bringing customer personas to life with llms and rag," 2025. [Online]. Available: https://doi.org/10.48550/arxiv.2505.17156

[54] M.-H. Chao, A. J. C. Trappey, and C.-T. Wu, "Emerging technologies of natural language-enabled chatbots: A review and trend forecast using intelligent ontology extraction and patent analytics," *Complexity*, vol. 2021, no. 1, Jan. 2021. [Online]. Available: http://dx.doi.org/10.1155/2021/5511866

[55] F. Almazrouei, A. Elias Sarker, P. Zervopoulos, and S. Yousaf, "Organizational structure, agility, and public value-driven innovation performance in the uae public services," *Heliyon*, vol. 10, no. 13, p.

e33261, Jul. 2024. [Online]. Available: http://dx.doi.org/10.1016/j.heliyon.2024.e33261

[56] L. Leonnard, "Exploring relationship among e-learning platforms, technical system quality and perceived students' satisfaction on higher educations' system for e-learning," *Jurnal Manajemen Teori dan Terapan— Journal of Theory and Applied Management*, vol. 14, no. 1, p. 16, Apr. 2021. [Online]. Available: http://dx.doi.org/10.20473/jmtt.v14i1.24183

[57] M. A. Akaka and S. L. Vargo, "Extending the context of service: from encounters to ecosystems," *Journal of Services Marketing*, vol. 29, no. 6/7, p. 453–462, Sep. 2015. [Online]. Available: http://dx.doi.org/10.1108/JSM-03-2015-0126

[58] W. G. E. Bratha, *Jurnal Ekonomi Manajemen Sistem Informasi*, vol. 3, no. 3, Jan. 2022. [Online]. Available: http://dx.doi.org/10.31933/jemsi.v3i3

[59] A. Haniefardy, M. B. A. Fadhillah, and S. Rochimah, "Tinjauan literatur sistematis: Pengaruh penggunaan framework khusus dalam proses pengembangan web dan pembuatan web," *Matrix: Jurnal Manajemen Teknologi dan Informatika*, vol. 9, no. 2, p. 68–73, Jul. 2019. [Online]. Available: http://dx.doi.org/10.31940/matrix.v9i2.1161

[60] M. Wali and L. Ahmad, "Perancangan aplikasi source code library sebagai solusi pembelajaran pengembangan perangkat lunak," *Jurnal JTIK (Jurnal Teknologi Informasi dan Komunikasi)*, vol. 1, no. 1, p. 39, Jul. 2017. [Online]. Available: http://dx.doi.org/10.35870/jtik.v1i1.32

[61] S. Zhao, Y. Yang, Z. Wang, Z. He, L. K. Qiu, and L. Qiu, "Retrieval augmented generation (rag) and beyond: A comprehensive survey on how to make your llms use external data more wisely," 2024. [Online]. Available: https://doi.org/10.48550/arXiv.2409.14924

[62] Y. Gao, Y. Xiong, X. Gao, K. Jia, J. Pan, Y. Bi, Y. Dai, J. Sun, M. Wang, and H. Wang, "Retrieval-augmented generation for large language models: A survey," 2023. [Online]. Available: https://doi.org/10.48550/arXiv.2312.10997

[63] M. Glass, G. Rossiello, M. F. M. Chowdhury, A. R. Naik, P. Cai, and A. Gliozzo, "Re2g: Retrieve, rerank, generate," 2022. [Online]. Available: https://doi.org/10.48550/arXiv.2207.06300

[64] G. Izacard and E. Grave, "Distilling knowledge from reader to retriever for question answering," 2020. [Online]. Available: https://doi.org/10.48550/arXiv.2012.04584

[65] D. Sachan, M. Patwary, M. Shoeybi, N. Kant, W. Ping, W. L. Hamilton, and B. Catanzaro, "End-to-end training of neural retrievers for open-domain

question answering," in *Proceedings of the 59th Annual Meeting of the Association for Computational Linguistics and the 11th International Joint Conference on Natural Language Processing (Volume 1: Long Papers)*. Association for Computational Linguistics, 2021, p. 6648–6662. [Online]. Available: http://dx.doi.org/10.18653/v1/2021.acl-long.519

[66] H. Zamani and M. Bendersky, "Stochastic rag: End-to-end retrieval-augmented generation through expected utility maximization," in *Proceedings of the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval*, ser. SIGIR 2024. ACM, Jul. 2024, p. 2641–2646. [Online]. Available: http://dx.doi.org/10.1145/3626772.3657923

[67] S. Barnett, S. Kurniawan, S. Thudumu, Z. Brannelly, and M. Abdelrazek, "Seven failure points when engineering a retrieval augmented generation system," in *Proceedings of the IEEE/ACM 3rd International Conference on AI Engineering - Software Engineering for AI*, ser. CAIN 2024. ACM, Apr. 2024, p. 194–199. [Online]. Available: http://dx.doi.org/10.1145/3644815.3644945

[68] O. Topsakal and T. C. Akinci, "Creating large language model applications utilizing langchain: A primer on developing llm apps fast," *International Conference on Applied Engineering and Natural Sciences*, vol. 1, no. 1, p. 1050–1056, Jul. 2023. [Online]. Available: http://dx.doi.org/10.59287/icaens.1127

[69] A. Singh, A. Ehtesham, S. Mahmud, and J.-H. Kim, "Revolutionizing mental health care through langchain: A journey with a large language model," in *2024 IEEE 14th Annual Computing and Communication Workshop and Conference (CCWC)*. IEEE, Jan. 2024. [Online]. Available: http://dx.doi.org/10.1109/CCWC60891.2024.10427865

[70] J. Jenq, "Improving performance of local chatbot with caching," *Journal of Systemics, Cybernetics and Informatics*, vol. 22, no. 5, p. 96–100, Dec. 2024. [Online]. Available: http://dx.doi.org/10.54808/JSCI.22.05.96

[71] R. Guo, X. Luan, L. Xiang, X. Yan, X. Yi, J. Luo, Q. Cheng, W. Xu, J. Luo, F. Liu, Z. Cao, Y. Qiao, T. Wang, B. Tang, and C. Xie, "Manu: a cloud native vector database management system," *Proceedings of the VLDB Endowment*, vol. 15, no. 12, p. 3548–3561, Aug. 2022. [Online]. Available: http://dx.doi.org/10.14778/3554821.3554843

[72] M. S. Manikanta, J. Rushi, A. Lalitha, B. Shravan Kumar Goud, V. Suresh, and T. Daniya, "Web based e-commerce system integrated with chatbot," *International Journal of Research Publication and Reviews*, p. 1655–1659, Apr. 2022. [Online]. Available: http://dx.doi.org/10.55248/gengpi.2022.3.4.12

[73] A. Jolie, D. Dedrick, R. K. Sugeng, W. A. Lee, and A. Yulianto, "Aplikasi sistem manajemen perpustakaan dengan penerapan pemrograman berorientasi objek," *Telcomatics*, vol. 7, no. 2, Dec. 2022. [Online]. Available: http://dx.doi.org/10.37253/telcomatics.v7i2.7349

[74] K. Mykola, "Using asynchronous programming in python to improve application performance," *The American Journal of Engineering and Technology*, vol. 06, no. 12, p. 51–58, Dec. 2024. [Online]. Available: http://dx.doi.org/10.37547/tajet/Volume06Issue12-06

[75] N. F. Liu, M. Gardner, Y. Belinkov, M. E. Peters, and N. A. Smith, "Linguistic knowledge and transferability of contextual representations," 2019. [Online]. Available: https://doi.org/10.48550/arXiv.1903.08855

[76] M. A. Ayub and S. Majumdar, "Embedding-based classifiers can detect prompt injection attacks," 2024. [Online]. Available: https://doi.org/10.48550/arXiv.2410.22284

[77] Y. Bingi and Y. Yin, "An analysis of embedding layers and similarity scores using siamese neural networks," 2024. [Online]. Available: https://doi.org/10.48550/arXiv.2401.00582

[78] A. T. Neumann, Y. Yin, S. Sowe, S. Decker, and M. Jarke, "An llm-driven chatbot in higher education for databases and information systems," *IEEE Transactions on Education*, vol. 68, no. 1, p. 103–116, Feb. 2025. [Online]. Available: http://dx.doi.org/10.1109/TE.2024.3467912

[79] S. Wu, M. Koo, L. Blum, A. Black, L. Kao, F. Scalzo, and I. Kurtz, "A comparative study of open-source large language models, gpt-4 and claude 2: Multiple-choice test taking in nephrology," 2023. [Online]. Available: https://doi.org/10.48550/arXiv.2308.04709

[80] C. E. A. Coello, M. N. Alimam, and R. Kouatly, "Effectiveness of chatgpt in coding: A comparative analysis of popular large language models," *Digital*, vol. 4, no. 1, p. 114–125, Jan. 2024. [Online]. Available: http://dx.doi.org/10.3390/digital4010005

[81] J. Nicacio and F. Petrillo, "An approach to build consistent software architecture diagrams using devops system descriptors," in *Proceedings of the 25th International Conference on Model Driven Engineering Languages and Systems: Companion Proceedings*, ser. MODELS '22. ACM, Oct. 2022, p. 312–321. [Online]. Available: http://dx.doi.org/10.1145/3550356.3561567

[82] B. Alturas, "Connection between uml use case diagrams and uml class diagrams: a matrix proposal," *International Journal of Computer Applications in Technology*, vol. 72, no. 3, p. 161–168, 2023. [Online]. Available: http://dx.doi.org/10.1504/IJCAT.2023.133294

[83] S. Al-Fedaghi, "Uml sequence diagram: An alternative model," 2021. [Online]. Available: https://doi.org/10.48550/arXiv.2105.15152

[84] D. Ferreira and L. Lima, *Verifying Integrated Designs of UML State Machines and Activities Using CSP*. Springer Nature Switzerland, Nov. 2024, p. 68–85. [Online]. Available: http://dx.doi.org/10.1007/978-3-031-78116-2_5

[85] L. Gozali, H. J. Kristina, A. Yosua, T. Y. M. Zagloel, M. Masrom, S. Susanto, H. Tanujaya, A. P. Irawan, A. Gunadi, V. Kumar, J. A. Garza-Reyes, T. B. Jap, and F. J. Daywin, "The improvement of block chain technology simulation in supply chain management (case study: pesticide company)," *Scientific Reports*, vol. 14, no. 1, Feb. 2024. [Online]. Available: http://dx.doi.org/10.1038/s41598-024-53694-w

[86] S. Safrizal, "Pengujian sistem rekomendasi penilaian pengemudi transportasi umum nasional menggunakan path testing pada white box testing," *Jurnal ilmiah Sistem Informasi dan Ilmu Komputer*, vol. 5, no. 2, p. 18–35, May 2025. [Online]. Available: http://dx.doi.org/10.55606/juisik.v5i2.1073