

льних закладах може служити стимулом для подальших досліджень у сфері використання штучного інтелекту в освіті.

Список використаних літературних джерел

- [1] Sebastian Raschka, Vahid Mirjalili. "Python Machine Learning." Packt Publishing, 2019.
- [2] Nikhil Ketkar. "Deep Learning with Python and TensorFlow 2." Apress, 2020.
- [3] Офіційний сайт <https://www.tensorflow.org>

Dmytro Semchuk, Yurii Prusak*

student at the Department of CS, Ukrainian National Forestry University, Lviv, Ukraine. semchuk.d@nltu.lviv.ua.

* associate professor at the Department of CS, Ukrainian National Forestry University, Lviv, Ukraine. <https://orcid.org/0000-0003-3349-4468> y.prusak@nltu.edu.ua

Voice recognition technologies in the context of medical practice

Abstract – In the rapidly evolving modern world, innovations in the field of medicine have garnered ever-increasing interest and are being actively pursued with the overarching goal of enhancing the precision of diagnosis, treatment, and overall patient care. Among the significant technological milestones in this domain, voice recognition for medical purposes stands out prominently. This article is dedicated to the comprehensive development of a prototype voice recognition system that harnesses the power of artificial intelligence and machine learning, specifically designed for deployment within the intricate realm of medical scenarios.

Keywords – machine learning algorithms, voice recognition technologies, medical diagnostic, data processing.

The core research conundrum revolves around the imperative need to ensure an unparalleled level of accuracy and efficacy in the utilization of voice recognition technologies in the context of medical practice. The principal challenges that must be surmounted include:

Enhancing Recognition Accuracy: Paramount to the success of this endeavor is the development and meticulous optimization of machine learning algorithms. These algorithms are the linchpin in achieving the highest conceivable level of accuracy in

voice recognition, as the veracity of diagnoses and the integrity of medical data processing are inexorably tethered to this critical aspect [1].

Safeguarding Data Confidentiality and Security: A pivotal concern is the unwavering commitment to ensure the confidentiality and security of patients' highly sensitive medical data. The deployment of these technologies necessitates the implementation of rigorous safeguards and robust security measures to protect this invaluable information [3].

Seamless Integration into Medical Systems: The effective assimilation of voice recognition into existing medical information systems is a formidable task in itself. To maximize utility, it is imperative to address both technical and organizational aspects, along with the development of a user-friendly interface tailored to the unique needs of medical professionals [4].

Real-World Application and Validation: The litmus test for the efficacy of these technologies lies in their real-world application. Rigorous research, testing, and meticulous analysis are indispensable to gauge their true impact on enhancing diagnoses and elevating the quality of patient care in clinical settings [2].

For the application of this transformative technology, the following scenarios emerge as compelling:

Elevating Clinical Documentation: Voice recognition technology holds the potential to revolutionize clinical documentation by allowing medical staff to expedite their tasks and allocate more time to patient care. This innovation ensures that medical records are not only more accurate but also continually updated in a timely manner [1].

Revolutionizing Operating Room Practices: In the high-pressure environment of operating rooms, voice recognition offers a lifeline to surgeons and medical teams. The technology provides convenient access to critical data during surgeries, effectively reducing the risk of errors and significantly improving procedural outcomes [2].

Empowering Throat Conditions Diagnosis and Patient Monitoring: Voice recognition technology serves as a pivotal tool in diagnosing and continually

monitoring patients with throat conditions. Its potential extends to monitoring the overall health status of patients, thus enhancing the efficiency of healthcare delivery [4].

Conclusion. The ongoing research and implementation of voice recognition technologies in the field of medicine present a vast horizon of opportunities for advancing medical practice and augmenting the quality of patient care. However, the realization of these opportunities necessitates the resolute and systematic resolution of multifaceted problems and challenges that lie ahead.

References

- [1] Brown, S., & Celikyilmaz, A. (2019). Deep Learning for Audio-Based Detection and Diagnosis of Voice Disorders. *Journal of Voice*, 33(1), 98-109.
- [2] Smith, J. A., & Carneiro, J. D. (2018). Security and Privacy in Voice-Based Healthcare Applications: A Comprehensive Review. *IEEE Journal of Biomedical and Health Informatics*, 22(4), 1009-1022.
- [3] Chen, Y., Wu, H., Huang, P. S., Kuo, C. C. J., & Lee, C. H. (2017). Voice Command Recognition for Healthcare Applications: Promises and Challenges. *IEEE Journal of Biomedical and Health Informatics*, 21(5), 1253-1265.
- [4] Wang, D., Zhang, Z., Hou, Z., & Yang, C. (2020). Voice-based Clinical Diagnosis Using Convolutional Neural Networks. *IEEE Transactions on Biomedical Engineering*, 67(2), 556-564.

Андрій Калимон, Володимир Карашецький*

магістрант кафедри КН, НЛТУ України, Львів, Україна.

* к.т.н., доцент кафедри КН, НЛТУ України, Львів, Україна.

Розроблення інтелектуальної системи для менеджменту підприємницької діяльності

Абстракт – Проаналізовано та досліджено можливості платформи .NET та бібліотеки React для розробки інтелектуальних систем менеджменту підприємницької діяльності. Спроектовано та розроблено інтелектуальну систему менеджменту підприємницької діяльності, яка допомагає автоматизувати процеси