Artificial Intelligence (AI) is a technology that is transforming the world around us. AI applications include numerous industries - from advertising to medicine - where they facilitate the analysis of vast amounts of data to improve the quality of services provided. One particularly interesting field in which AI is rapidly evolving is oncologic radiology. Modern cancer imaging is much more than just pictures of internal organs - thanks to advancements in AI, imaging diagnostics have become a unique source of data, allowing for precise disease monitoring and treatment outcome prediction.

One of the most significant challenges in oncology is accurately predicting the effectiveness of cancer therapies. Currently used prognostic methods are often insufficient - patients need more accurate information about their prognosis, while doctors require more effective tools to support therapeutic decision-making. In previous research, our team explored the potential of artificial intelligence in predicting treatment outcomes for liver cancer - one of the deadliest malignancies and a leading cause of cancer-related deaths.

Preliminary results of our research indicate that AI algorithms based on computed tomography data can effectively predict patient survival without requiring physicians to analyze additional data. This is a major breakthrough, as current prognostic standards necessitate the involvement of multiple specialists, a series of laboratory tests, and clinical analyses. As a result of our work, we have initiated collaborations with leading AI research centers, such as Duke University in the United States. However, further development of our models and partnerships is essential, including the integration of magnetic resonance imaging - the current gold standard in diagnosing many oncological diseases. Moreover, advancing AI in this field requires the development of open datasets, allowing researchers worldwide to enhance predictive methodologies.

The goal of this project is to establish research capabilities in Poland for applying artificial intelligence in the surgical treatment of selected cancers. We want Polish patients to have access to state-of-the-art diagnostic methods, which is why it is crucial to continue expanding imaging datasets and AI algorithms in medicine.

As part of the project, we plan to:

1. Develop and test AI models utilizing computed tomography images - expanding our dataset and leveraging resources from other research institutions.

2. Create a world's biggest open magnetic resonance imaging dataset for liver cancer patients - strengthening Poland's position in this field and enabling the development of new prognostic models.

3. Test our methods on other cancers, such as colorectal cancer - one of the leading causes of cancer-related deaths.

The project will be conducted in collaboration with leading research centers, including Duke University, facilitating knowledge exchange and training for Polish researchers at prestigious international universities.

Through our research, we aim to contribute to a revolution in oncology by improving the precision of patient prognosis and treatment monitoring for abdominal cancers using cutting-edge technologies.