**Blood-Related diseases prediction using Artificial Intelligence**

**Abstract**

*Please provide summaries of the overall goal (“Big Problem” or Scientific Area) of the research. This information will provide first overview of your proposal (One page maximum).*

Artificial intelligence (AI) has the potential to revolutionize the diagnosis and treatment of blood-related diseases. By analyzing large amounts of patient data, AI algorithms can identify patterns and predict which individuals are at risk of developing blood-related diseases such as anemia, leukemia, or sickle cell disease. Blood cells come in a variety of shapes and sizes, and abnormalities in these characteristics can be indicators of certain health conditions. Some techniques do not provide complete information related to blood cells like shape and size, which play important roles in the clinical investigation of serious blood-related diseases. Blood cells come in a variety of shapes and sizes, and abnormalities in these characteristics can be indicators of certain health conditions. We describe developing and evaluating a model for blood-related disease prediction using a large dataset of patient medical records. The results demonstrate the potential of AI to accurately predict blood-related diseases and highlight the importance of early diagnosis in improving patient outcomes. There are several techniques that can be used to assess the shape and size of blood cells, including manual examination under a microscope, automated cell counting and imaging systems, and flow cytometry. These techniques can provide important information for the diagnosis and treatment of blood-related diseases. An abnormal increase in the size of red blood cells, or erythrocytes, can be a sign of anemia or other blood disorders. . By training a model on different data, it is possible to identify patterns and risk factors that can be used to predict the likelihood of a particular blood-related disease. There are several potential benefits to using artificial intelligence for blood-related disease prediction. For example, it could help healthcare professionals identify patients at high risk of developing a particular disease, allowing them to take preventative measures or begin treatment earlier. It could also improve the accuracy of diagnoses and reduce the need for costly and invasive diagnostic tests. Overall, the use of artificial intelligence for blood-related disease prediction has the potential to greatly improve healthcare outcomes and reduce the burden of these diseases on individuals and society. It is important to note that the model's performance can be affected by several factors, including the quality and diversity of the training data, the model's architecture, the optimization algorithm used to train it, and the hyperparameters are chosen. We are interested in using a Fast R-CNN model for segmentation, classification, and quantitative analysis of blood cell morphology. The model was trained on \_\_ images and \_\_\_ labeled blood cells with different parameters. It was tested on \_\_ images containing \_\_\_ red blood cells. The network achieved detection and segmentation of blood cells with an average accuracy of \_\_\_% and a precision of \_\_\_%.

**8. Promotion of young researchers**

*Please describe strategy of the research for promoting early-stage researchers and graduate students (one page maximum).*

*Kindly fill this portion.*

Promoting young researchers and graduate students is an important aspect of research, as it helps to ensure a steady pipeline of new talent and ideas in a field. There are a number of strategies that can be used to promote early-stage researchers and graduate students. One of the most effective ways to promote young researchers is to provide them with mentorship from experienced researchers. By pairing them with more experienced researchers, who can provide feedback on their work and offer advice on career development. This can take many forms, such as one-on-one mentoring, group mentoring, or online mentoring. Another effective strategy for promoting young researchers is to involve them in collaborative research projects. By working on a team with other researchers, young researchers can learn valuable skills such as communication, project management, and teamwork, which are essential for a successful research career.

Offering professional development opportunities such as workshops, seminars and conferences is another great way to promote young researchers. These opportunities can help young researchers to learn new techniques, stay up-to-date with the latest research in their field, and network with other researchers. Encouraging and providing opportunities for young researchers to apply for funding grants and early career researcher award to help them establish their research independent of experienced researchers. Establishing a supportive community among early-stage researchers and graduate students can help to promote a sense of belonging and encourage collaboration. This can be achieved through networking events, social activities, and online forums. Provide career guidance sessions for early-stage researchers and graduate students, so they can make well-informed decisions about their career path, and be able to identify the potential opportunities that are available to them.

Another important strategy is to provide funding opportunities for early-stage researchers and graduate students. This can include providing stipends or fellowships that allow them to focus on their research without the need to take on additional work to support themselves. It can also involve providing funding for research projects or for travel to conferences and other events. Finally, it's important to ensure that early-stage researchers and graduate students are recognized and rewarded for their contributions to the research organization. This can include recognizing their work through publications, awards, or other forms of recognition, and providing opportunities for them to present their work at conferences and other events. Overall, the key to promoting early-stage researchers and graduate students is to provide a supportive environment that allows them to develop their skills and advance their careers while also contributing to the overall goals of the research organization. Providing clear expectations and career advancement paths is important, his means providing guidance on the expectations for performance and productivity, as well as the process for promotion and advancement. This can help early-stage researchers and graduate students to understand what they need to do to succeed in their careers and can help to motivate them to reach their goals.