



جامعة السلام الدولية  
كلية الهندسة

## **Diagnosis of Diabetic Retinopathy Using Artificial Intelligence Algorithms**

A project Submitted in partial Fulfillment of the Requirements for the Degree of Bachelor of Science (BSc) in Biomedical Engineering

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## **ABSTRACT**

Diabetes is a disease that affects the human body's ability to produce or use insulin, a hormone that converts glucose into energy. Over time, diabetes can damage various organs in the body, including the eyes. Diabetic retinopathy is a condition in which high blood sugar levels damage the blood vessels in the retina, the light-sensitive tissue at the back of the eye. In our project, we use AI algorithms and tools to develop an application that uses artificial intelligence to detect diabetic retinopathy. The application will collect a dataset of eye images, including images of healthy eyes and images of eyes with diabetic retinopathy. These images will be processed using specific algorithms in MATLAB, as well as using the Python language a programming language and numerical computing environment. A neural network will then be trained on the processed images to distinguish between healthy images and images with diabetic retinopathy. Finally, a user interface will be developed using MATLAB that will allow users to upload eye images and have them classified as healthy or diseased. The application is expected to be accurate and easy to use, and it could potentially help improve the healthcare of diabetic patients by enabling early detection of diabetic retinopathy.