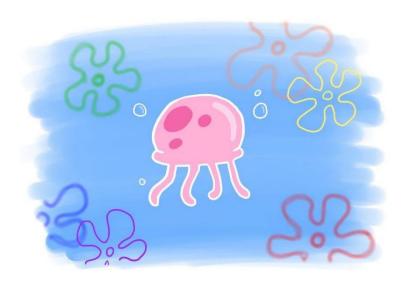University of Jeddah
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Proposal For Project Image Processing

JellyFish Classification

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Problem Definition

Jellyfish classification plays a crucial role in various domains, including marine biology, ecological studies, and public safety. However, the manual classification of jellyfish from images is a time-consuming and error-prone task. Additionally, images of jellyfish can often contain issues such as varying lighting conditions, background noise, and occlusions. These challenges make accurate and efficient classification difficult for researchers and experts in the field. Therefore, the problem at hand is to develop an automated system that can effectively classify jellyfish species from images while addressing the issues commonly encountered in such image data.

Project Goal

The goal of this project is to develop an accurate jellyfish classification system by leveraging image processing techniques. By automating the classification process, we aim to overcome the limitations of manual identification and provide a reliable tool for researchers, marine biologists, and environmentalists.

Methodology

1- Data Collection: Gather a diverse dataset of jellyfish images, encompassing 6 multiple species and various environmental conditions.

2- Model Development: Design and train a CNN classification model using deep learning algorithms.

3- Model Evaluation: Evaluate the trained model using appropriate metrics such as accuracy.

Findings

The project findings include a comprehensive analysis of the developed jellyfish classification system, including the utilization of a confusion matrix. The confusion matrix provides detailed insights into the performance of the classification system by illustrating the number of correctly and incorrectly classified jellyfish images for each species.

Conclusion

The proposed jellyfish classification system aims to overcome the challenges associated with manual identification and improve the accuracy and efficiency of species classification. The project findings will contribute to the advancement of automated jellyfish classification and benefit various domains such as marine biology, ecological studies, and public safety.

References

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