אוניברסיטת אריאל בשומרון

Ancient Coins Classifier
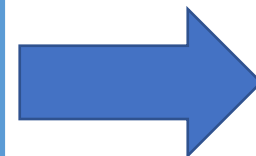**Gilad Shotland, Shlomo Glick, Adi Dahari**
prof. Lee-Ad Gottlieb

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1.Contribution/project goal

Classifying Ancient Hasmonean Coins based on King eras

2. Introduction

Our project is based on computerized algorithmic development with deep learning fundamentals used for classifying ancient coins by eras of kings, by training a model to determine each coin's era.
Currently, similar archaeology studies are all based on hands-on human classification, that we believe can be automized and highly efficient for such classification process.

3. Methods/algorithms/Alternatives or Design Considerations

Our main consideration was about choosing between using existing fine-tuning algorithms and building our own architecture for the model.
Nowadays, collective interest in machine learning have created a lot of big open-source projects that have already been optimized, configured and well-tested.
On the other hand, self-made architecture can produce a high value and greater success in a very specific niche.

4. Selected Approach

As a research conclusion, the approach we selected is basing on existing fine-tuning algorithms which are well proven and provided great success on similar visual classification jobs.

5. Solution Description (Algorithms, Modulation, Patterns, Infrastructure, UI, Functionality)

Within this project lies an existing fine-tuned model trained by Deep-Learning and Neural Network algorithms such as: ResNet, VGG. As a part of our work, we compare the success rate of different algorithms by running each implementation on our isolated Test set.

Technology:

1. **Python**: As a leading programming environment for ML, the choice of it was convenient and necessary.
2. **PyTorch:** An open-source ML framework that accelerates the path from research prototyping to production deployment. It is an advanced and powerful application of CNN algorithms for developing Image Classification, Object Detection and generative application, which is highly accurate and precise Computer Vision framework.
3. **JS, HTML, CSS**: Building an interactive User Interface for our project which allows a user to upload an image of a Coin for classifying it to a learned era by the model.
4. **Docker:** A containerization platform which enables packaging an independent project to an isolated container which runs on a specifically OS-like environment without dependencies of the machine it runs on.

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