

Quantifying Copyright Infringement in AI-Generated Images

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INTRODUCTION

By generating imaginative and creative results in a variety of fields, including music, art, literature, and design, generative artificial intelligence (AI) has completely transformed a number of industries. But when generative AI systems are used more often, establishing and measuring copyright ownership of the generated content becomes increasingly difficult.

Due to the intricacies brought forth by AI-generated works, traditional copyright rules and frameworks were not intended to handle them, which resulted in legal ambiguity and uncertainty about ownership, usage rights, and attribution.

GOOGLE DRIVE INTEGRATION

A significant portion of my role encompassed aiding in the development of our project's integration with a database system akin to Google Drive. We harnessed Google Drive as a repository for storing the outcomes produced by AI for image content. Additionally, we utilized this platform to store reversed image searches, seeking images that bore resemblance to those generated by AI. This integration facilitated efficient management and retrieval of data crucial for our project's objectives.

```
def download_image(url, folder_path):
    response = requests.get(url)
    if response.status_code == 200:
        # Generate unique filename using UUID
        unique_filename = str(uuid.uuid4())

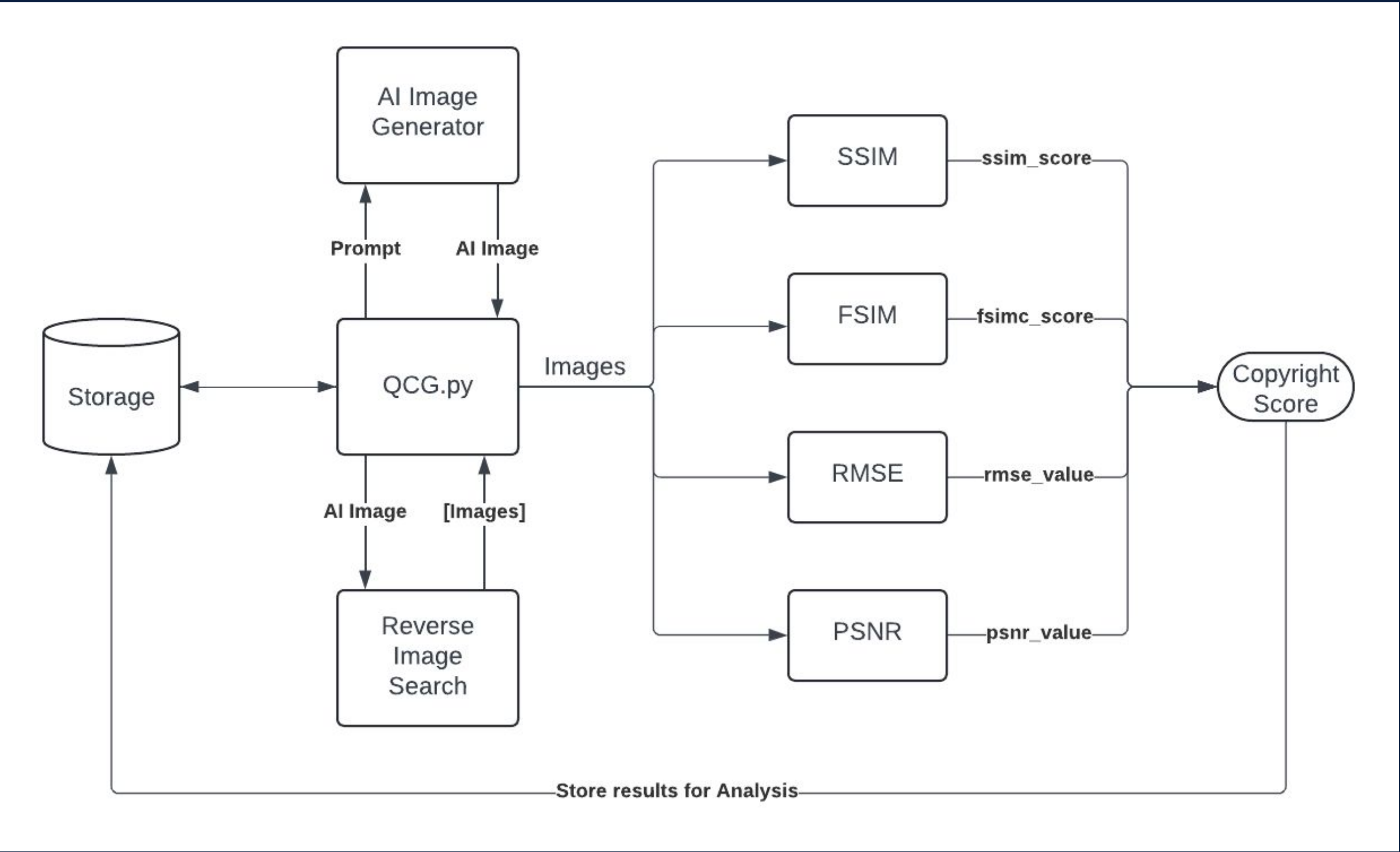
        # Attempt to determine file extension from response headers
        content_type = response.headers.get('content-type')
        file_extension = content_type.split('/')[1] if content_type else 'jpg' # Default to jpg if content-type is not available

        # Construct the filename with extension
        file_name = f'{unique_filename}.{file_extension}'
        # Construct the full file path
        file_path = os.path.join(folder_path, file_name)
        # Write the content to the file
        with open(file_path, 'wb') as f:
            f.write(response.content)
        return file_path
    return None

def get_high_quality_images(result, folder_path, index):
    high_quality_images = []
    for image in result['inline_images']:
        if 'original' in image:
            image_url = image['original']
            file_path = download_image(image_url, folder_path)
            if file_path:
                high_quality_images.append(file_path)
    return high_quality_images

def get_image_urls(json_data):
    image_urls = []
    for image in json_data['inline_images']:
        if 'original' in image:
            image_urls.append(image['original'])
    return image_urls
```

SYSTEM DESIGN DOCUMENTATION

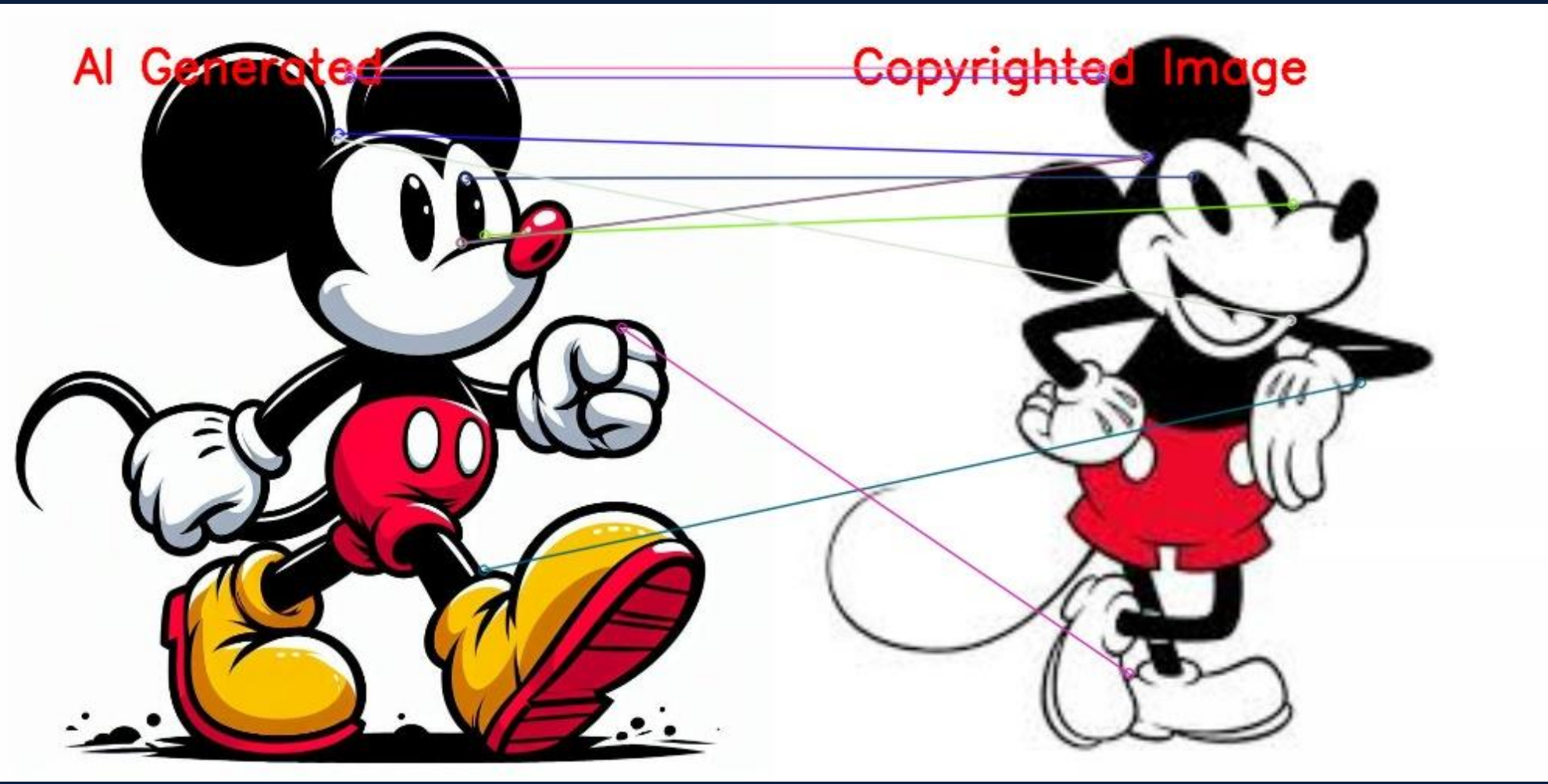


METHODOLOGY

The first step in our effort was a thorough analysis of the research on copyright and picture similarity in AI-generated material. Then, using information from a seminal work, we benchmarked current approaches to comprehend and provide guidelines for our tool. Investigating transformative language models was the next step in improving our knowledge of AI's picture processing powers. With the use of these insights, we developed a novel method that uses advanced measures like SSIM, FSIM, RMSE, and PSNR to measure the similarity of AI-generated and copyrighted photos.

ENHANCING KEYPOINT SEARCH

Help enhancing the accuracy of keypoints similarities of images by leveraging the cv2 image cross checker that allows to find points of interest in images.



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ACKNOWLEDGEMENT

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