Hey there!

We're excited to invite you to take on a fun challenge as part of our computer vision internship application process. We want you to showcase your skills in image processing using OpenCV by working on a cool project!

What We're Looking For:
- Creativity: We love to see innovative approaches!
- Solid Code: Keep it clean, readable, and well-commented.
- Understanding of OpenCV: Show us you know your stuff!
- Attention to Detail: Let's catch even the tiniest changes!
- Problem-Solving Skills: You've got this!

No Model Training Required!
This task is all about image processing magic using OpenCV. No need to train models or dive into complex machine-learning stuff.

Handling Edge Cases:
Be sure to handle tricky situations like different image sizes, rotations, or minor variations in the drawings. We want a robust solution!

Here's a take-home exam for interns based on the provided requirements:

Task:
Your task is to create a small image processing application using OpenCV that compares two PDF documents containing drawings. The objective is to detect changes between these drawings by converting them into images and performing image comparison techniques. You are provided with two PDF documents: **`file_1.pdf`** and **`file_2.pdf`**. Your goal is to develop a Python script that can analyze these PDFs, convert them into images, compare the images, and highlight the differences. We have provided a file called **expected_output** which highlights what the result should look like.

Requirements:
1. Develop a Python script using OpenCV to perform the following tasks:
   - Convert the PDF documents (**`file_1.pdf`** and **`file_2.pdf`**) into images.
   - Compare the images to detect any differences between them.
   - Highlight the changes or areas of discrepancy between the two images.

2. Your solution should showcase:
   - Efficient handling of PDF conversion to images.
   - Robust image comparison techniques to detect changes accurately.
   - Clear visualization of detected changes in the final output.

3. Provide a GitHub repository containing:
   - The Python script for your image processing task.
   - Any necessary documentation or instructions for running the code.

- Include a README.md file explaining your approach, techniques used, and any additional information about the implementation.

4. Create a Loom video demonstrating:
   - How your code works, including step-by-step explanations.
   - Showcase the final output with highlighted changes between the PDF documents.
   - Discuss any challenges faced during the implementation and how you addressed them.

Additional Evaluation Criteria:
In addition to the above requirements, your solution will be evaluated based on the following criteria to assess your suitability for a computer vision intern role:
- Code Quality: Well-structured, readable, and well-commented code.
- OpenCV Understanding: Demonstrated understanding of OpenCV functionalities and techniques used in the solution.
- Problem-Solving Skills: Ability to approach and solve complex image processing tasks.
- Creativity: Innovative approaches or techniques utilized to improve the accuracy or efficiency of the solution.
- Attention to Detail: Thoroughness in handling edge cases and ensuring accurate detection of changes between the images.
- Performance: Efficient implementation that ensures reasonable processing times, especially for larger PDF documents.

Submission Instructions:
- You have 8 days to complete the task from the date of receiving this exam.
- Submit your solution by providing a **GitHub** repository link and a **Loom** video link via email to [provide email address].
- Ensure that your GitHub repository is set to public or grant access to the evaluators for reviewing your solution.

Note:
We don’t expect 100% working software as this is just a take-home exam. We just want to see how one goes about solving this problem.

If you have any questions or need clarification on the task requirements, feel free to reach out for assistance.

Best of luck, and we look forward to reviewing your solution!