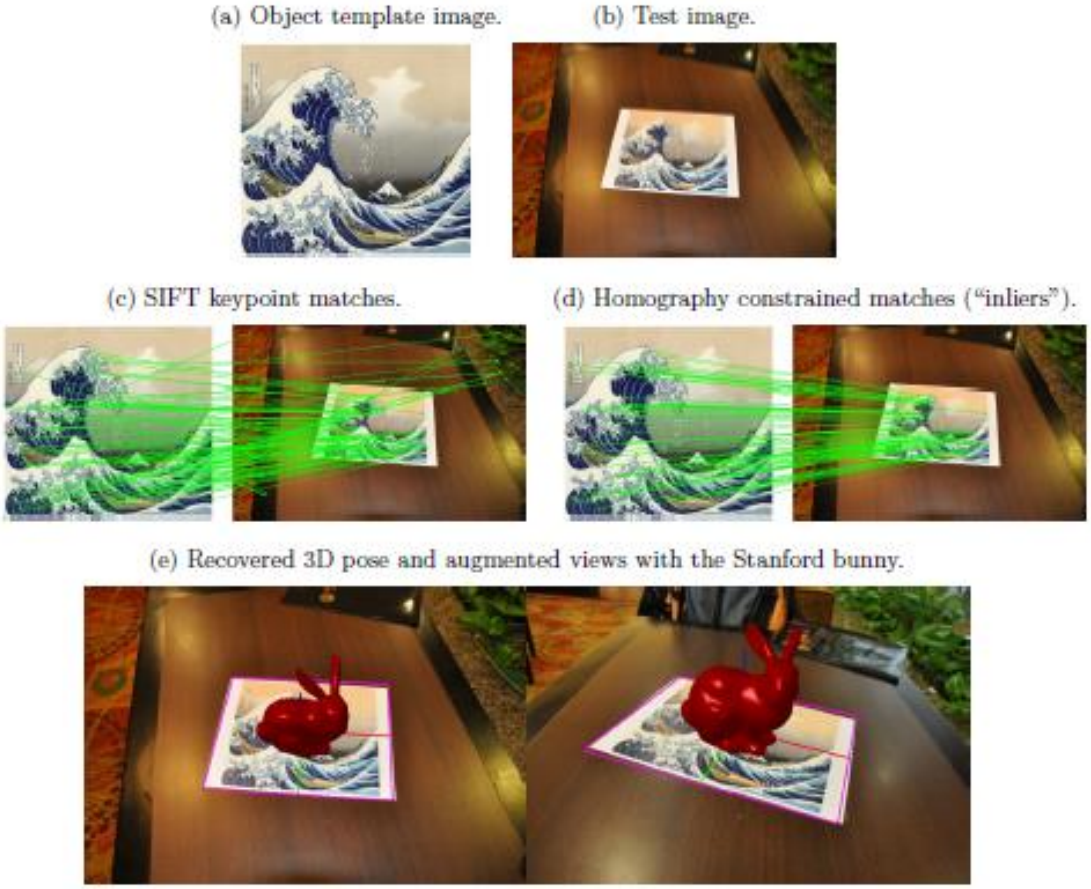
Florida Polytechnic University

CAP 4410 **Assignment #4** **Spring, 2022**

Due Date: Saturday, April 09, 2022, 11:59 pm. In your assignment, please be sure to explain all mentioned points CLEARLY. ***Submit your assignment in electronic format (only on canvas, do not email me). Please follow previous template of the report.***

This assignment requires you to implement SIFT method of feature extraction and feature description for some simple input images. You are provided a set of experimental data. Do your own research to achieve final set of features and find a way how to handle those data.



Example for SIFT implementation

Task Description

- Select your input data from Input Data Folder, consider any given picture or all given pictures.
- You are required to create different version of same image (scale, illumination, rotation).
- Key stages for SIFT are the following:
  - **Scale-space extrema detection**
  - **Key point localization**
  - **Orientation assignment**

  Optional
  - **Key point descriptor**

  In this question, you are asked to implement SIFT and show the results for given images. **Please show output of every step separately**, make necessary comments in the source code.

Your Submission

To finalize your report,

- start with identifying yourself and provide a title for your report,
- include samples of outputs of your program into this report,
- do not copy from somewhere without proper citation and reference, but aim at writing in your own words;
- **include outputs of your program and code into this report**
- Mention all implementation details.
- Finally submit (together with your sources) your report in PDF format, all in one zip file.

Rubric

- Format of report 05 points
- Clarity of explanation 05 points

- Scale-space extrema detection — 25 points
- Key point localization — 25 points
- Orientation assignment — 20 points
- Key point descriptor — 0 points

Wish You Best of Luck