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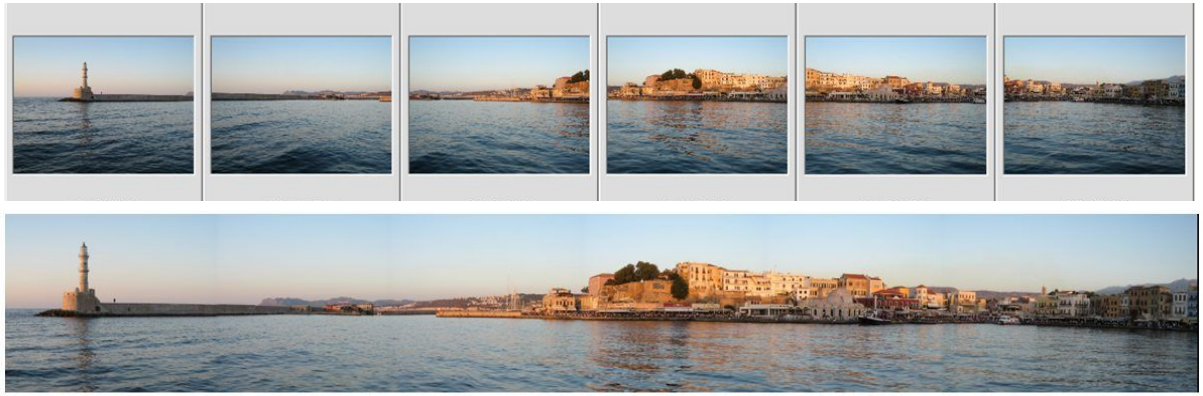
CS205 Final Project Progress

Real-time Image Stitching and Stabilization



Group Member:

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Existing Code Analysis

(Python, OpenCV, 2 images with 12m resolution)

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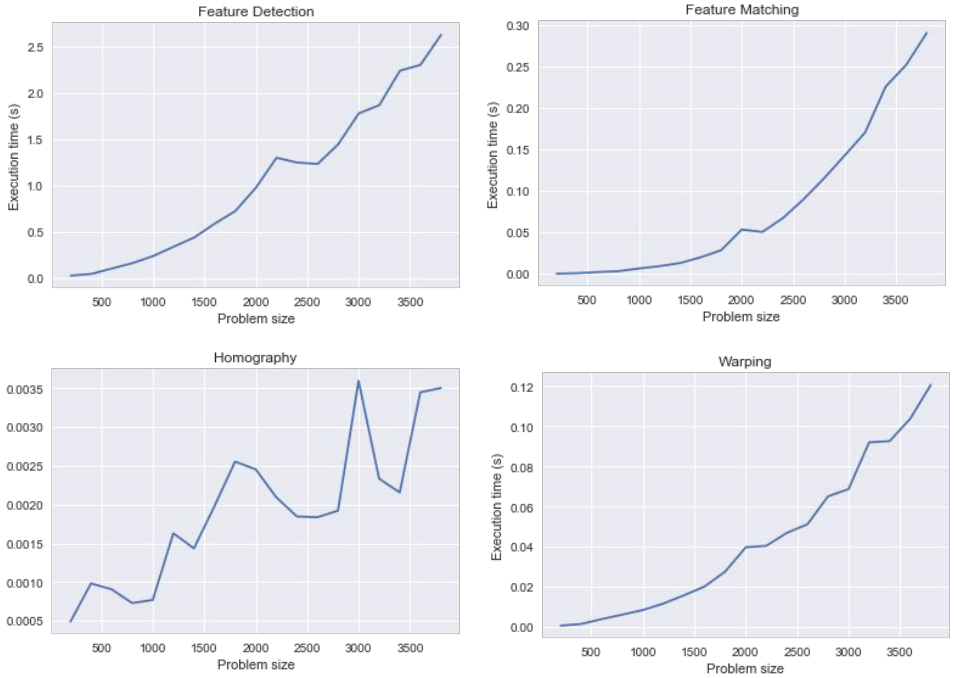
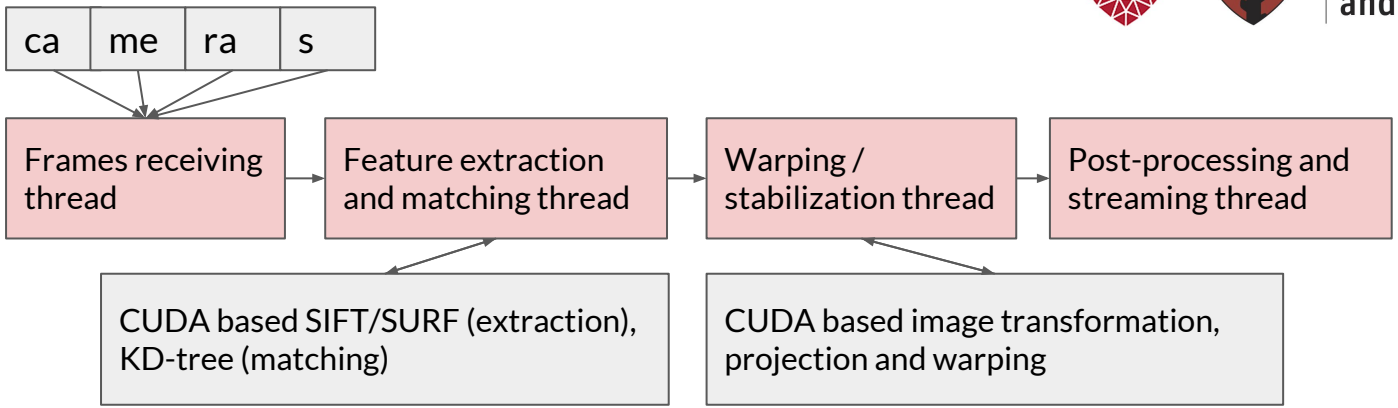
- **Image loading:** 0.0007 seconds
- **Feature detection**
  - SIFT**:** 5.161 seconds
  - SURF: 2.870 seconds
- **Homography**: 0.026 seconds
- **Feature matching:** 0.482 seconds
- **Warping:** 0.151 seconds

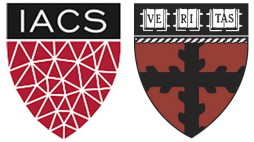


Parallelization Plan



- Feature Extraction (SIFT/SURF)
- Feature matching
- Stabilization
- Warping/Projection

Summary



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Types of Applications
Big compute with high throughput data

Levels of Parallelism
Task level, procedure level, loop level

Types of Parallelism
Function, pipeline, data

Parallel Execution Model
Multiple Program - Multiple Data

- **Overhead**:
  - Communication between threads / nodes
  - Load balancing of different tasks
- **Speedup**
  - Determined by bottleneck of the pipeline
  - Grows linearly with computing power