V-CREST

C++ Project Defense

What do we do?

- This is a unique video creating software developed to help a user build a video out of a set of images.
- The main feature is to merge images automatically according to the beats of an audio file analyzed by our software .
- Further features include adding simple animations and certain editing features to individual images of the video.

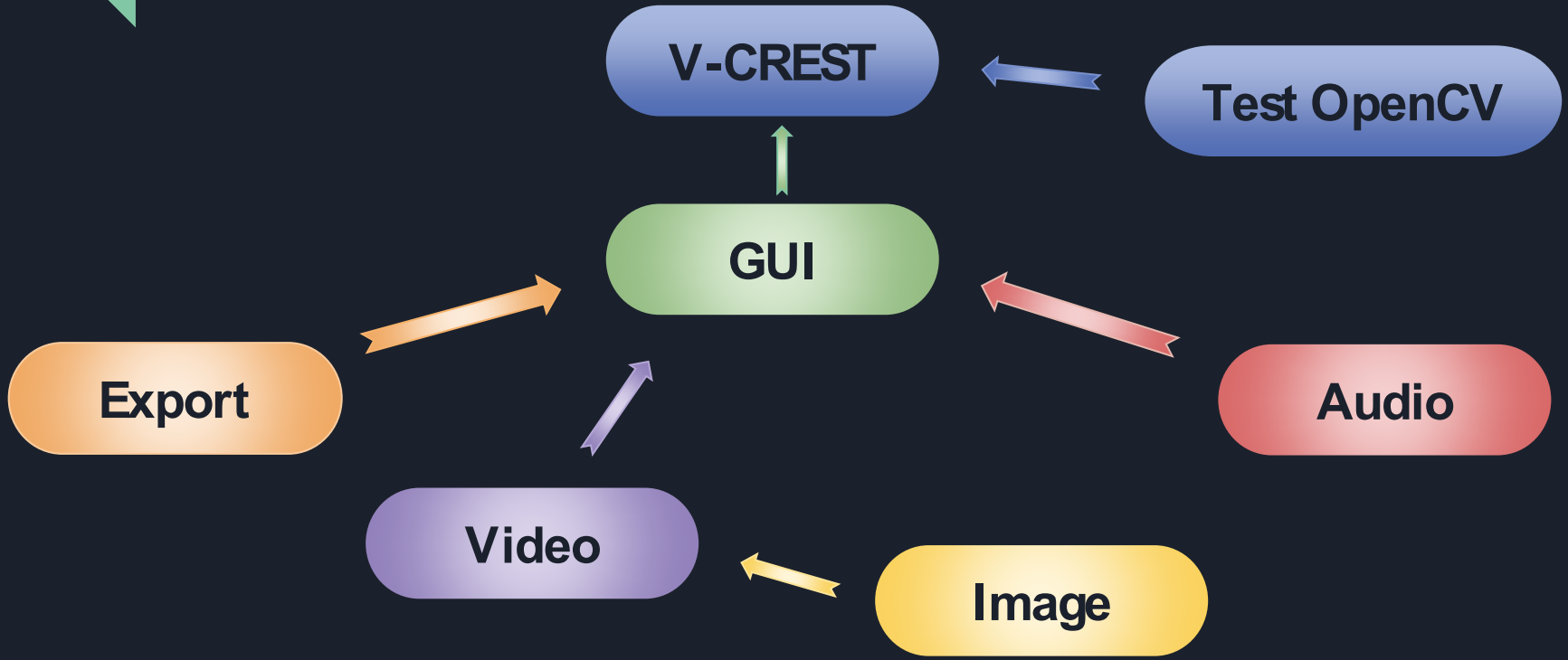
Teams

Audio	Lasha Koroshinadze	Hayate Sasaki
GUI	Duy Nhat Vo Nguyen	Minh Tung
	Minjoo Kim	~~Duc Hieu Le~~
Image	Vrushank Agrawal	Yi Yao Tan
Video	Dimitri Korkotashvili	Lucia Carai
	Yufei Liu	

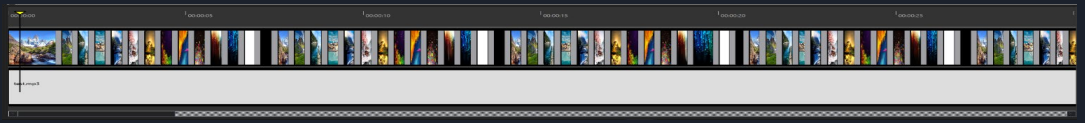
Softwares Used

- CLion
- CMake
- OpenCV
- Qt 6.2.2
  - QtMultimedia
- Lame and Aubio
- FFmpeg

Code Architecture



VideoEditor
File Audio Image Preview Help
mp3_ex.mp3
2019060...
bo.max...
lam-
banh-...
photo-1...
00:00:00
00:00:05
00:00:10
00:00:15
00:00:20
00:00:25
mp3_ex.mp3
mp3_ex.mp3
ImageManager
VideoPlayer
AudioManager
AudioPlayer
ProgressBar
Timeline



Audio

GUI

Functions:
Constructor
Merge
Trim
Silence
Get Waveform
Get Beat Positions

Lame

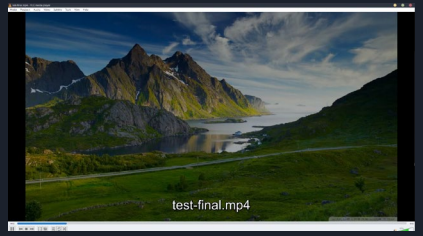
Audio

GUI

Functions:
write/display
ImageAnimator Class

Video

Test Video



Image

Video Animator

Functions:
Rotation, Zooming
and fading

Image

Video

Test Image

Functions:
read/write
Editing
Support video

Collage

Functions:
hstitch/vstitch
2/3/4 stitch

OpenCV

Test OpenCV

OpenCV

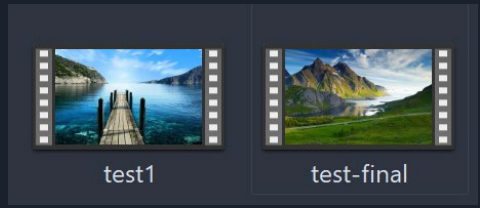
Export

Functions:
get_dir
merge

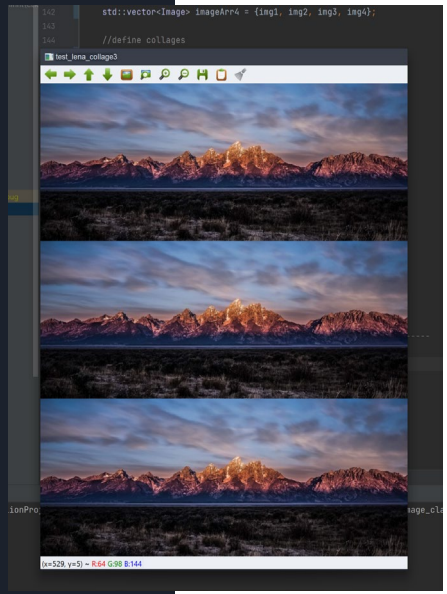
GUI

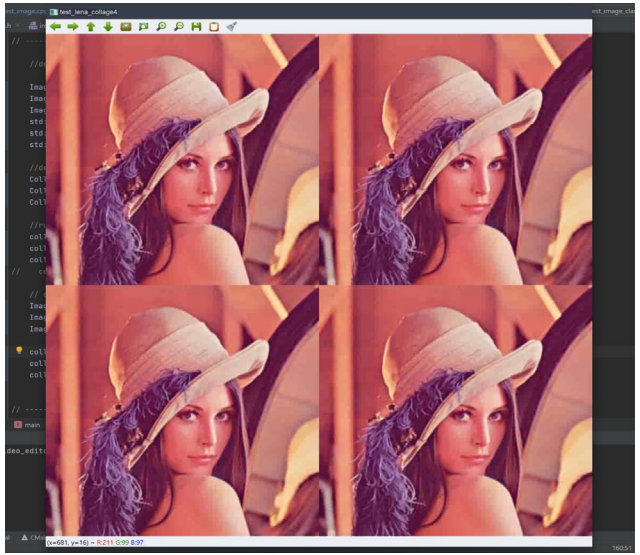
Test Export

FFmpeg



Additional Features



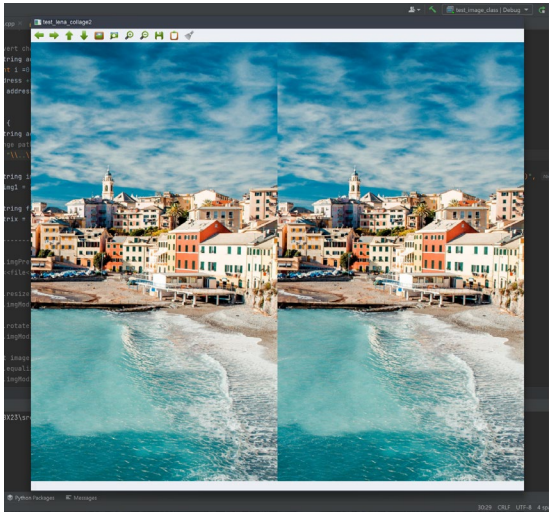


3-stitch

4-stitch

2-stitch

4-stitch recursive



Project Timeline

Week 1

Project repository made.
Work divided among teams.
Vision set.

Week 2

Initial classes written.
CMake working.
Namespaces set.

Week 3

Class test functions created.
Initial GUI window finalized.
OpenCV integration started.

Week 4

Basic structure of all classes tested and finished. Code merged & second leg begins.

Week 5

Image integration with GUI and Video began.
Audio libraries integrated.

Week 6

Video & GUI integration began.
Image integration finished.
Export class created & tested.

Week 7 + Vacations

Audio class integration began.
Code refactored & recompiled.
All functions optimised.

Week 8

Export & audio class integrated.

PRODUCT FINISHED

Big Question

HOW DO YOU USE THE SOFTWARE ??!!

Simple Answer

LIVE DEMO!