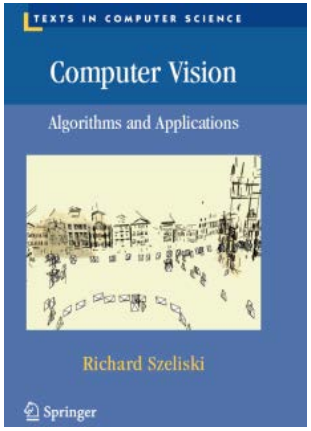

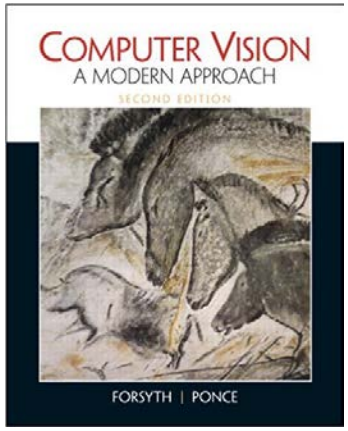

CIS 465 -- Topics on Computer Vision

Course Project Proposal

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Team Work

- Find a team
- Enrich your team’s expertise
- Have assigned projects for each team
- Discuss the project in and out of the class

Research Topics

- Face Recognition (up to 3 people)
- Human Re-Identification (up to 3 people)
- Object Recognition (up to 3 people)
- Oculus Rift + Recognition Tasks (up to 6 people)

Proposal – Problem definition

- Problem definition (4-5 pages)
- Describe the problem you chose and how the system will help users.
  - A brief background introduction
  - Video, images and demos would be very helpful
  - What motivates you?
  - Focus on specific problems
  - To which extend your work can help users?

Find Motivations

https://www.youtube.com/watch?v=wr4rx0Spihs

Proposal – Target users

- Target users (2-3 pages)
  - What is the users of your computer vision App
- Characterize the user population
  - Skills set and knowledge background
  - Affordable solutions (vs. commercial solutions)
  - Applying cutting-edge techniques to their problems

Proposal – Proposed solution

- Proposed solution (4-5 pages)
- Describe a possible solution to the problem – i.e., the framework that you envision, and how it will address the problem.
  - What is the state-of-the-art work?
  - How IT companies (commercial) solve these problems (if any)?
  - Are there any open source projects/libs we can use to improve the user experience and system performance?
  - Do you need to collect data from (target)users?
  - If it is a machine learning model, is there any public training data?

Project 1: Face Recognition

- An interface demo

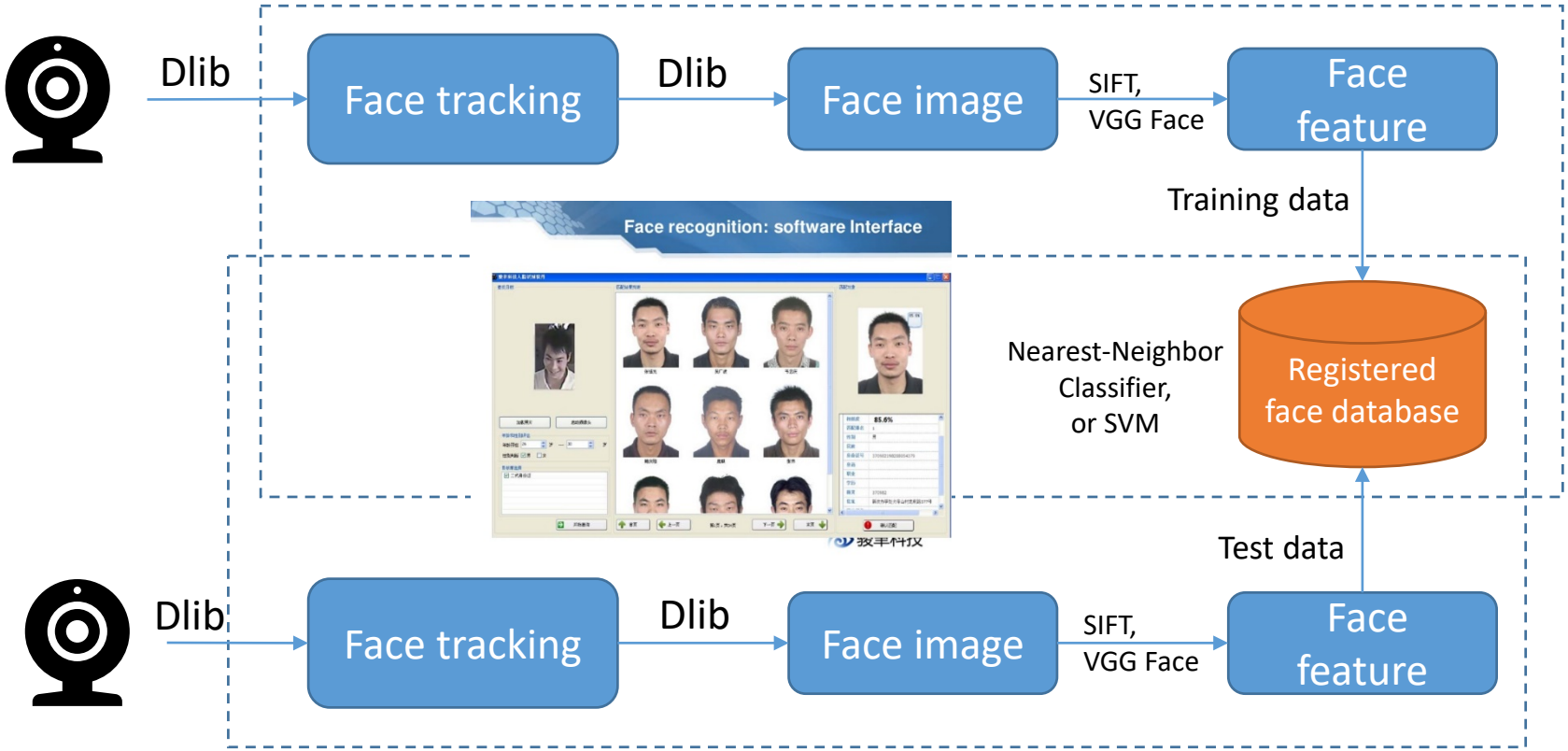
https://www.youtube.com/watch?v=QxhqC-4yHiA

Project 1: Face Recognition

- What are the basic modules?
  - Face detector
  - Face tracker
  - Facial feature extractor
  - Classifier
  - Data management module
- What can we refer to: library, GitHub?
  - Dlib with python wrapper: http://dlib.net/
  - OpenCV with python wrapper: https://opencv.org/
  - MS Kinect: https://msdn.microsoft.com/en-us/library/jj130970.aspx
  - VGG Face: http://www.robots.ox.ac.uk/~vgg/software/vgg_face/
  - Many more…

Project 1: Face Recognition

- A sample pipeline:



How to Deliver

- A slides for the proposal presentation
  - About 15-20 minutes
  - Use multimedia (video, image) to demonstrate proposal
  - Audiences like background knowledge
  - Project should be well motivated
- Should include:
  - Problem definition
  - Target users
  - Proposed solutions