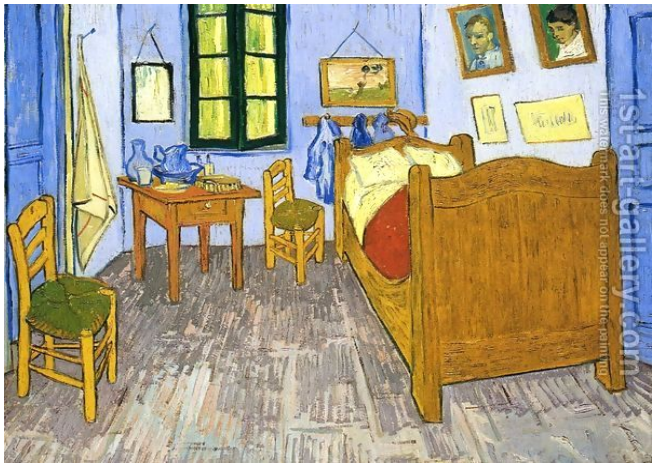


CS331B (3 units)

Representation Learning in Computer Vision

Monday & Tuesday 2:15-3:30pm
Green Earth Sciences 131

Instructors: Prof. Silvio Savarese, Dr Amir Zamir

Email: ssilvio@stanford.edu, zamir@cs.stanford.edu

Silvio's office hour: Tuesday 3-4pm or by appointment, Office: Gates 154

Amir's office hour: Thursday 2:30-3:30pm, Office: Gates: 133

Course assistant (CA): Kenji Hata, Email: kenjihata@stanford.edu

Kenji's office hour: Monday 2-3pm

Agenda

- **Administrative**
  - **Requirements**
  - **Grading policy**
- Overview of this course

Prerequisites

- Required Prerequisites: **CS131A, CS231B, CS231A**, or **CS231N**

- If you do not have the required prerequisites, please contact us!

Requirements

- Co-present once during the course
  - Each lecture will have theme
  - 2 students share one theme and should coordinate in presenting the material
  - The presentation must include:
    - Shared goal & motivation, prev. work review
    - Two technical presentations (one student each)
    - Shared conclusion and comparison of the two works
  - Some themes are presented by the instructors, domain experts or invited speakers

Requirements

- Read papers and participate at class discussion
  - During the lecture be prepared to ask questions.
  - At the end of each lecture, we will have 5-minute discussion panel; the quality of the questions & discussion panel will be used for evaluating class participation.
  - The more questions you ask during each lecture, the better!
  - We are taking attendance

Requirements

Course Project:

- Form your team:
  - 1-2 people per team
  - The quality is judged regardless of the number of people in the team
  - Be nice to your partner: do you plan to drop the course?
- Evaluation
  - Quality of the project (including writing)
  - Final ~15 minutes project presentation in class – students will vote your presentation!

Grading policy

- Course project: 50%
  - progress report 10%
  - final report 30%
  - presentation 10%

- Attendance and class participation: 20%
  - See class participation protocol

- Paper presentation (quality, clarity, depth, etc.): 30%

- Late policy project:
  - If 1 day late, 25% off the grade for the project
  - If 2 days late, 50% off the grade for the project
  - Zero credits if more than 2 days

- Collaboration policy
  - Read the student code book, understand what is 'collaboration' and what is 'academic infraction'.
  - Discussing project assignment with each other is allowed, but coding must be done individually
  - Using on line presentation material (slides, etc…) is not allowed in general. Exceptions can be made and individual cases will be discussed with the instructor.

Syllabus

- Syllabus contains the schedule of the course with the list of papers to present:

http://web.stanford.edu/class/cs331b/

- Look at the syllabus page for important dates (e.g., reports due dates) and updates;

- NOTE: the syllabus page is still under construction

Course resources

- We'll provide links to:
  - Background reading, tutorial and other important material
  - Code repositories, functions, libraries and other resources that are useful for your projects

Course resources

Computer vision libraries:

Open CV: http://sourceforge.net/projects/opencvlibrary/

- The Open Computer Vision Library has > 500 algorithms, documentation and sample code for real time computer vision.
- Tutorial documentation is in O'Reilly Book: Learning OpenCV

PCL: http://pointclouds.org/

- 3D point cloud processing

VLFeat: http://www.vlfeat.org/

Enrollment

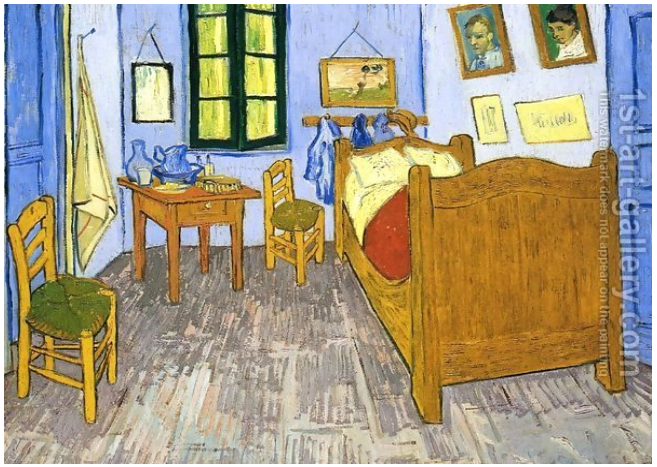
Thanks for your interest in joining CS331B!

Unfortunately, we cannot accommodate everyone who would like to take the course.

Please fill out an enrollment form to let us better understand your situation and aid us in selecting the final course roster.

Agenda

- Administrative
  - Requirements
  - Grading policy
- **Overview of this course**

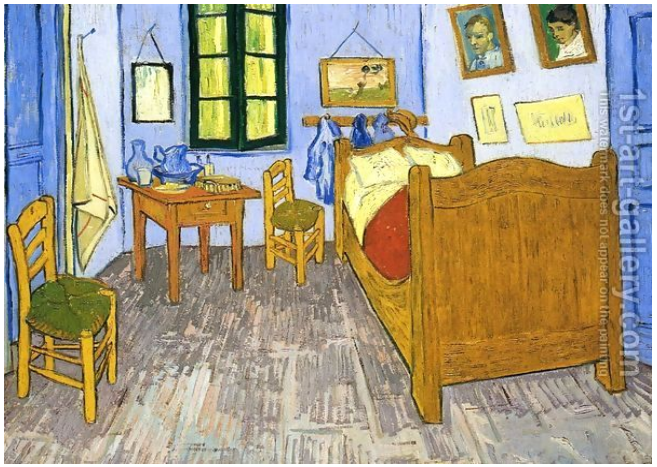


CS331B (3 units)

Representation Learning in Computer Vision

What is this course about?

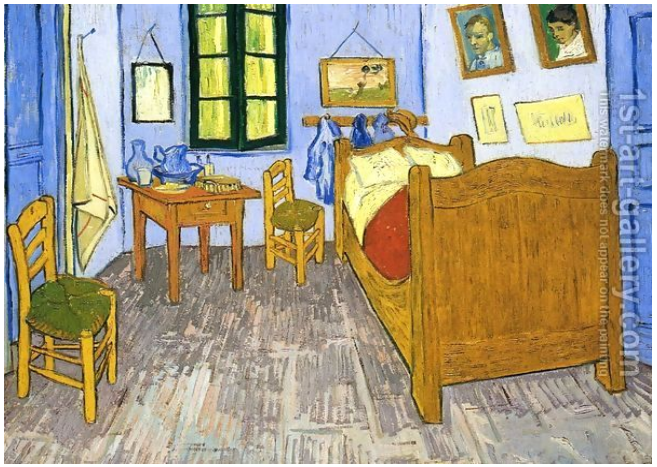
Forming the proper representation for a task is an essential problem in modern computer vision.



CS331B (3 units)

Representation Learning in Computer Vision

Why representations matter?

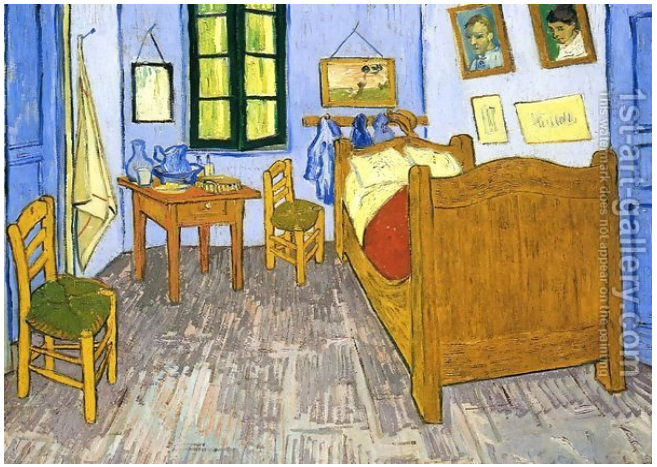


CS331B (3 units)

Representation Learning in Computer Vision

Why representations matter?

What are classical and moderns methods of forming representations



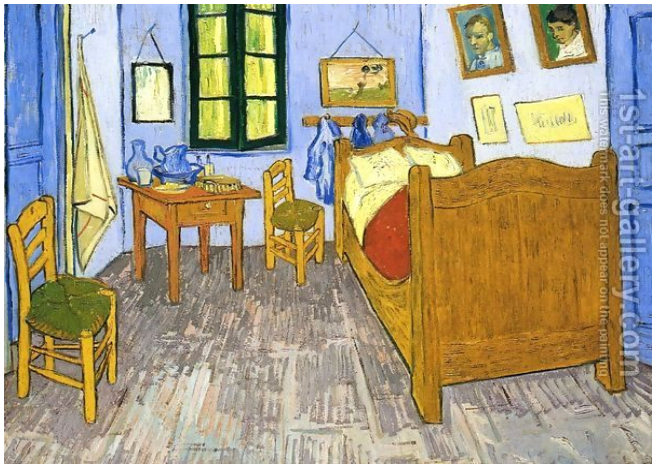
CS331B (3 units)

Representation Learning in Computer Vision

Why representations matter?

What are classical and moderns methods of forming representations

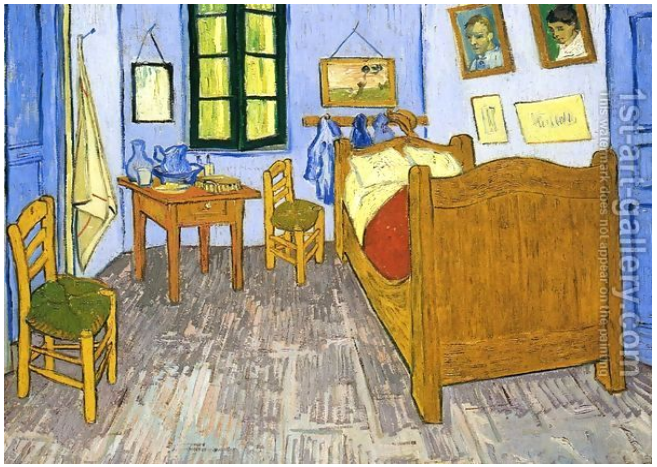
Methods of analyzing representations



CS331B (3 units)

Representation Learning in Computer Vision

Going beyond vision based representations



CS331B (3 units)

Representation Learning in Computer Vision

The course comprises:

- Lectures by instructors
- Lecture by invited speakers
- Presentations by students