

SSP 100 - 10

How Computers See

09 / 10 / 2026

Instructor: Michael Eckmann

Today's Topics

- Introduction to the course
 - topics etc.
- Computer Science – problem vs. algorithm
- What is Computer Vision?

Questions / comments?

- Anything on your mind since we last met?
Questions about anything?

Mondays

Meet in BOL 382

Peer Mentor A.J. Woods presents various topics
related to college and life on campus

Who is your instructor?

- I'm Mike Eckmann and I have been teaching at Skidmore since 2004. Before that I was at Lehigh University in PA.
- I studied Mathematics, Computer Engineering and Computer Science all at Lehigh University.
- I was employed as a programmer (systems analyst) for eight years.
- I have research interests in computer vision.
- History of this SSP100 course.

Course Information

- Syllabus will be posted to our class web page, where you can also find course notes etc.
- I will email a link to our course webpage later today.
- Some important info:
 - My office hours
 - Tuesday 9/15 at 5:30 p.m. at President's house (Scribner House)
 - Wednesday 9/16 Chowdhury talk at 4:30 p.m. in Davis --- recommended
 - Monday 9/28 Geraldine Brooks/Jared Koopman at 8 p.m. in Zankel

Problem vs. algorithm

- An algorithm is a specific set of instructions for solving a problem.
- Relate to a recipe
- For example, the sorting problem and algorithms that solve the sorting problem.
- I'll state the sorting problem on the board.
- Let's consider the searching problem and algorithms to solve it.
- I'll state the searching problem on the board.

Problem vs. algorithm

- Some takeaways from sorting and searching discussion:
 - Designing algorithms to solve problems
 - Efficiency (speed) of algorithms
 - These are some of the things computer scientists care about

Computer Vision

- The goal of Computer Vision, according to one text is to “make useful decisions about real physical objects and scenes from sensed images.”
- That is, “understanding images.”

Computer Vision

- Basic (oversimplified) observations on the relationship between Computer Vision, Computer Graphics and Image Processing.
 - Computer Graphics
 - Given models, generate images
 - Computer Vision
 - Given images, generate models
 - Image Processing
 - Given images, generate (other) images

Computer Vision

- Applications of computer vision are numerous.
- e.g. OCR, defect detection, object recognition, medical imaging applications, self-driving cars, surveillance, face detection and recognition, etc.
- Are you aware of others?

Computer Vision Topics

- Before we can even talk about computer vision applications, we must understand some key things about digital images.
- Image formation and representation
 - how do we acquire digital images and in what format are they stored?

Pause and log in

- Let's take a bit of a break from the material and everyone should log in with their user name and password and change their password.
- Enter your user name (hit enter), then your password (hit enter), enter same password again (hit enter),
- Enter a new password (minimum of 14 characters long), then enter the new password again.
- Also I'll pass around a sign up sheet for an advising meeting with me --- I list times tomorrow and Monday.