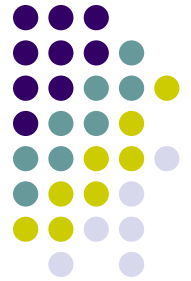




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<http://www.engr.uvic.ca/~seng321/>  
<https://courses1.csc.uvic.ca/courses/201/spring/seng/321>



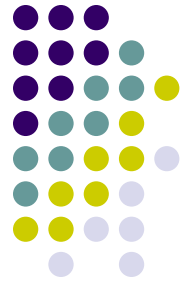
# Announcements

- S2 & C2
  - Posted
  - S2 number of pages
  - Prototype sophistication
- Friday, Feb 26
  - Midterm spec will be discussed

- Quiz 1 (tomorrow)
  - *Wed, Feb 24 in class*
  - Class attendance must increase

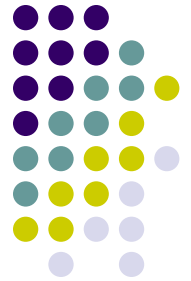
- Midterm
  - Wed, March 2

- Final Exam
  - Sat, April 16
  - 19:00-22:00
  - ECS 125



# SENG 321 Calendar

Quiz 1	Wed, Feb 24	In class	2% of course
Midterm (revised)	Wed, Mar 2	In class	14% of project
Deliverable S2a (revised)	Fri, Mar 4	S2a Detailed req spec; conceptual design	10% of project
Deliverable S2b (revised)	Tue, Mar 8	S2b Class presentation of S2a to customer	5% of project
Deliverable C2 (revised)	Thu, Mar 10	C2 feedback on S2a&S2b	5% of project
Deliverable S3a	Tue, Mar 15	S3a Technical Design Spec	15% of project
Deliverable S3b	Tue, Mar 22	S3b Manual	10% of project
Deliverable C3	Thu, Mar 24	C3 feedback on S3a&S3b	10% of project
Easter break	Mar 25-28	Fri, no class	
Deliverable S4	Mar 29-31	S4 project demo	10% of project
Deliverable C4	Mar 29-31	C4 feedback on S4	5% of project
Last Day of Classes	Fri, Mar 31		
Final Exam	Sat, Apr 16	19:00-22:00 ECS 125	35%



# Elicitation Techniques

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1. Reuse old requirements or existing system
2. Questionnaire
3. Interviews
4. **Observation and apprenticeship**
5. Ethnographic studies
6. Brainstorming
7. JAD: Joint Application Design
8. Nominal group technique
9. Delphi technique
10. PIECES Approach

# Observations and Apprenticeship



- Observe the real work. Apprenticing is based on the idea of masters and apprentices. In this case, the RA is the apprentice and the user is the master craftsman. The apprentice sits with the master craftsman to learn the job by observation, asking questions, doing some of the job under the master's supervision.
- Almost anybody is good at explaining what he or she is doing while doing it. If the user is doing this job in the normal workplace, he or she can provide a running commentary and provide details that may otherwise be lost. It is probably *only* while working that the user can
  - describe the task precisely,
  - explain why the task is done this way, and
  - list the exceptions that can occur.
- Note: Goguen says asking users to talk aloud does NOT work because audience is unknown.

# Observations and Apprenticeship



- Rare unless doing in-house work
- Very useful for understanding the rationale behind requirements and proposing more appropriate solutions:
  - Once the phone hangs up, support line workers needed that a box appears where they can type in the results of the phone call. Closer analysis showed they use the box to fill in their decision about the phone call. So why not automate this process and give them a more formal form
  - Steering system for a ship

India



MINDBOGGLING  
SITUATION  
AWARENESS

Japan



HUMANS ARE  
AMAZINGLY  
ADAPTIVE

# STREAM OF CONTEXT





# STREAM OF CONTEXT



# CAPTURE THE STREAM OF CONTEXT



# INSTRUMENT PEOPLE



# KILLER APPLICATION



# VOLUNTEERS?

- Who wants to be a volunteer for conducting experiments with this killer application?
- You will get to use some cool devices such as Microsoft HoloLens!

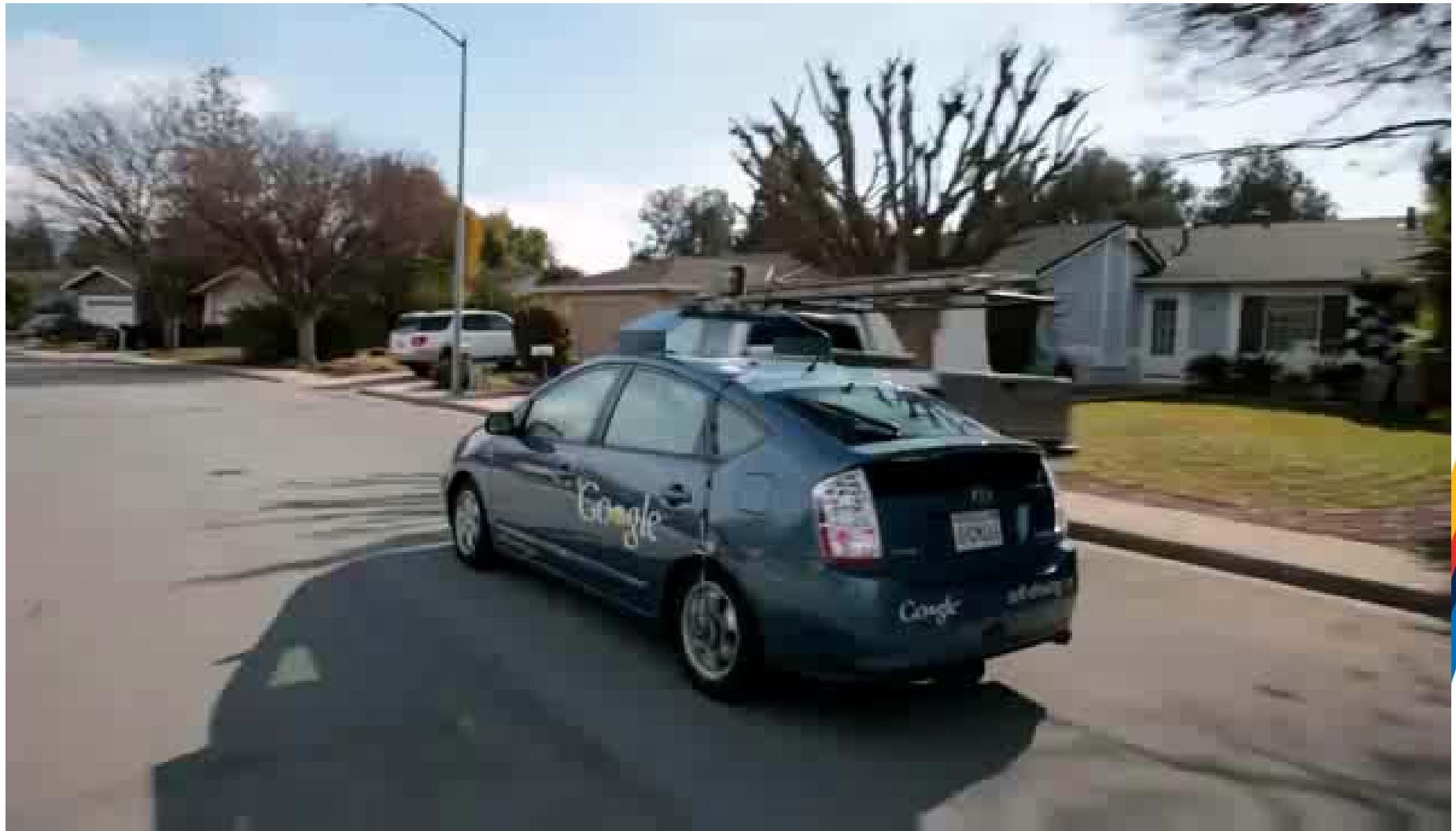




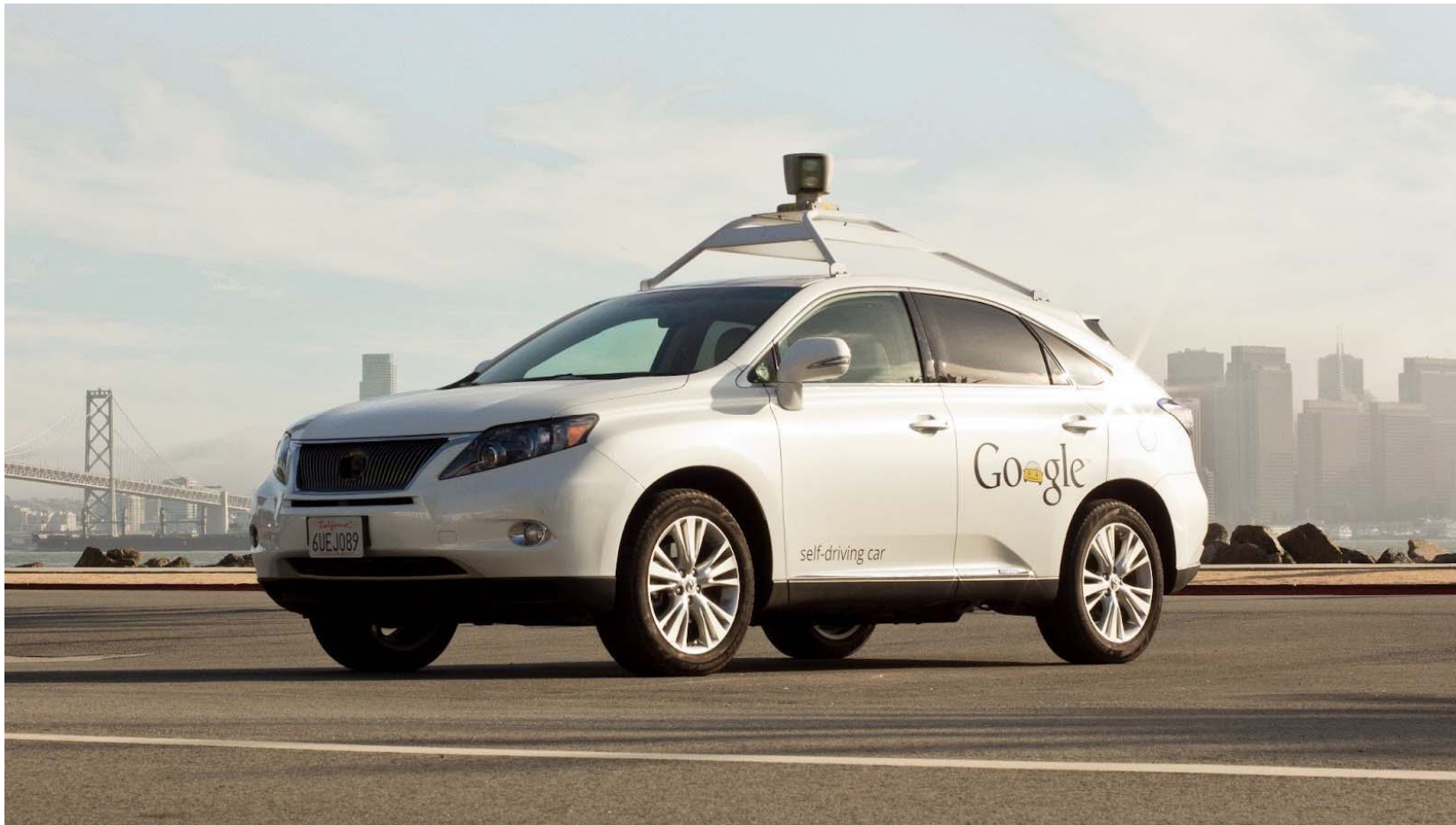
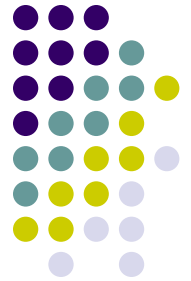
Who thinks this experiment is possible right now?

# GOOGLE DRIVERLESS CAR — 2:07 MINS

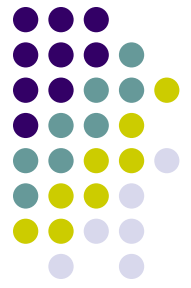
LICENSED IN CALIFORNIA, NEVADA AND FLORIDA



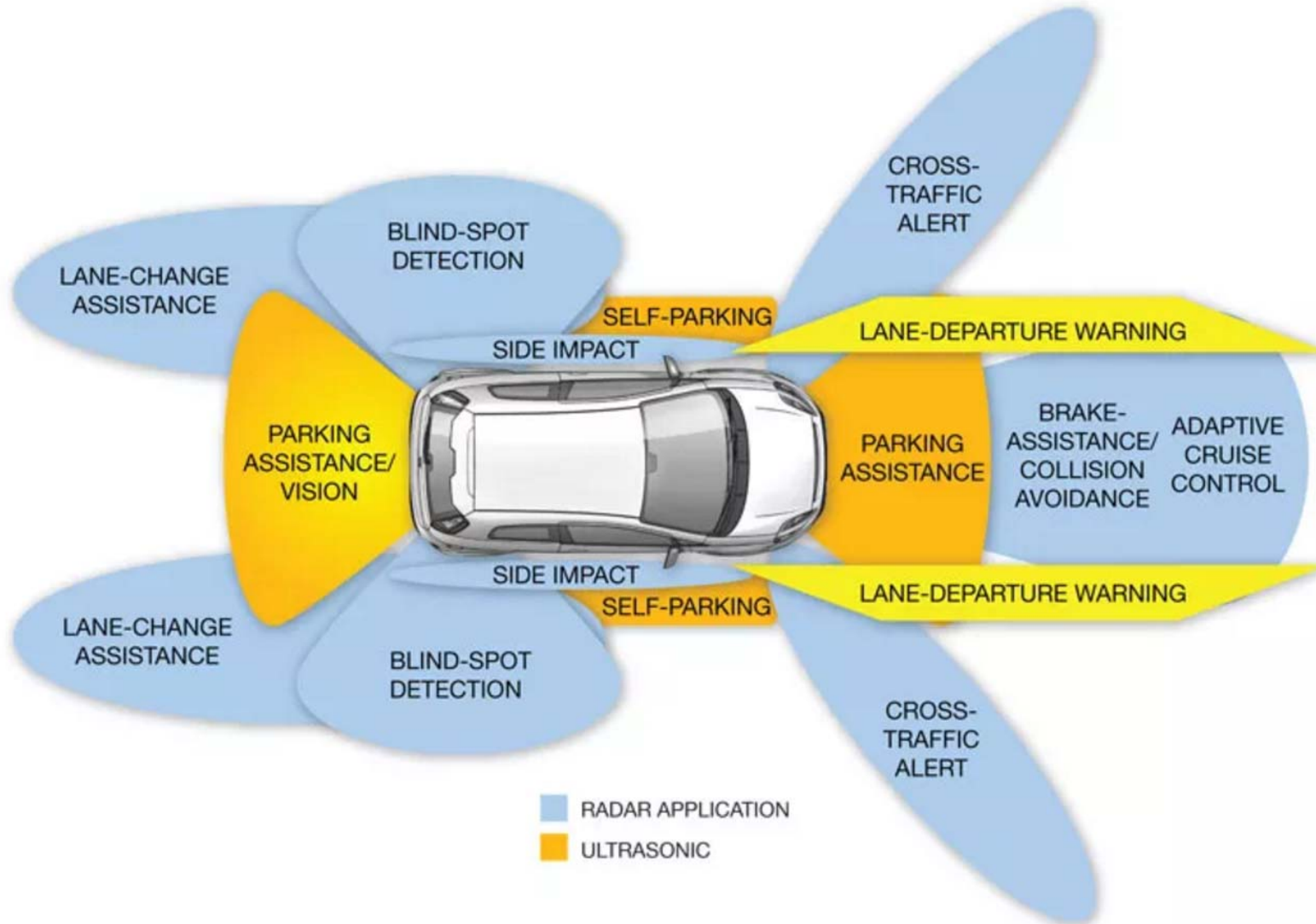
# Google driverless car







# Driver Assistance Systems



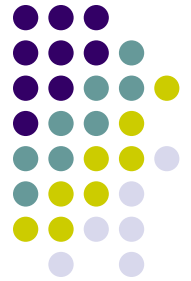
# Observations and Apprenticeship

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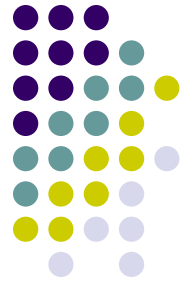
- Imagine that you are a passenger in a car of a not so stellar driver
- Observe the driver (or be his or her apprentice)
- Describe in detail what is happening; what scares you?
- Which driving assistance system would be most useful for this driver?

# Focused Ethnographic Studies



- **Ethnography** is the systematic study of people and cultures.
- It is designed to explore cultural phenomena where the researcher observes society from the point of view of the subject of the study.
- An **ethnography** is a means to represent graphically and in writing the culture of a group.

[Wikipedia]

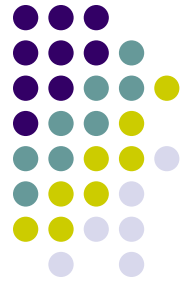


# Focused Ethnographic Studies

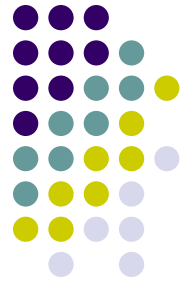
- Ethnography is a methodological strategy used to provide descriptions of human societies, which as a methodology does not prescribe any particular method (e.g., observation, interview, questionnaire), but instead prescribes the nature of the study (i.e., to describe people through writing—for example the habits of people).
- In biological sciences, this type of study is often referred to as a *field study* or a *case report*.

<http://en.wikipedia.org/wiki/Ethnography>

# Focused Ethnography Studies People: Air Traffic Controllers

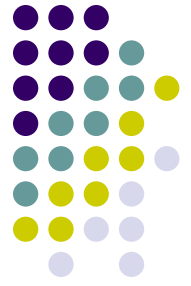


- After spending time watching air traffic controllers in action with an existing air traffic control system, the following was noticed:
  - Controllers often put aircrafts onto potentially conflicting flight paths with the intention to correct them later
  - Existing system raises an audible warning when any conflict possible
  - Controllers turn the buzzer off, because they were annoyed by the constant “spurious” warnings
- **Wrong moral:** Controllers don’t like audible warnings since they turn them off
- **More accurate observation:** Controllers don’t like to be treated like idiots



# Ethnographic Analysis

- Discovery is by observation and analysis
  - workers are *not* asked to explain what they do
- This is usually a very instructive way to discover social- and human-oriented factors of systems
  - What does a nuclear technician do all day?
  - What does his/her workspace look like?
- It is less useful in discovering political factors as workers are aware of the presence of an outsider.



# Common Ethnography Mistakes

- Ethnography concentrates on modeling existing practice
  - Sometimes, practices are no longer necessary, but old habits die hard.
  - People may not remember why something is done a particular way
    - Is a good idea to remove
    - Users depend on legacy features
    - Removal might cause disaster (in unusual circumstances)

# DRIVING IN INDIA





# Which driving assistance systems are useful in India?

