

CS 4873-A Computing, Society, and Professionalism (Spring 2021)

Week 1 Section Guide

O. TA to point the section exercise (class activities) and section discussion guide links from the course website to all of the students via BlueJeans

I. Introductions (15 min)

- Everyone in the group introduces themselves including:
 - Major
 - Threads or specialization, if relevant
 - Year
 - An ethical issue about technology and society that interests them

II. Section discussion expectations (15 min)

- Come to each section with a question about the lecture or readings that you find interesting
 - Bring something relevant from current news where applicable
- Read the section guide before section
- Download and look over the section exercises before section
- Tone of discussion
 - Remember that we represent many views
 - Everyone should feel welcome and respected
 - It's OK to ask, "Why do you believe that?"
 - It's OK to answer, "I don't know--I need to think about it."
 - Try not to dominate the discussion
 - It's OK to occasionally have a two-person back and forth focused discussion
 - But most of the time try to let at least two other people speak before you speak again
 - Sections are small--you are expected to speak multiple times every meeting

III. First homework assignment (10 min)

- TA will point students to the first homework link:
http://www.munmund.net/courses/spring2021/cs4873/Assignment_1.pdf
- Discuss the assignment
- Assignment due date

IV. Play the following two videos -- "The Trolley Problem" on The Good Place (5 min)

Part one <https://www.youtube.com/watch?v=vfldNV22LQM>

Part two https://www.youtube.com/watch?v=JWb_svTrcOg

V. Now, imagine the Trolley Problem" with a self-driving car. With this assumption, brainstorm answers to Class Activity 1. Report back to the section once discussion is finished. TA to moderate the discussion and solicit answers. (10 min)

VI. People in the Therac-25 controversy (20 min)

- Each person should present a person in the Therac-25 controversy for discussion, focusing on the questions given in Class Activity 2.
- Discuss key remaining people who were not picked. You don't have to discuss all of these, but continue the discussion until you feel like you have discussed key elements of the different kinds of people and all the major issues.
 - Programmer of Therac-25
 - Radiation physicists
 - Tim Still (physicist at Kennestone)
 - After first accident, contacted AECL to ask if Therac-25 could operate in electron mode without scanning to spread the beam
 - Hamilton staff who decide to add their own hardware interlocks
 - Fritz Hager (physicist in Tyler, TX)
 - worked to understand what happened
 - Frank Borger (physicist at university of chicago)
 - realizes that students entering data funny lead to hardware error on Therac 20 (but hardware interlocks prevent damage). reports to FDA
 - Operators
 - Operator in Tyler, TX remembers what she did, was able to recreate it
 - Patients
 - Kennestone patient files lawsuit against the hospital
 - Hospital management
 - Ontario Cancer Foundation is not satisfied with official response
 - Hires independent consultant
 - Consultant correctly says need hardware interlock to check turntable position
 - Forwards recommendation to AECL, who don't comply
 - Installs the interlock on their own machine
 - AECL employees
 - quality assurance manager
 - service engineer sent to investigate Ontario problem
 - people involved with first redesign after Ontario accident
 - adding fault tolerance for one microswitch failure
 - claim '5 orders magnitude' improvement in safety
 - "hazards committee"
 - engineer who comes to Tyler, TX
 - tells them no overdoses have been reported elsewhere
 - engineers who studied 'cursor up' problem, but found no cause
 - person who wrote notice to users not to use the 'up' key, with no explanation why
 - person at FDA who rejects this as unsatisfactory
 - Lawyers in lawsuits

- Judges in lawsuits
- Canadian administrators at Radiation Protection Bureau (RPB)
- Members of Therac-25 users group
- Independent engineering consultants
 - Independent consultant hired by Ontario Cancer Foundation
 - Independent firm hired by Tyler, TX
- FDA official
 - required only 'pre-notification' for approval of Therac, because a 'substantially similar' product was already on the market

VII. In the context of the Therac-25 controversy, working in small groups, now answer the questions in Class Activity 3 and Class Activity 4. TA to moderate the discussion and nudge students for thoughts and opinions. (15 min)

VIII. Next week: Call up/chat with a friend or family member. Talk to them about a specific technology that they think have impacted their lives in a significant way.