Living In a Digital World: Teaching Computers and Society Via Literature

William J. Joel
Western Connecticut State University
181 White Street
Danbury, CT 06810 USA
845-229-9257
joelw@wcsu.edu

ABSTRACT
ACM Curriculum Guidelines recommend that a degree on Computer Science include topics concerning the societal and ethical impact of computer technologies. As an alternative to traditional approaches to teaching these concepts, a course was created based on selected fictional narratives. A benefit of using fiction is that it often reflects general societal views as opposed to those of the technologically adept.

Categories and Subject Descriptors
K.4.2 Social Issues, K.2 History of Computing.

General Terms

Keywords
Society, Fiction, Narratives, Pedagogy, Course design

1. INTRODUCTION
At Western Connecticut State University, we offer the course CS270: Computers in Society each summer as a hybrid (onsite/online) course. This course satisfies ACM recommendations for ethical and societal issues [1]. In the Fall 2005 term, we offered an Honors version of the course, CS298: Living in a Digital World. This latest offering provided the opportunity to utilize fictional narratives as the basis for class and online discussions.

Computer Science, as a true discipline, has been in existence for well over half a century. In that time, writers have created narratives that explore how computers affect, and are affected by society. These narratives tend to reflect not only the authors' viewpoints, but also the views of the time period in which they were written. As such, they provide a rich vein with which to explore the historical evolution of computer technologies.

2. READINGS
Three primary readings were chosen as the basis for the course:

- Isaac Asimov: The Complete Stories, Vol. 1
- 2001: A Space Odyssey (Arthur C. Clarke)
- Neuromancer (William Gibson)

These readings reflect significantly different views of computers. For example, Asimov's stories view computers as the domain of a cadre of specialists. Increasing the physical size of the device increases computing power. Supercomputers are seen as being the size of a small city. These stories, written over an extended period of time in 1950's, provided the starting but both for the course and for a discussion of how computer technologies have often become ubiquitous. Where do find computer technology? How small is small?

Clarke's excellent text from the 1960's explores the use of artificial intelligence, in the guise of the now famous HAL computer. The manner in which HAL "learns" reflects current concepts of neural networks, and provided the opportunity to discuss just what is AI and whether or not we will ever truly attain it. What does it mean to be intelligent? Could computers ever create other computers?

Gibson's work from the 1990's merges the themes of AI and the Internet, to produce a suspenseful book that provided a basis for discussing the man-machine interface. Given a merging of man and machine, just where does the person end and technology begin?

In addition to these primary texts, short stories and non-fiction narratives were provided.

3. CONCLUSIONS
From this experience, I have decided to incorporate fictional narratives into our existing course, CS270, assigning students both fictional and non-fictional narratives with which to form their opinions and, hopefully, spark engaging and informing discussions.

4. REFERENCES
[1] *CC 2001 Curriculum Guidelines for Undergraduate Degree Programs in Computer Science*. Online: http://www.computer.org/education/cc2001/final/index.htm.

[2] Hertlein, G.C. Using Literature in a Computer Science Service Course: Improving Abstract/Critical Thinking Skills. *Journal of Computing Sciences in Colleges, 20,* 3, (Aug. 1990), 60-66.

ITiCSE'06, June 26–28, 2006, Bologna, Italy.
ACM 1-59593-055-8/06/0006.