



COMS 493 – AI, Robots & Communication

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Final Examination Study Guide

The final examination is scheduled for 90 minutes and will consist of four parts.

I. TALK THE TALK (10 x 1 point each)

Define the following acronyms and technical terms. For the acronyms, you can either explain what they mean or spell-out their elements (i.e. NSF = "A national organization that funds scientific research and education" or "National Science Foundation").

- CASA, AI, AGI, CMC, SDS, MT, NLG, NLP, AIML, ASR, TTS, GOFAI, RUR, EOD, RNN, ECA, HRI, PSS, HMC
- AI Winter, Machine Ethics, Chatbot, Big Data, Synaptic, Loebner Prize, Tower of Babel, Computational Creativity, Technological Unemployment, Sociable Robot, Algorithm, Superintelligence, Lights-Out Factories, Symbolic Reasoning, Narrow AI, Back Propagation, Singularity, Machine Learning, Anthropomorphism, Deep Learning, Dartmouth Conference, Imitation Game, Neural Network, Speech Recognition, Cryptography, Interlingua, Recombinacy, Uncanny Valley Hypothesis, Black Box, Paralanguage

II. IT'S WHO YOU KNOW (10 x 2 points each)

Briefly identify each person/organization/technology listed below by indicating the contribution(s) s/he/it has made to the field of AI, robots and communication.

Terry Winograd, ELIZA, John McCarthy, Ada Augusta Byron, Arthur Samuel, David Cope, Cynthia Breazeal, Jibo, Sophia, Rodney Brooks, Peter-Paul Verbeek, Tay.ai, Kate Darling, John Searle, Deborah Johnson, Alan Turing, Joseph Weizenbaum, AlphaGo, Karl Čapek, Mohammed ibn-Musa al-Khwarizmi, Claude Shannon, Warren Weaver, Robert Epstein, Sherry Turkle, John Maynard Keynes, Kismet, Andrew McAfee, Shakey, Kate Crawford, Pandorabots, Taryn Southern, Thierry Poubreau, David Hanson, Kristen Dautenhahn, Cleverbot, Google Duplex, Gabriel Skantze, The Painting Fool, Obvious, Narrative Science, HAL 9000

III. SHORT ANSWER (5 x 8 point each)

Provide short responses (4-6 sentences) to the following prompts:

1. What is "the instrumental theory of technology"? Define the theory and give an example.
2. Social interactions involve at least two components: an agent and a patient. What do we mean by the terms "moral agent" and "moral patient"?
3. Briefly describe the Chinese Room thought experiment? Who came up with this concept? And what is it supposed to illustrate?
4. What is the "other minds problem"? And why is it a problem for deciding who or what is intelligent?
5. Describe the basic structure and significance of Alan Turing's game of imitation or the Turing test.
6. What is the main operational difference between rule-based machine translation, statistical machine translation, and machine learning machine translation?
7. Operational definitions of "artificial intelligence" and "robot" often deploy an explanation that utilizes three related capabilities. List and briefly describe these three capabilities.

8. There are two basic methods for creating artificially intelligent algorithms—GOFAI and Machine Learning. Describe the advantages and disadvantages of each approach.
9. What is “the AI effect” and how does it affect the way we identify and define AI?
10. Social robots can be typically classified according to one of three morphologies. Name and briefly describe the three morphologies for social robots.
11. Define and explain the difference between “strong AI” and “weak AI.”
12. In their 1985 article, "The Person-Computer Interaction," Robert Cathcart and Gary Gumpert draw a distinction between communicating *through* a computer from communicating *with* a computer. Explain the difference between these two different forms of communication and provide an example of each one.

IV. ESSAY (1 x 30 points)

The final part of the exam will provoke critical reflection on or assessment of a particular issue previously discussed in seminar meetings. You will be provided with three options. You are to select one and write an essay response to the question or problem described. Please remember that this is an essay response. You must have a clearly stated thesis, evidence and support to prove your thesis, and a conclusive ending. Unlike the other three sections, there is not necessarily a right answer in this section. There are only well devised and argued responses.

Exam Procedure: The first three parts of the exam will be written on the examination sheet. Students will write responses to these questions WITHOUT any support material (i.e. notes, books, online resources, etc.). The essay will be written on the computer and will be assessed for both content and mechanics (grammar, punctuation, spelling, etc.). Since the essay is not about a “right answer” but about a well-crafted argument, students may use support materials (i.e. class notes, books, online resources, word processing tools, etc.). The essay will be emailed to the instructor at the end of the exam period.