Homework 1 – Topics and Brainstorming  
Due: Thursday, Sept. 11 at start of class

1. In this class, you will have several writing projects, at least one of which which can be about a  
topic in robotics that interest you. Come prepared with at least three ideas/topics for your  
writing. Some possible ideas are listed below, but I strongly encourage you to think broadly and  
propose topics which interest you. You will need to conduct some preliminary research on your  
topics. At this point, it's acceptable to read Wikipedia pages or use Google to find useful  
resources about your topic. Write up a brief outline/summary for each of your potential topics.  
At a minimum, document the following:  
   a) The general topic you're interested in.  
   b) Why this topic is interesting to you (3-4 sentences).  
   c) Problems you think you might encounter, things you don't understand about your topic, or  
      things you will need to investigate further. (2-3 sentences).

Turn in: This assignment should be approximately 1-2 pages double spaced. Bring a hard copy of your  
work to class on the due date.

Grading: This assignment is worth 30 points. 10 points for each topics.

A few ideas:

- Robotics in <subject area>. Possible <subject areas> are things like the military or wartime, the  
  medical field, inter-space exploration, education, music etc.
- Robots that are designed to be or act like <living organism>. Scientists often try to build robots  
  which act like other organisms to learn more about the organisms, robotics, or both. Think  
  about things like fish, insects, birds, snakes, etc.
- Human-robot interaction. Investigating interactions between humans and robots and how we  
  respond to things which we know to be non-human.
- Portrayal of robots in popular media, movies, science fiction, or news. This might involve  
  reading/watching some sort of popular media and investigating the reality of how it/they portray  
  robots and/or artificial intelligence.
- Robots for specific age/ability groups. Often, robots are designed to target certain age/ability  
  groups such as the elderly, infants, or people with motor impairments.
- A specific robot or robotic system with or without AI which interests you. It might be famous  
  or a more obscure system. Examples might be IBM's Jeopardy playing computer, Watson;  
  Honda's groundbreaking robot, Asimo; NASA's Robonaut; I-robot's Roomba; or many other  
  possibilities. However, be aware that it can be very difficult to find credible information about  
  industrial robots. You will most likely have better luck with robots/AIs sponsored or funded by  
  the government or universities.
- Robotic competitions. There are lots of examples of interesting challenges involving robotics  
  (including the DARPA Grand Challenge as discussed in class). Investigate other challenges from  
  organizations such as Google X, NASA, RoboCup, etc. What is the purpose of the challenge?  
  Why is the problem hard? Etc.