Christopher Cenci December 2018

Critical Reflection 2- Designing Human Robot Relationships

Robots that elicit emotion or contain a personality may one day permeate the lives of humans to aid them in various, personal ways. While these robots integrate within society, it is imperative to create social robots that include rule sets from many disciplines. Johnathan Follett explains that people describe robots as devices that provide data to a processor. “We commonly understand a robot as one or more sensors providing data to a processor” (Follett 349). Johnathan Follett gives a definition of what society believes is a robot and the argument is put forth of how much autonomy a robot should contain. He also details that when designing a human-robot relationship, various amounts of incorporation from a multitude of disciplines will be required.

Due to the many variations of robots, a concrete definition is required to explain what creates a robot. Follett mentions that a robot is understood as one or more sensors which provide data to a processor. This computer then links the data to a ruleset programmed within the hardware to elicit a reaction. This process, according to Follett is regarded more as artificial intelligent systems than robots. “Physical movement makes a robot a robot. Virtually all robots use artificial intelligence, but most artificially intelligent systems aren’t robots” (Follett 349). Robots encapsulate a wide variety of different, Follet describes that even a pool cleaning system may be a robot, as it contains one or more sensors and has physical movement. Robots can also be more complex than pool cleaners, the Mars Rover is also understood as a robot. While most robots are designed to complete mundane tasks, Follett describes a future where robots are inscribed to complete more complex tasks such as surgeries. The Da Vinci system is a robot designed to give more mobility for surgeons, “The Da Vinci System already gives a surgeon superhuman reach by changing the scale and freedom of motion she would otherwise have” (Follett 352). The Da Vinci systems’ future iterations may also complete surgeries based on machine learning algorithms. As robotic intelligence increases and robots become autonomous, Follet brings up issues with robotic autonomy. If robots were to learn based off of learning algorithms, then a mass amount of data will be needed in order for the robot to learn on how to accurately complete the surgery. George A. Bekey also claims that, if robots were to replace nurses, many ethical issues would arise. “A robot may be called by more than one user and not have the ability to prioritize the request, thus causing anger and frustration” (Bekey 23). Many ethical issues arise when robots start interacting with humans, as our current interface

with robots is one way, when robots can respond, it must be taken into account how to interact with every unique individual.

The relationship between humans and robots will require a large amount of trust. “To build what seems like a real human connection, the recovery robot in our scenario learns things about you” (Follett 355). Follet brings forth a notion of a robot which monitors and assists the user while they recover after surgery. While this robot will aid in every aspect in your recovery, it is difficult how to choose the robot’s behavior. “How do you design the robot’s behavior for tasks that are not yet known?” (Follet 357). Follet raises three questions that would decide how the robot iterates through the tasks. The three questions are based on personality, should the robot learn or already contain intelligence and how can a robot teach individuals without seeming arrogant. Follet describes that, for those reasons, the robot’s design must come from multiple disciplines. “Designers will need to address tough questions about access, control, capability as well as moral issues. Lacking discipline-wide standards by which to work, designers must look to adjacent fields for inspiration and guidance” (Follett 361). As robots permeate higher level jobs, difficult decisions must be made in order for the robot to be successful. If robots were to become nurses and caregivers, robots must be deeply personalized to achieve the goals of a caregiver. “…What constitutes even basic care will vary from one stage of life to the next” (Borenstein 251). Matthias Scheutz raises the question of emotional relationships between humans and robots, as robots become humanlike, people may develop an attraction for them. “An increasing body of evidence demonstrates how humans anthropomorphize robots, project their own mentality onto them, and form what seem like deep emotional yet unidirectional relationships with them” (Scheutz 211). Humans develop attraction and morality towards neotenous entities, it would be important for working robots to not elicit any physical resemblance to humans, but it may also raise the concern of individuals being attracted to different variables other than appearance.

In order to establish a clear distinction between humans and robots, boundaries must be instilled on how much independence a robot be given. The designers of the robots must also be wary of social cues and cultural signifiers when creating robots, as each robot must be tailored to every unique individual.

Sources- I have written down one source, but each chapter that I used was written by a different author.

Lin, Patrick, et al. *Robot Ethics: the Ethical and Social Implications of Robotics*. The MIT Press, 2012.