Week 2 : PHL342 Lecture One Note
Prof: James John

Reading:

1. Lande Reading: "Do You Compute?"
2. Epstein Reading: "The Empty Brain"

Today's agenda:

1. Introduction
2. Course topic: Artificial
3. Intelligence and the Computer
4. Model of the Mind
5. How the course will work
6. Syllabus review

Lecture:

1. Course Topic: Artificial Intelligence and the Computer Model of the Mind
   *The issues we will address include (among many others):
   i. Whether machines can think and whether we might be thinking machines;
   ii. Functionalism, representationalism, and the computational theory of mind;
   iii. The nature of computation and information processing;
   iv. Cognitive architecture; intentionality and consciousness;
   v. The extended mind hypothesis;
   vi. The "singularity"; the moral, political, social, and existential implications of AI and cognitive science research.
2. Recurring Themes
   a. Mechanism
   b. Computation
   c. The status of "naturalism" about the mind
   d. The problems of intentionality and phenomenal consciousness
   e. The role of the body in understanding mentality
   f. The challenges advanced AI poses to our humanistic self-understanding
3. Mechanism
   a. Humans have long sought to understand the nature of mind by reference to extant machine technology. From clockwork mechanisms to hydraulic systems to telegraph wires—every age has had its favorite machine-based explanatory paradigm.
   b. But what is it for a process to be mechanical? And could the human mind really be a machine?
4. Computation
   a. The last century saw the birth and stunning development of digital computer technology.
   b. This gave rise to the computational theory of mind: the notion that the mind (or brain or mind-brain) is a kind of computing machine.
   c. But **what is computation, exactly?**
   (Lande thinks that we don't really know. See his "Do You Compute?")
   d. And **is it plausible to think that the mind is a computer**?
   (Epstein answers with a bold "no." See his "The Empty Brain.")
5. The Status of "Naturalism" about the Mind
   a. The computational theory of mind lies at the core of research in cognitive science and AI.

    b. This research typically insists on respecting “naturalism” in studying the mind.
    c. But **what is naturalism, exactly**? Does it mean nothing more than respecting proper scientific methods? Or does it require that we be materialists/physicalists about the mind, i.e., believers in the doctrine that the mind is entirely physical in nature?
6. The Problems of Intentionality and Phenomenal Consciousness
    a. Cognitive scientists seek to give computational accounts of all mental states and processes, and AI researchers hope to develop artificial general intelligence and perhaps even machine consciousness.
    b. But **can the intentionality of the mental be captured in wholly computational terms**?
    c. And what of phenomenal consciousness: **can subjectivity and the qualitative nature of experience be explained by reference to nothing but computer mechanisms**?
7. The Role of the Body in Understanding Mentality
    a. Thinkers in philosophical traditions from all over the globe have long thought of minds and mental states as somehow “internal” and set apart from an “external” world, and much cognitive science follows this tendency by assuming that the brain is the seat of mentality.
    b. But much work in phenomenology, robotics, and other fields suggests that our mental states are constitutively linked to goings on in our environments: could our minds literally extend out beyond our brains into the broader world?
8. The Challenges Advanced AI Poses to Our Humanistic Self-Understanding
    a. AI’s boosters love to tout its revolutionary potential to do good—to make our lives more comfortable, to increase productivity and economic growth, to assist us with complex intellectual labor, and to keep us connected and entertained.
    b. But many argue that AI is just as likely—perhaps likelier—to do great harm. Are the robots coming for our jobs? And could a super AI, grown too advanced for us to control, destroy the whole human race?
9. So…
    a. Could a human-made machine think and feel just as we do?
    b. And might we be naturally occurring machines, biological computers?

    — These are the kinds of questions we’ll address together in this course.