CPS 170: Artificial Intelligence
http://www.cs.duke.edu/courses/spring09/cps170/

Wrapping up

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What are the boundaries of AI?

• AI benefits from lots of other disciplines
  – Perhaps especially in recent history (stats, econ, cs theory)
  – Results in better work than reinventing the wheel
• In turn, AI has made contributions to all of those disciplines
Why have AI at all?

• Can’t AI just be split up and redistributed among the other disciplines?
  – A suggestion that has been made in the past…

• AI provides a useful, important goal/perspective

• AI applications often need multiple of these fields at the same time

• Sometimes fields get too caught up in a particular way of evaluating what makes for “high-quality work”
  – Prevents interdisciplinarity
What makes something “AI”?  

• Very few AI researchers actually work directly on (say) passing the Turing Test  
• Most work focuses on specific applications  
• Are the following AI?  (Are they computer science?)  
  – Fast algorithms for satisfiability  
  – Ranking webpages  
  – Disease outbreak detection based on pharmacy sales  
  – Placing airport security assets in a game-theoretically optimal (randomized) way  
  – Constructing 3D models from 2D images  
  – …
One opinion

• Boundaries of scientific and mathematical fields are blurry
• We need to divide things into disciplines for…
  – Teaching courses,
  – Having conferences,
  – Allocating funding, …
  – Cognitive convenience
• The best division is the one that results in the best research and education for society
• A good scenario:
  – Thanks to its unusual perspective, AI connects ideas from different disciplines, contributes new ones, and points in a new, worthwhile direction
• A bad scenario:
  – AI researchers are not aware of other disciplines and are just pointlessly reinventing wheels
A return to the bigger goals of AI?

• Some AI researchers (perhaps especially, senior researchers) think AI has become too fractured, too special-purpose

• A politically correct pitch:
  – This was a necessary stage for AI research…
  – … we needed to learn about and understand all these special-purpose methodologies…
  – … but now it is time to tie it all together again and build something with human-like intelligence

• Human brain also seems to have lots of special-purpose modules, but very nicely integrated…