Successes and shortcomings of current NLP systems

Successes

- Web search is now conversational, relevance has improved, remarkable long tail coverage.
- Machine translation is (essentially) a solved problem
- STT word error rates are low enough to make voice systems broadly useful in the real world
- TTS systems are able to generate realistic sounding voices
- Text generation systems (GPT family of models), within certain confined settings, pass writer's Turing test.
- Voice/chat bots have fundamentally changed HCI

Shortcomings

- AI assistants fall far short of human level interaction. At the highest level, this might/probably suggest(s) that learning textual representations alone is not sufficient to achieve this goal. In some ways this seems obvious. The problems of reference resolution and broad domain knowledge seem to be primary culprits, though this is a small slice of the problems that exist. **NLP is an exciting field to be in!**
- AIs built on logical representations of text are naturally equipped to perform logic & arithmetic, e2e AIs built on DNNs are not.
- Learning from voice/text, not surprisingly, means learning biases in those data; building systems around those biases propagates those biases. Technology should be for the benefit of society, thus fair and inclusive; thus making systems fair and inclusive is an important area of R&D.

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