Computer Science: Grand Challenges An Artificial Intelligence Perspective

Tommie Meyer

Centre for Artificial Intelligence Research (CAIR)

CSIR Meraka Institute (Council for Scientific and Industrial Research)
and
School of Mathematics, Statistics, and Computer Science
University of KwaZulu-Natal

South Africa

email: tmeyer@csir.co.za
URL: http://cair.meraka.org.za

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What has Computer Science done for me lately?

Ubiquity of computers in everyday life

- Smartphones
- Tablets
- Vehicle components
- Electronic payments
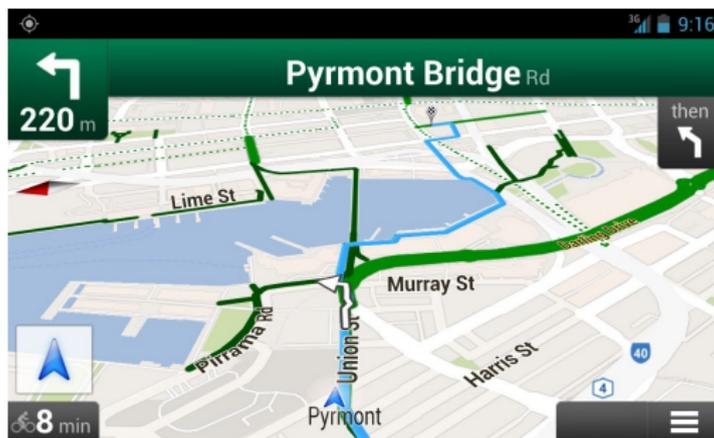- ...

Recent Advances?

Digital Personal Assistants

Recent Advances?

Navigation

A step closer to true understanding?

IBM's Watson

- "An application of advanced Natural Language Processing, Information Retrieval, Knowledge Representation and Reasoning, and Machine Learning technologies to the field of open domain question answering"
- It comprehensively defeated the all-time best players in the American TV quiz show Jeopardy!

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IBM's Watson

Ken Jennings, famous for winning 74 games in a row on the TV quiz show, borrowing a line from a "Simpsons" episode: "I, for one, welcome our new computer overlords."

Recent Advances?

Watson in Health Care

- Partnership with WellPoint (Health Insurance)
- Provision of clinical support to doctors

"WellPoint and IBM are working with oncology experts at the Cedars Sinai Cancer Institute in Los Angeles to educate Watson as a physician's assistant."

Recent Advances?

Watson in Finance

- Partnership with Citigroup (Third-largest US lender)

"It will help analyse customer needs and process financial, economic and client data to advance and personalise digital banking."

"It will help financial firms identify risks, rewards and customer wants which mere human experts may overlook."

Generating Trust In Computational Inference

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Dan Pelino: General manager of IBM healthcare"

"First of all we always want to make sure that we position Watson in an assist role. We are not talking about Dr. Watson."

Computing Advances: The Dark Side

Smartphones and tablets

- Connecting with friends and colleagues
- You can be tracked

Web searches

- Becoming more intelligent
- Logging your online activities

Computing Advances: The Dark Side

Electronic methods of payment

- Becoming simpler and more sophisticated
- Digital identity theft

Need for Digital Privacy and Security

- Partly a social problem
- Partly a legal problem
- Definitely a Computer Science problem

Conclusion

- Acknowledgement of the ubiquity of computers and Computer Science in every day life
- Computer Science has been instrumental in recent technological advances
- A need for the creation of trust in Computational Inference
- A solution to the problems of Digital Privacy and Security