



My Thoughts on....

How do Recent Machine
Learning Advances Impact the
Data Visualization Research
Agenda?

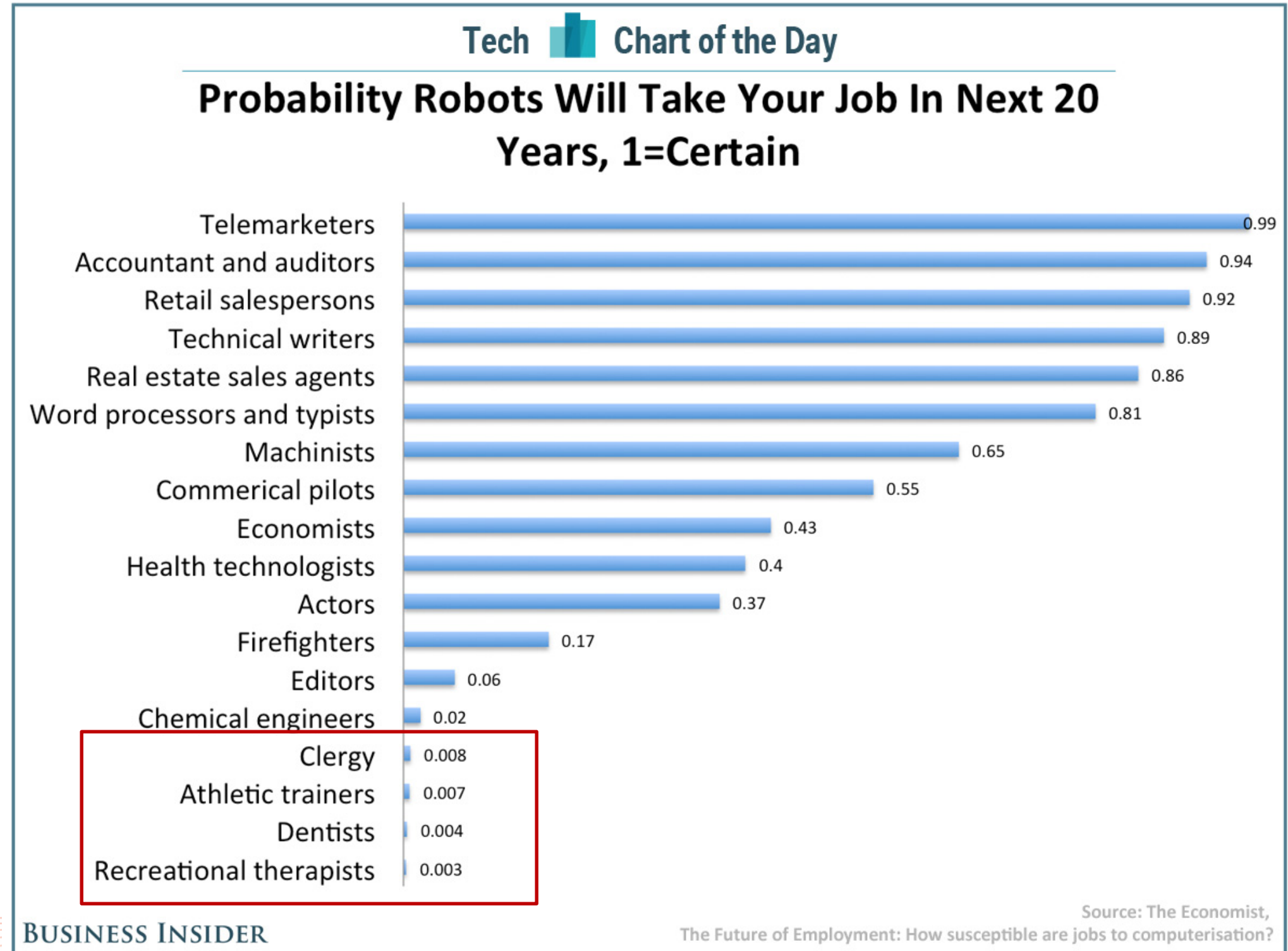
Klaus Mueller
Stony Brook University

Thanks, Timo, for inviting me this panel

- It made me think about the years ahead
 - really, really thank you, Timo
 - it was a very illuminating process
- This will be my last VIS
 - it's been a fun 25 years
 - but all good things must come to an end

What's next?

- For me, I mean



On closer thought...

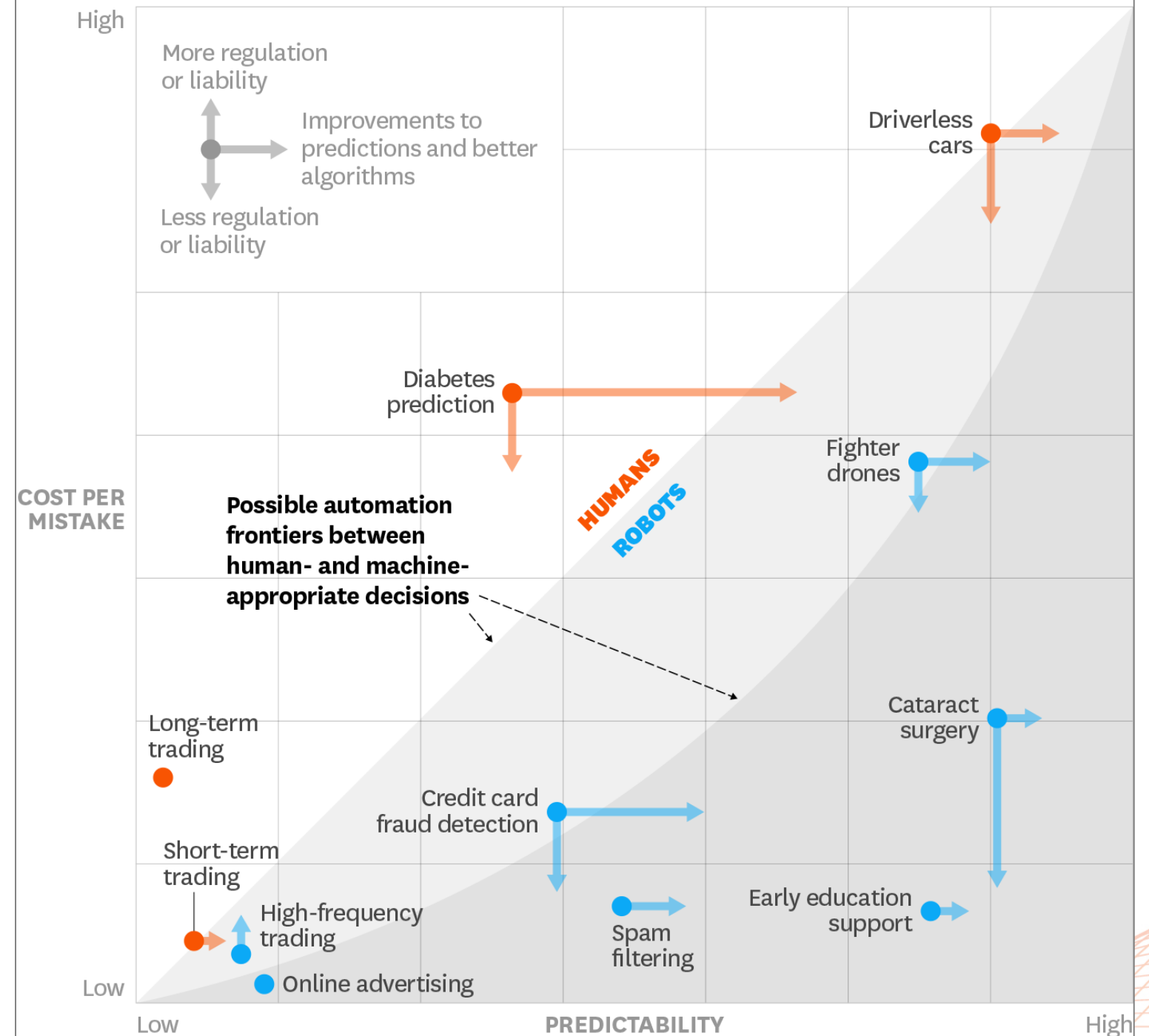
- OK, maybe becoming a clergy is too drastic a career change...
- Encouraging words came from Vasant Dhar (NYU)
 - keynote speaker at the Visual Data Science Symposium (VDS)
- He spoke of the *Automation Frontier*

Risk-based analysis

- Opportunities for VIS are in the upper left corner
 - humans need to be involved to negotiate instabilities in the robot's decision/judgment
 - we know how to make a case for visual interfaces
 - so all is good!?

The Decision Automation Map of the Future

How improvements to prediction and changes to regulation could shift automation.



Can you trust a robot?

- From my own experience
 - people (and the law) are still ambivalent
- Key question: are there enough data to train the robot?
 - long term trading
 - healthcare diagnosis
 - humans might be too diverse
 - doctors make lots of mistakes, too
 - preference tasks
 - picking your college, wine, car, business strategy,....

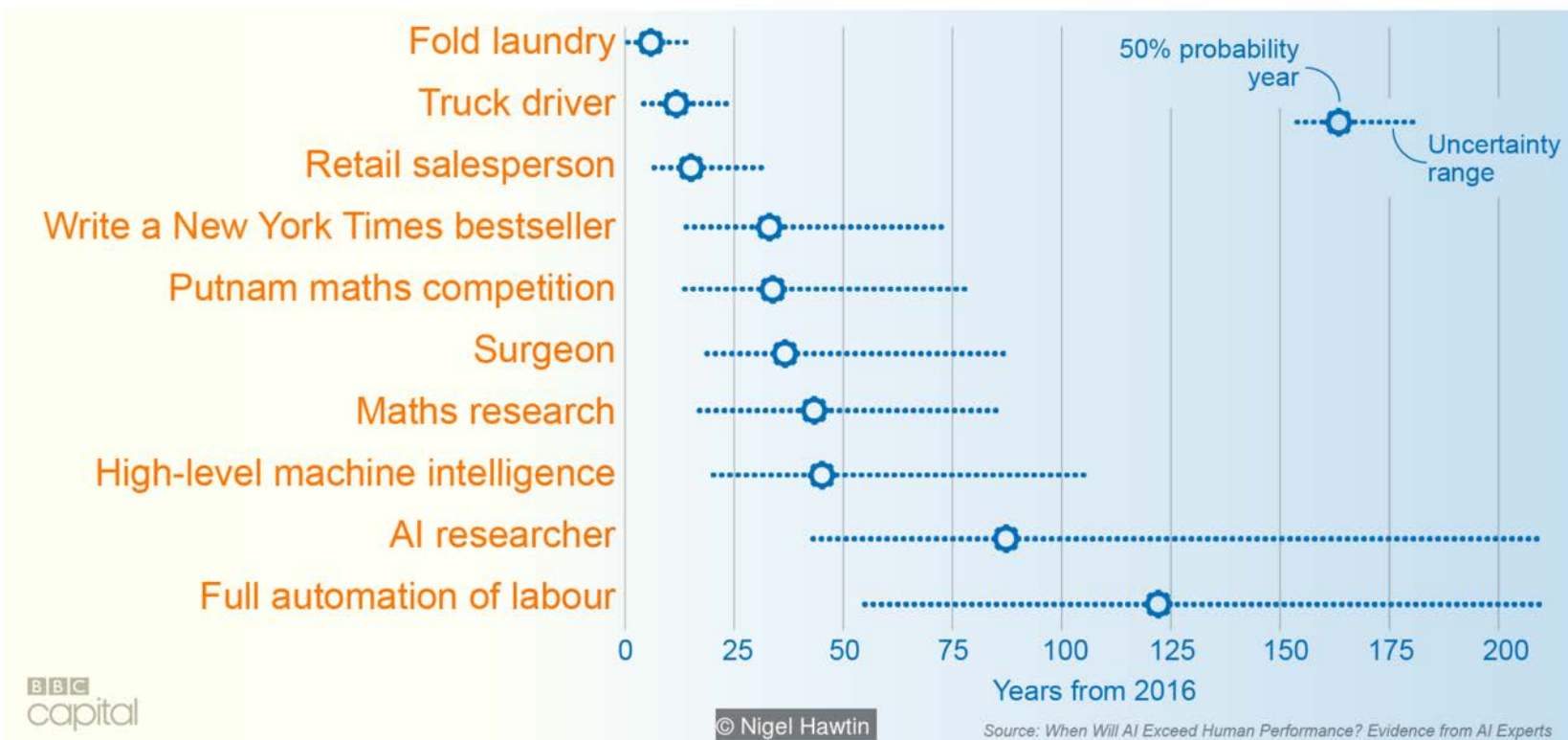
Role of VIS in a world of AI

- Visualize the reason *why* the robot has made a certain decision
 - establish a layer of trust
- Visual interaction to fine-tune the robot's decision
 - feel like being part of the decision process
 - provide the decisive edge – my robot is better than your robot
 - communicate findings and ideas to others – policy, discussion forum, .
 - VA to encourage/simulate/enable creative thought
- IMHO, VA will just adapt and embrace the new AI as it arrives

Final thoughts

When will AI outperform humans at work?

How many years until a machine can do our jobs better than us?



- But most importantly:
 - hopefully AI can help us to fight other serious oncoming threats like climate change, terrorism, and so on
 - hopefully VIS can be a part of these solutions
 - let's keep this in mind and work towards this as a community

Thanks for listening...