



# WHY NON-BIOLOGICAL INTELLIGENCE ≠ ARTIFICIAL

# Tomorrow is a special day

- June 23, 2018: 106<sup>th</sup> anniversary of the birth of mathematician, WW2 Bletchley Park codebreaker and father of machine/artificial intelligence (**AI**)  
**Alan Turing** born on 23 June in 1912



# Intelligence.... What is it?



Please discuss with the person next to /nearest to you  
for 5 minutes

# Bio & Non-bio intelligences.....

October 2017:  
Robot given citizenship  
by Saudi Arabia:  
“many pointed out that  
those same rights aren't  
afforded to many  
humans in the country” –

June 24, 2018:  
date women in the  
Kingdom will be  
allowed to drive



Image from Jimmy Fallon Tonight's *Showbotics* April  
2017

[https://www.youtube.com/watch?v=Bg\\_tJvCA8zw](https://www.youtube.com/watch?v=Bg_tJvCA8zw)

# Bio Intelligence





# Bio intelligence?

- Email received June 2<sup>nd</sup>, 2018 from a 1<sup>st</sup> year undergrad student:

“Hello Dr. Huma I checked my coursework (portfolio) grade and I would like to know how I only got 40% Kind regards”

NB had to search through Moodle to find student's registered name (not the same as the name in the email - with over 320 students in the cohort Lecturers can't be expected to remember all students)

# Job of bio-intelligence is to read!

□ My reply to this student:

- **"Please ensure you read assignment requirements provided in weekly lab activity documents, and reminded in Week10 Lab session. See comments in the document.**

- **"Web forms do not show application of gestalt features: proximity, similarity, contrast, closure, etc.- see page 4 in Week7 Lab document, HTA+Visual Design activity. "**

**Introduction and summary of learning for HTA + Visual Design were also missing.**

# Intelligence: what is it?

- Hugh Loebner (Sponsor of annual Loebner Prize for AI):
  - ▣ “I don’t know what intelligence is, but like pornography I like it when I see it”



# Another perspective

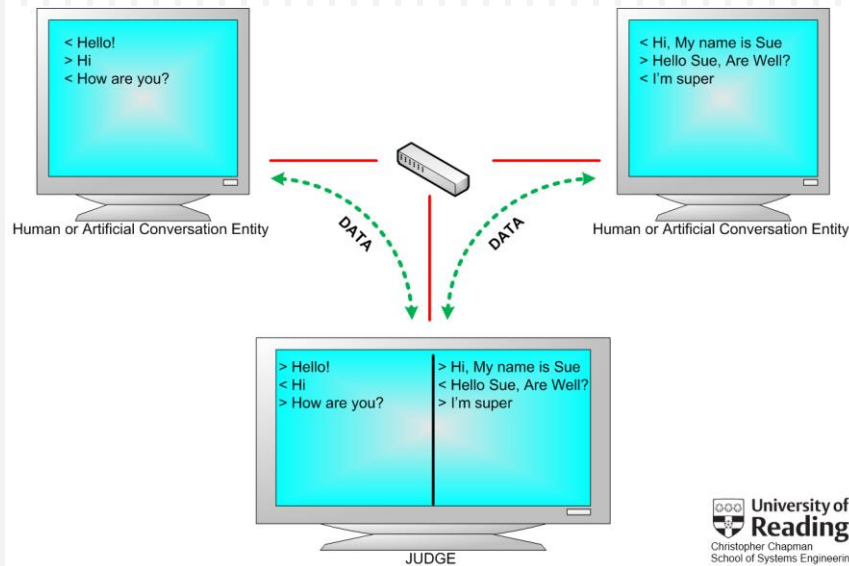
---

**Appropriately applying skills, knowledge  
and experience from learning to tasks  
ahead (Huma Shah!)**

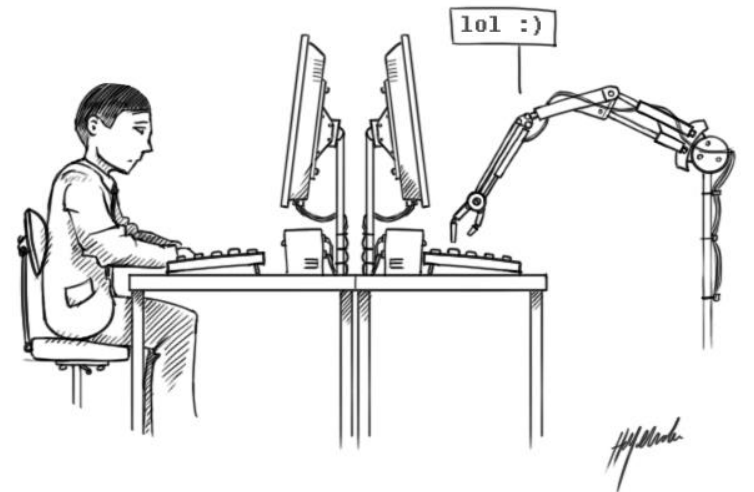
# Non-bio/AI Intelligence: Background

- ▣ Turing (1948): Of the most suitable branches of thought for a **machine** to exercise its powers following appropriate:
  - various games including chess,
  - the learning and translation of languages,
  - cryptography and mathematics.
- ▣ Turing believed: **the learning of languages most impressive, since it is the most human of these activities.**

# Turing's Imitation Game: two formats



**Simultaneous test:** Judge interrogates two hidden entities in parallel



**Viva voce:** Judge interacts with one entity

Images from **Deception-detection and machine intelligence in practical Turing tests**. PhD Thesis. University Reading, UK. 2011 - over 780 views on academia.edu

[https://www.academia.edu/415888/Deception-detection\\_and\\_machine\\_intelligence\\_in\\_practical\\_Turing\\_tests](https://www.academia.edu/415888/Deception-detection_and_machine_intelligence_in_practical_Turing_tests)

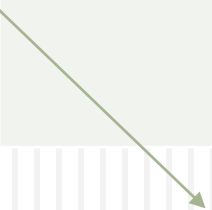
# Non-bio vs bio intelligence

---

- Let's look at one exchange from a Turing test conversation .....

| <b>EXCHANGE 1:</b><br><b>Interrogator is human</b><br><b>Is the Entity human or machine?</b> |   |
|--|---|
| <b>Interrogator1:</b>  | all birthdays are special. name three items of clothing |
| <b>Entity:</b>   | Frank, James and Betty                                  |

| <b>EXCHANGE 1:</b><br>Interrogator is human<br>Is the Entity human or machine? |   |
|--|---|
| <b>Interrogator1:</b>  | all birthdays are special. name three items of clothing |
| <b>Entity = human<br/>male adult</b>   | Frank, James and Betty                                  |



Hidden entity's attempt at humour failed to secure a 'human' classification – humour is not always shared and in some cases culture-specific

# In pairs again

Now look at a Transcript of a simultaneous  
comparison Turing test conversation

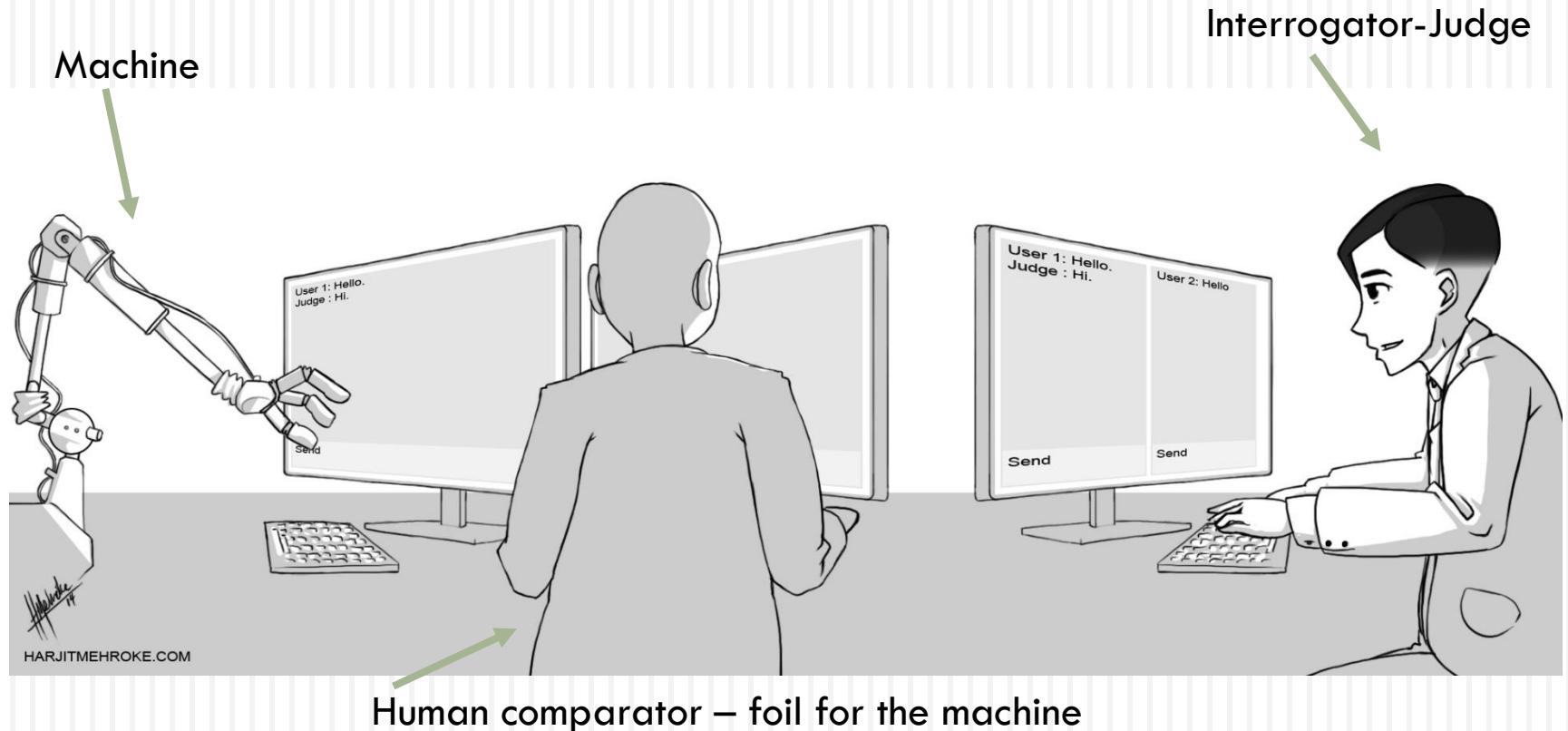
[what the judge saw after five mins of dual  
interrogation] .....

are the responses to  
utterances and questions

**satisfactory and sustained?**



# Turing's language imitation game



# Simultaneous transcript from Turing100

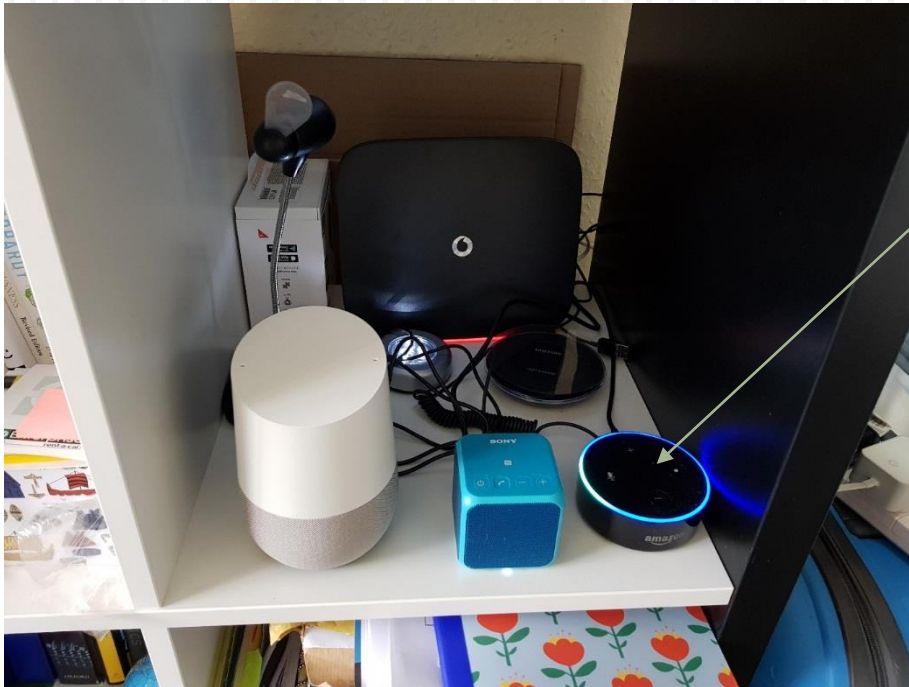
## LEFT: Judge J19 with Hidden-Entity: human or machine?

[12:23:13] Judge: hi there  
[12:23:18] Entity: Howdy pal! Today is a kind of never-ending talk-show, I'd say!  
[12:23:38] Judge: yes. nice!  
[12:23:43] Entity: So we are on a same page. Oooh. Anything else?  
[12:24:13] Judge: what page? FB?  
[12:24:19] Entity: Huh? Could you tell me what are you? I mean your profession.  
[12:24:56] Judge: i am not allowed to say that. what are you doing for living?  
[12:25:09] Entity: I'm wondering if Doctor Loebner is a human. I suspect that he is a cyborg - and he's playing games with us by running this competition.  
[12:25:46] Judge: slow down a bit. where do you put your money?  
[12:25:52] Entity: Money-money-money, not so funny... Do you want to win a million?  
[12:26:23] Judge: not really, are you a saver or spender?  
[12:26:31] Entity: Hmmm... I would assume otherwise. And I forgot to ask you where you are from...  
[12:26:56] Judge: I am from bristol.  
[12:27:02] Entity: Tell me more about Bristol. I like to learn about different places!  
[12:27:22] Judge: ok. but please let me know more about you?  
[12:27:38] Entity: Oh, if I tell you about myself, I'll definitely be dishonest:-) Well, I am a son of Rockefeller, I've arrived here in the Limo... I know you are supposed to trick me.  
[12:28:07] Judge: wow. go on  
[12:28:14] Entity: Yes, everyone would be amazed hearing that. I know you are supposed to trick me

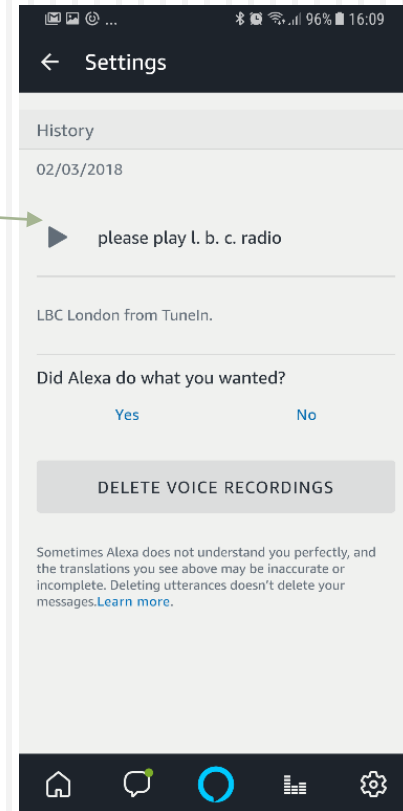
## RIGHT: Judge J19 with Hidden-Entity : human or machine?

[12:23:23] Judge: good evening  
[12:23:28] Entity: Wonderful evening isn't it?  
[12:23:58] Judge: yes indeed. it is raining over there?  
[12:24:02] Entity: What time is it anyway?  
[12:24:24] Judge: min-night?  
[12:24:28] Entity: Ugh. I need more sleep.  
[12:25:18] Judge: only joking? do you like jokes?  
[12:25:24] Entity: Alright then.  
[12:26:05] Judge: do you like diamond jubilee?  
[12:26:13] Entity: lol.  
[12:26:37] Judge: why lol?  
[12:26:44] Entity: oh, I get it. :)  
[12:27:48] Judge: I really like you. do you think machine can fell in love?  
[12:27:55] Entity: I like the Man Machine album.

# Current non-bio language technologies



Amazon  
Echo with  
**Alexa**



# Language / listening systems



Assistant

**Said please play LBC News radio thank you**

I looked for LBC News radio thank you on Google Play Music, but it either isn't available or can't be played at the moment.

Google  
Home



# Another query to non-bios [video]



Huma Shah: FAH-Open Day June 22, 2018: Coventry Transport Museum

- “...since the **speaker** [Huma] doesn't quite know the **organization** of his **hearer's mind** [Alexa & Google Home], his **phrasing of information and packaging must**, except for the most stereotyped conversations, **be an artwork of suggestiveness and insight.**” (Drew McDermott, 1976)

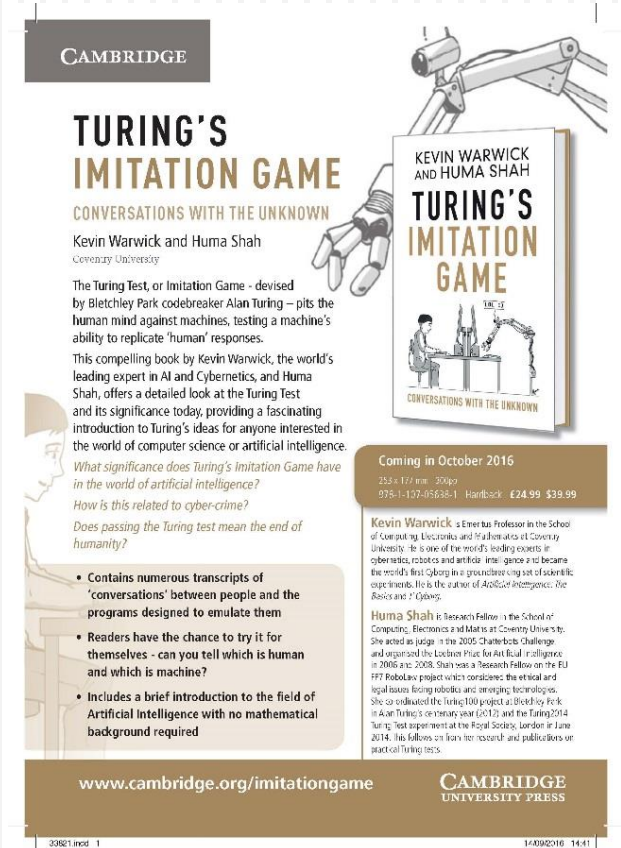
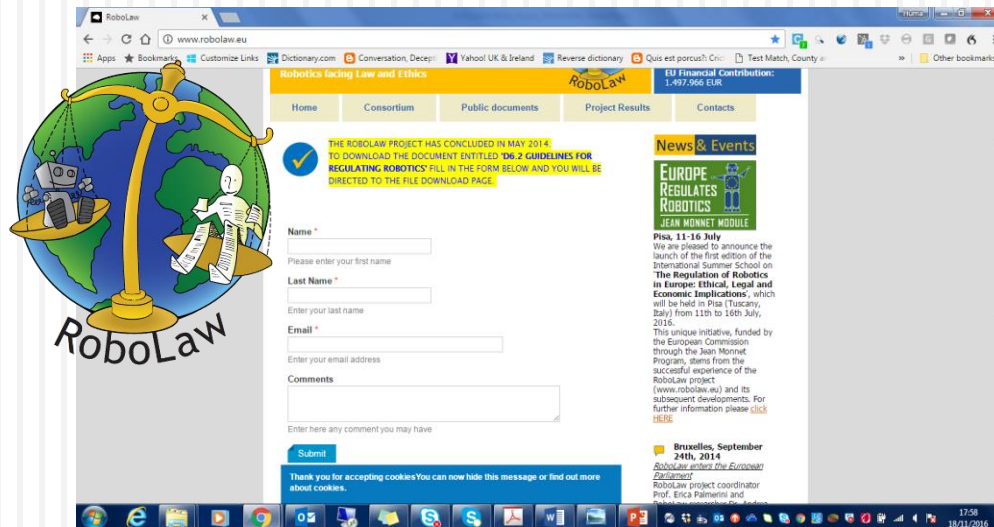
# Future of intelligence

- Machines are not there yet, but when a non-bio entity can provide satisfactory and sustained answers to any question that “would not be an easy contrivance” (Turing, 1950)
- It would also not be artificial, the intelligence would be real, even if non-bio



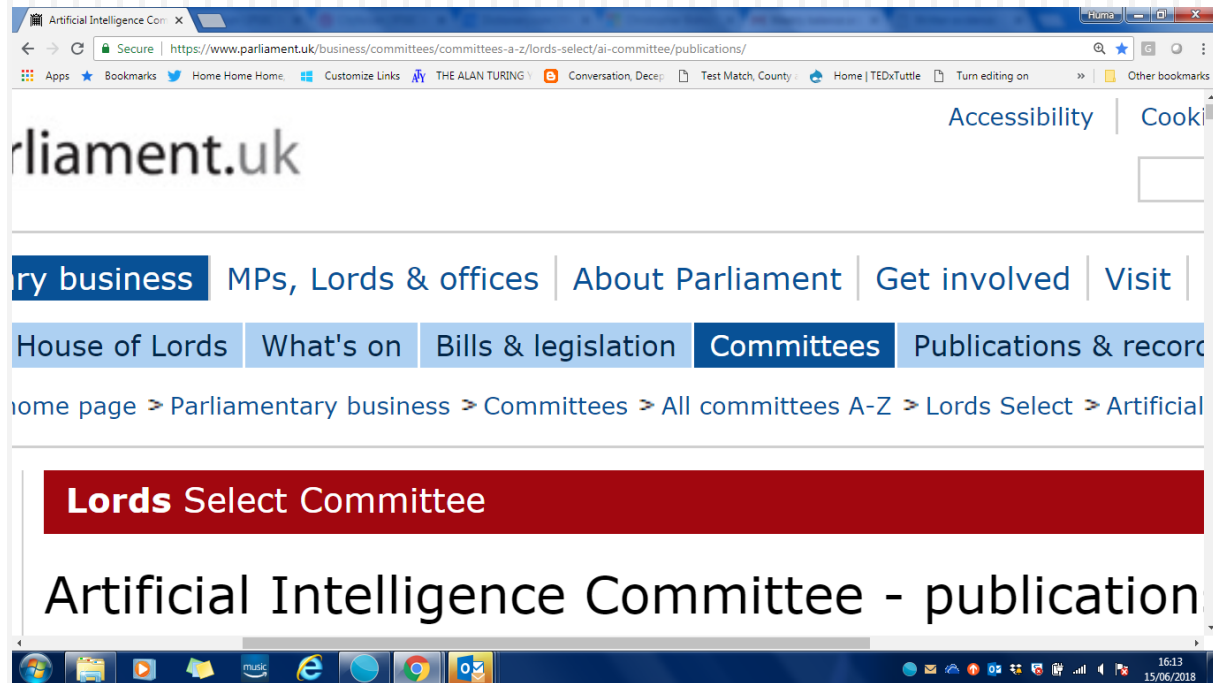
# My work: Trust in Conversational AI

PhD Supervised by Prof (now Emeritus) Kevin Warwick



Huma Shah: FAH-Open Day June 22, 2018: Coventry Transport Museum

# Evidence in House of Lords' AI Select Committee Report



## Shah & Warwick contribution to House of Lords' AI 2017 written evidence:

<http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/artificial-intelligence-committee/artificial-intelligence/written/69505.pdf>

# References

- **McDermott, D. 1976. 'Artificial Intelligence meets Natural Stupidity'** *ACM SIGART Newsletter*, April, pp. 4-9
- **Turing, A.M., 1950, 'Computing Machinery and Intelligence'**. *Mind*, Vol. 59 (236), pp. 433-460
- **Turing, Alan M. 1948, 'Intelligent Machinery'** in S.B. Cooper and J. van Leeuwen (Eds) *Alan Turing: His Work and Impact*, 2013 (Elsevier), pp. 501-516

# Thank you for listening, any questions?

## Contact details:

**Email: [ab7778@Coventry.ac.uk](mailto:ab7778@Coventry.ac.uk)**

**Work Mobile: 07 974 984 534**

**Academia.edu : <https://coventry.academia.edu/HumaShah>**

**Google Scholar:**

**<https://scholar.google.co.uk/citations?user=cmS6qXQAAAAJ&hl=en&oi=ao>**

**LinkedIn: [linkedin.com/in/huma-shah-1474894a](https://www.linkedin.com/in/huma-shah-1474894a)**