Alan Chamberlain talks to Ali Hossaini

0:02
So hi everybody. In this session I'm going to be chatting to Ali Husseini who is one of the artists in residence on the Taz Hub. And we're going to be discussing a design that Ali's come up with for the the use case library that we're developing. And what I'm going to do is ask Ali to introduce himself.

0:27
And then to talk a bit about is speculative design and maybe how that raises issues around trust for other interdisciplinary researchers on the task project. So without further ado, I'll pass over to Ali. Hi, thanks very much, Alan. I'm Ali Husseini. I'm a visiting senior research fellow in the Department of Engineering at King's College London.

0:52
And for context, this design was the speculative design was created whilst both in residence as a UKRI task hub, artist in residence and Codirector of National Gallery X, which was a joint research project between the National Gallery and King's College London. So I was both residents and also running the facility for that, and I think I think that's important because National Gallery X was.

1:22
A supporting member for the founding of the EKR Tess Hub and we specifically wanted to look at use cases that had to do with AI and culture. And as you'll see, this design relates very strongly to both. Fantastic.

1:38
So let me talk about Groupthink. That was the name of the the piece. This was a collaborative art piece that was part performance and part installation and part generative software. It brought a lot of different facets together, some of which are not possible to do right now. But let's look at the broad context that we're looking at and why we need to speculate there. I had actually read a paper by two colleagues of mine at Kings, Luca Vigano and.

2:08
They go some for Bony, and they wrote an article, which is in Springer, published by Springer, called The Internet of Neurons. And I found this quite provocative because I've always said that, well, network convergence is happening slowly and gradually, but inexorably over the decades. So we started with mail, and then we went to things like radio, and then we took over the recording industry, and then it's in fact all media now.

2:36
Have converged with the Internet, and I'd always pointed to architecture as the next stage of convergence. And Luca and Diego were looking at neurons and neurophysiology, which given recent advances in brain computer interface, I'm actually in a working group at the IEEE on BCI standards. I think we'll get there.

2:59
Sooner than we think. So what is the Internet of neurons? It's an Internet where humans are maybe cognitively or somehow through their brain, but also through their body through their, you know, you can have muscular connections or myographic connections too. Connected to the Internet and there's

already been experiments, I think they were done in North Carolina, where basically one person thinks and across campus their finger twitches in.

3:27
Yes, this has already been done. It's actually quite easy because you can just jolt someone's hand with a with an electric signal and the finger will twitch. So fairly trivial technologically, But in terms of the possibility, really, really, really groundbreaking. And it's something we need to think about because we we've always been concerned about privacy, surveillance, you know and trust.

3:56
In in networks and systems and I think this opens a critical issue. The other issue though is a I we've seen that a I now can essentially emulate human cognition and you know probably could pass the Turing test or come close. So if you're on an Internet of neurons, you'll have human entities but they're also going to be machine entities. So groupthink was about what happens when you let loose a group of people self selected, but otherwise, you know, fairly random.

4:26
Participating in a collective cultural activity with other humans who have agency and also machines that have a kind of quasi agency because the machines are creating the artworks and groupthink. Wow. So in terms of the use case library, I mean you just sort of, I suppose run through a whole series of issues that that could have an impact on on on trust in certain context.

4:53
I mean, I mean related, I mean basically sort of relating to people's reality and you know the sort of the the use of yeah brain computer interfaces through to sort of AI and yeah, so so why why do you think this, this, this is a good case for a use case library what what what do you hope that this is going to provoke?

5:20
In in researchers, is there something that you've seen which is not being covered by by tasks or by more standard approaches to trust and autonomy? Well, I think the thing that we really need to think about and probably be concerned with is the convergence of information and communication technology with AI. I think AI is becoming part of everything we do.

5:45
But we're already on a network. We've already seen the trust effects that happen on the network, and a I is changing trust effects all through media. And in fact, these even these sort of bot wars that have been having, some of, some of which started several years ago, indicate that a I can change the efficiency of various forms of disinformation.

6:09
And in fact, this information is more powerful than validated information arguably, or at least can challenge it. And when we start to connect people even more directly into the Internet, it becomes quite intrusive in into people's brains and bodies. Not to say it isn't already we already have these sensory prostheses. You know, our mobile phones, you know, they're they're really extending our perception. Television always has been. I I wouldn't make a hard distinction between.

6:39
Mind, body and extend itself. But what we wanted to do in groupthink was demonstrate this

convergence in a really vivid way. So we did it for entertainment, but we also can look at like how trust plays out with.

6:57
People giving up physiological data. These physiological data indicate their emotional state. The A I is responding to their emotional state and tailoring their experience and tailoring how the musicians play depending on the emotions of the audience. So you're you're starting to get feedback loops. So I think we want to approach these use cases in a linear way and say if we do A, B is going to happen, but if A and B are actually just two nodes in a feedback loop.

7:27
You can start to get quantitatively and qualitatively different results that may be unpredictable because the the linear causality doesn't obtain anymore. You have to look at something where you're having an organization, the organization itself has its imperatives. So tell us a little bit more about, I mean, I was part of groupthink, I think part of the group.

7:54
Tell us a little bit more about the sort of what happened and what it was. I mean what I will do is link to the video because it's quite a long and meditative video really, isn't it? So it's really good to watch in depth, but but in your words, tell us a little bit about it and you've you've already said a few things about how it provoke responses towards trust. But if you want to unfold a few things from your perspectives and explain to the audience what it was.

8:24
Yeah, what Groupthink was It was a collaboration between a number of different people, all with backgrounds both in creative production, meaning mostly music and the visual arts, with technology, including networks and, you know, programming. And we had to.

8:45
We developed custom software based on open source material for doing what's called a remote hemodynamic monitoring, which is just a very precise way of saying we're looking at people's foreheads, looking at the change of color, and using algorithms, specifically Eulerian video magnification, to judge these changes and infer heartbeat from that, read it into the table and feed it back into.

9:14
This production system and the production system consisted of two live musicians, very talented, A sitarist and a guitarist, and they were playing in an immersive video environment and on the National Gallery campus in the National Gallery X facility. And those immersive videos were a I generated artworks that used a combination of scans of the National Gallery paintings and my own art, all having to do with trees and organic forms.

9:43
And at the time we did this, entanglement was very much in the air. The books on entanglement, entangled life had come out. So I thought that was a really good vivid image to show how actually this gets back to these linear trajectories and convergence to show how a I communication, telecommunications and human Physiology, neurophysiology in particular are converging and tangling together and.

10:12
It's an exuberant piece. The artwork I think, is really exhilarating. I think it's beautiful. It's the kind of music I like. If you like fusion, then you'll like it. But it's also very illustrative of how people can just dive into a system and give up a great deal of information about themselves just for an entertainment experience in the National Gallery. Actually, if you want to think of it, it's it's a pole.

10:41
For trust, everybody trusts the National Gallery. It's got this collection, it's pretty stable. It's the Canon of Western art. We were experimenting with that Canon and seeing how it could be more relevant and mutate under the all these different pressures. And we were also testing to see, you know, how live experience might happen and how people might interact with other people and synthetic agencies online live.

11:11
In a very dynamic context. So in this case it would be musical entertainment, but you could take the same and do you know you could do a war scenario or marketing strategy for a company? The scenarios actually are quite portable if you abstract from the situation and get a schema that can then be applied elsewhere. That's why I think it's relevant to the use case library, because this use case can be generalized into medicine, military, you know, commercial settings.

11:41
So with with that kind of stuff, if you were going to expand on on what what's been done, how would you expand the, the, the practical elements of it further? Could you for example, I know that we've discussed this before like sort of having something almost embedded in like a piece of Internet of Things technology that you took with you maybe or is is there any, any?

12:08
Roots that you've seen about all roots that you've seen about taking this over into a medical domain or anything, It's definitely, you could definitely take the roots for this into a medical domain or you know, say marketing. The thing about the heartbeat, is there a proxy for a lot of things? It could be a proxy for ill health. It could be a proxy for a feedback reaction to some, you know, reaction to medicine. So it could be.

12:36
A proxy for excitement or interest, you know. So a marketer might say, Oh well, watch this video and there's a there's a sales message embedded in it. You could track pretty precisely. And most people react in a similar way. So there is some standard deviation in there. But for the most, most of the population will react in a way that's fairly predictable. Or rather, their state is predictable judging from just heart rate if you start to add other parameters.

13:04
The whole thing gets more accurate, so you could have eye tracking you know to show where people's you know primary points of interest are, although of course they're seconds so you need to. All of this requires abstraction and the the possibility of a I and machine learning is a strong enabling factor because it just makes predictions more precise and more accurate. You end up with.

13:31
You know, you could have interlocutors or even creative producers that are, you know, powered by

artificial intelligence and more generally, you know, autonomous and intelligence systems, AIS. And these can be networked in a way that starts to become seamless with our visible experience. So I think earlier on you mentioned the robot coming up with your passport, but there's so many situations where it may just be.

14:00
Someone or something in a wall or, you know, maybe not embodied in a robot, which, well, the robot for that matter, could have a human steering it and pretend to be a robot, but it's actually a human steering it. So the issue to trust just comes up at every stage and with the layers of mediation, literally mediation, like something coming in between the individual and the interlocutor and the possibility of a human like.

14:29
Agency. If you were intervening you, you have to establish validation at many, many, many more levels, and it's easier to spoof. So the whole system in essence becomes less untrustworthy. If you're looking at it from an an optimistic standpoint, and we can always be optimistic, we should also be, I guess, realistic, bordering on pessimistic about.

14:55
What comes our way in life? You know what Ali, I was going to say, well, why is this of interest to you know, task researchers? But I think you've already given us enough information to to chew on for a while there. And I was really pleased that the way that you sort of very gently see into into agency there as well because I think that's the the, yeah, what is an intermediary? What is agency? What is a proxy?

15:25
All of those things. What is appearance? Who's got control? How is that negotiated and passed over? I think these are really important things. One of one of the things that I will ask you, which is quite a blunt question in some respects, is So what? Why is? Why is it important to have a use case library? I think A use case library is vital because we can.

15:54
Abstract schema or schemata from other use cases. Some of these things I mean for one thing, it's useful to find one that just applies to your situation. So clearly you want as many as possible so that there's a good fit for the use case you may be developing and you're either going to use that you apply that use case or use it in your own experimental design to.

16:22
Develop, either augment it, extend it or otherwise find out, validate or not, and have a hypothesis about a new engineering system or even theory that you have about this. So I think it's pretty critical to have a cross referenced product or use case library for this. And the other comment I want to make about a use case library is I think we've developed a lot of.

16:51
Fundamental science, which then turns into, becomes operationalized and instrumentalized and then deployed. And we haven't really tested this enough. And now that we live in the Anthropocene and essentially live in a technosphere as much as an ecosphere, we need to start testing things early. And these use cases will give us a good sense of where people have already thought about some of the issues that may confront with the.

17:20
Early stage technology in a predeployment ideally, and that these use cases can inform future development, they can inform regulation and they can inform standards and they can also inform post deployment fixes in case things unanticipated problems start to come out. So being able to go back and find a use case that corresponds to the issue that you've encountered.

17:48
I think is really valuable and you know it could save lives when we're thinking about transportation medicine and things like that definitely so so with your design that you came up with and and it implemented and are continuing to implement, one of the things that it was, was it the case that you were there to I don't want to use this this is the wrong framing in some respects. Are you are you there to test trust or is it there is a vehicle.

18:18
To raise an understanding around what trust might be in these contexts. Or have I got it wrong altogether? You're spot on. It is a provocation and it was provoking us and the audience to reflect on these issues. I think it was so exciting really. If you saw the music and said, oh I want to participate and you just jump in and next thing you know you've given up like.

18:42
An hour or so or maybe even 2 hours of critical biomedical data. I mean, it was all actually handled under GDPR and we we we anonymized it at at the local level. In other words, that any data coming off of the user's computer, the participant's computer, came without stripped even of their IP address. So we didn't take anything except the heartbeat, and this was built by design, but somebody.

19:12
Could have built it in a way that actually it identified the person pretty closely and got a lot of physiological data and indirectly data about their interests or at least what they liked or don't like. So there was a a profiling part that could have been done that we didn't do. We were really careful but another actor might decide now we we want to lure people in and we've seen this, you know this is basically what happens with.

19:39
Phishing and other other sorts of scams. And I think with AI it's going to become even more learning because things, these scripts that you're being sent, say in a phishing e-mail, can now be embodied in what more or less looks like a human and responds to you and learns from your behavior. And that's what the system did. So I think it was, for us, it was.

20:04
There were issues that we hadn't totally thought of, and even now I'm still thinking of things, but when you have an Internet of neurons, I think that the point of this paper by Migano and Simple Bonnie is, is that you you really have to bring up trust issues. And I I think that the time point here is this convergence that the A, I and trust are going to converge with the network and when they converge that that creates these ripples.

20:33
That multiply test trust issues, you know by some factor. So as I said, at each stage of mediation you have another possibility of intervention. When there's a possibility of intervention, you can have

another agent insert itself into the mix. So how do you validate interactions across the whole chain of possibility and multiple instances of trust?

20:59
Over time periods, in different places and context, that's right. And even in the same, you know, even in our interaction here you could be an avatar you know. And the real, the quote UN quote real Allen is somewhere else wondering where I am. And you know, all that to say is, is that there is this the zoom interface which does present.

21:27
On a tax surface, if you want to put it that way. And I could be, you know, if this were an interview to, I don't know, I'm giving out banking information because I want to buy a product. It starts to become a lot more dire, doesn't it? Well, I did look behind the screen and I couldn't see anybody there. So I just guessed it. Stuff that's good. Yeah. I think there's mediation and.

21:51
What you get with artificial intelligence and machine learning is the capacity to go in and hijack the process I guess. Yeah. I think it is. Yeah. I mean when things start to disrupt. Yeah. The existential nature of of you it's it's it's a big concern isn't it. I mean it's but but I just just going to pull pull us back to I just got 2 two more things to say because I know you've had a long long day of meetings already and it's it's already.

22:21
6:00 AM In the morning But I what? What? What? I've what I've not thought about before, which you, which you made me think about, was it almost feels like what you've done is, you know, there's a provocation there about how to understand trust and where issues around trust might arise based on multiple use cases and contexts.

22:51
But by by doing this performance and and highlighting that there are participants and different media involved and etc etc. But but is is this also a responsible innovation provocation? It's definitely about responsible innovation. I think there's huge promise in this and I think what group thing does is it's really just a lot of fun and it's it's.

23:19
Pulls you into another world and it shows the possibility of imagination becoming a reality. And it shows how collaboration among humans and also among humans and artificial intelligence enabled by high speed robust telecommunications like 5G, which I've worked on quite a bit different 5G use case scenarios can.

23:44
Make life more vivid and also bring cultural experiences to people who are remote and couldn't come to a major city like London but you know, deserve to feel like they're in a live performance or you know, you can't make it to a, let's say, a concert. You know, Liveness was a big offer this and getting that feeling of excitement when the musician feels like they're playing directly to you, so.

24:10
This innovation, I think it's quite attractive, but it does need to be done responsibly. So at the same time when we did everything responsibly but everything, you know, there were, there were so many

tipping points where this could could have, you know, gone into being irresponsible or gone into being intrusive. And we wanted to alert people to that and alert people to the fact that, and this is where I really think the use case library is important.

24:39
You know, we all work on these. We get onto a channel and we're developing one platform or one application and now these applications are tied together, they're in network themselves. So when you deploy an application, it goes into a complex networked environment where it's going to interact and you know, possibly reinforce or possibly negate.

25:04
Other applications, and some of those applications may be ones that we really want, like validation processes or privacy alerts, or at least giving people like real choice and real agency. And if you look at the cookies thing, I think, you know, I like GDPR, but let's face it, turning down cookies and you know, you end up.

25:26
At least I do. And I end up just accepting cookies because either you want the functionality or you want the time. And we, you know, we're going to multiple websites. So that we absolutely need to develop things in a way that's more responsible and also pushes the agency back to the the user in a way that's feasible and manageable. And right now we don't have that. And so the tasks have this autonomous systems but this autonomy.

25:55
It's it's empowering all the other systems that we're using in the the technosphere or this technological environment. And that's why you need use cases so people can jump out and cut across and look at the implications of what they're doing in an abbreviated way without we're not going to think through everything ourselves as we work on our great application. So the use case library can be a place where you could just put in some keywords and say, oh, I hadn't thought about.

26:24
That unintended effect or possible unintended effect. So what would you say to all the researchers on tasks, the task project, and the task community if you wanted to get them to put some stuff into the use case library? In a couple of sentences, I would say think about what's going to happen when your research gets deployed and think about the best thing that can happen, and think about the worst thing that could happen.

26:53
And you've got two use cases right there. Great. So what I'm going to say now is that I'm going to, there's going to be a video link to the Groupthink video, which is amazing and I think people should watch it. It will also be in the Use case library because Ali's working on an entry for the Use case library based around groupthink, and there's also a publication.

27:24
This was initially presented at the ACM SIGGRAPH and then published in a journal. It's Open Access so please do reference and use it. And Ali will be at the Taz Orhan symposium, so if anybody's watching this and wants to go up and have a chat to him, he he will probably talk about this as well. So.

27:52

And and say but, but what I'm going to say is a huge thanks Ally because I I think that this has kind of really raised some quite I don't know what you call them gnarly issues when it comes to trying to understand how to deal with these cases what they are and you know the the variety and complexity that that this work that your vision has has risen is quite fascinating so.

28:21
So thanks very much to you, Ohh. Thank you Alan. Great questions and as always pleasure to work with you.