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Hello everyone. We're just gonna wait one more minute just to sit there. Anyone else who filters in, but then we'll make a start.

Let's keep up then. Hi I'm Noam I'm the community manager with Campaign Lab and I'm here today to introduce the next in academic series. Today delivered by Dr. John Bryden. So I'm gonna give a quick introduction and then I'll hand it over to him to give his talk. So John works at the crossroads of politics, computer science and social sciences.

His background is in mathematics software development consulting, where he's living technical solutions across a range of sectors. Partway through his career, he returned to academia to complete a master's in computational science, focusing on quantitative approaches to biological systems. His research sits at the intersection of machine learning, statistical modeling, and network analysis with a particular interest in patterns of social behavior, whether in humans or social insects.

More recently after a fellowship in news speak house, he's become increasingly engaged with political data. Certain, the executive director at Indiana University's observatory on social media studying how misinformation propagates through networks. The combination of commercial software experience, quantitative analysis and behavioral research gives 'em a distinctive perspective on the broader social and political impacts of technology.

His present work focuses on analyzing social networks, looking particular at how information circulates within societies and the various ways this shaped lives. Today's talk will be on. The intersection of that and the election in the US. Without further ado I'm gonna hand it to John and you'll have a sort of Q&A afterwards.

But John, take it away. Thanks, Noam. I'll just share my screen. So let's see if this is working. Can you see the screen now? Hello? Can anyone hear me? Yes, we can see the screen. Yes. Great. So I was thinking the thing to do would be if anybody gets a bit stuck or lost during this just pipe up. And ask questions as we go, because some of it's a bit detailed and complex. Just say hi and just ask a question.

We'll try not to get too derailed on any tangents. Yeah, just, and organizations I've worked with. So just an overview of what I'm gonna say today we're going do I'm gonna do a little bit of background on network science, so little network science 1 0 1 and a bit more about dynamic social networks and online communities within that.

And some work I've done on that. Before I move on to looking at the rise of Trump and I present I'm now looking to call in the anatomy of a social media political mouthpiece. So what's the network? Start very beginning. A network has.

The concept is a node. It represents objects. In the real world. It can represent anything really, but in this case, often nodes represent people. I, my examples of Donald Trump and Elon Musk in this particular case, just to pick something topical. So as well as nodes, you have edges and edges represent relationships between objects.

So a relationship between Donald Trump and Elon Musk could be considered as friends. However, some networks are snapshots in time and sometimes we want to think about

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networks as dynamic and changing over time. So in this case, this relationship might stop and Donald Trump and Elon Musk might not be friends anymore.

And a static network can't really capture this change whereas a dynamic network can. So some of the work I've been doing has been studying dynamic networks rather than static ones. The second concept is this idea of a network community. So I've just done a picture of a network there. It's very abstract.

There are no actual people, but you can just see some nodes and some edges between them. But on the left there's a cluster of nodes that are very connected to each other, and that is something we call a community. I've highlighted that in yellow. So the idea of a community is that edges. That's what, it's a very vague term and there's a very, there's a mathematical definition of what communities are, but in this case, I'm just thinking it in those terms.

It's very simple. You have lots of edges within the communities and few edges between them. Examples of human communities can, people can form communities around sports teams, professional environments, religion, which a pop star they tend to like. So communities are very common in human society.

They're important way of what we, how we are, part of how we live and organize ourselves as people. So going to are we okay at the moment? I can keep going on to the next concept I'm gonna discuss is homophily. And this is an idea of how these groups form in the first place is with Ho Philly.

We tend to bias our interactions towards similar other people. So you might find most of your friends share similar political opinions to yourself. So that's a common idea of homophily. There are many different ways Homophily works based on occupation, interests, geography, ethnicity, all sorts of other factors are involved in homophily.

But the basic principle is birds and feather. Excuse me.

Got a frog in my throat, great birds of a feather flock together. Yeah. So that's this idea of people biasing their interactions. Another idea I can think we think about is social transmission, where you copy your language, opinions, belief or behavior from other people. This social transmission is an important mechanism of how ideas evolve and how things change over time.

There's evidence that this exists, but we don't really know how, what, how it works in terms of the underlying principles of social transmission in the way we do and understand genetics. Transmission and those way, those physical processes. I've just got a social copying there, baby copying the mother.

Okay. So I've got these concepts I've introduced, got a network, we've got ideas of dynamic networks. We've got ideas of communities and networks where communities are quite clustered together. And based on those ideas, I'm interested in how groups can dynamically evolve over time. So if we take a network and we wanna see what the dynamics of groups changing over time is, and then.

We'll eventually get to it, but how do these network theories apply in real world situations? So can we find communities of people on Twitter, like the communities I've described, and do Twitter groups change over time? And the first thing we did years ago was to simulation a simulation. How?

So what you're seeing there is a network of four different types of individuals, got red, blue, pink, and yellow individuals. And the idea is remember ho Philly, that all the people with the same color share similar opinions or something. And the network started. Everybody was just rewiring to everybody else.

What I've done is change the level of homophily in the simulation. So now while some individuals are rewiring to other random individuals, we're also seeing. How the effect of homophily and how we've got these clear communities, clusters of individuals, which are all the same color. Another part of this simulation is actually individuals are changing color over time as well.

And then there's also this spread from individuals to another. The social transmission of colors to from one

individual to another.

Which is interesting 'cause you get this flow of people between groups.

So this is a very basic simulation. There's not, there's nothing very different going on and just four rules, but it does show quite interesting dynamics of groups. It's basically neutral.

Let's see if anyone has any questions at this point.

No. Shall I carry on?

Okay. So there's the idea of

Great thanks, Tim. The idea of these communities that have these strong levels of internal connections and how the those communities might be represented in the real world. And in fact, what we can do is we can go to Twitter and we went to Twitter and we looked for these communities on Twitter, and this was like a study of the whole of Twitter in around 2011. It was right early in the kind of lifecycle of Twitter back in the days when we thought that Twitter was like everybody speaking to everybody else.

Here you are beginning to see these nodes are communities and the strength of the links between them is how often they retweet each other in this case, I think. Yeah. And they're not retweet how often they mention each other in each other's tweets. So this was a mention network. You can see that some of these nodes, like Justin Bieber or.

Of the nos have very strong internal connections between within them and much weaker connections to the other parts of the network. So we've got this really quite strong

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community structure on Twitter here with how people mention each other and talk, have conversations with each other on Twitter.

You can see early days, but there are. Political groups. We've got Pelosi, Obamacare, and POTUS around here. There's a British group, rubbish reckon bli me. And this is like a map of Twitter in 2011 and who was using it and what kind of groups there were out there. So that was exciting for us to find that.

But the next stage was to say, okay, so we've got this big change in the political landscape of Trump arriving in 2016, and we wanted to use these tools and these theories, try and understand what was happening with Trump in that particular case.

This is next part two, the rise of Trump. It's like a Star Wars. And there he is on the escalator coming down the stairs. Still at that point, pre 2015 Trump was pretty much the comedy celebrity candidate who came in every four years and did a candidacy and nobody took it seriously.

It was like, oh, it's Trump again. Ha. Yeah. So that was the case sort of Trump walked into. But he had low campaign funding. Nobody took him very seriously. Obviously today he's completely reshaped the political landscape as probably the most powerful politician in the world. So there's quite a change there.

From this comedy candidate to this very important politician. So the questions I'm trying to look at are the, what the forces were behind this, the drivers, were there factors like intervention from Russia? Was there a large scale desire for change that Trump tapped into? What was the role of Twitter amplification here, and can we find evidence of that going on?

A little bit more about Twitter.

Trump basically has said himself that he found Twitter to be very effective as his personal soapbox. He actually had 3 million followers in 2015. That shifted to about 13 and a half million on the election night in two, 2016. So he had a big growth in followers. I think he's around a hundred million now.

I didn't check, but that's he's got a very significant ability to talk to people from Twitter. He. He uses when he bypasses traditional media, and that means he is able to say whatever he wants to people within some, still some boundaries, but those boundaries are quite limited. He can pretty much speak unchecked to his followers and it's instant as well.

He gets his message out very quickly so if anything happens, he can use Twitter and or he was using Twitter. He still does. To get his messages out very quickly and changing the narrative. On top of that, we've got these ideas of Twitter algorithmic biases. So we've got this idea that people with more followers get more followers in science we call this positive feedback.

So the more popular you get, the more popular you get. Is this idea on Twitter, and there's a lot of celebrity culture on Twitter, and people use that to get very popular and a few people

get most of the popularity on Twitter, and that's a factor of the Twitter world we live in. Let's have a think about what we, what, how we got to apply these ideas of community structure.

Communities on Twitter and dynamic networks to what happened with Twitter, with Trump's rise to power. So what I did was a study of the network dynamics of people on Twitter. The research questions of that were what were the different groups of people involved? How was Trump's campaign amplified on. And is there evidence of outside interference?

So let's have a think about how to build the sample. Basically what I wanted to do was to build a collection of lots of Twitter accounts to try and understand who was out there and what their kind of political allegiances were. To do that, we developed an innovative sampling algorithm that basically the idea is you take pick account, you download all of its followers and who it's followed and then you look at all the accounts that have been followed and have been followed by other accounts and find an account that hasn't been yet that's most closely linked with account.

That most closely linked account is the one to sample next. And you do that, you start with, we started with the AltRight Twitter account, which was like an account that was quite heavily involved in AltRight Twitter because we were interested in the AltRight as well. And we grew around that. And we found 250,000 accounts in 2018.

So we've got this sample of 2015 accounts and we 250,000 accounts. And we know who follows whom. So we can build a network of that. And this is the network we found in terms of, again, the communities. So the way to read this is we've got.

What I can do is like when I take a community, so if we look at the sort of community, a conservative, the reason why we know this is conservative and top conservatives on Twitter is because that the accounts in that group are much more likely to have the word conservative in their biographies.

Whereas group B, the Trump group, they're much more likely to have Trump supporter or Trump or hash. In their biographies. You can see again that these communities are much more likely to follow other accounts in the same community. But there's some, still some links between the communities. And one interesting thing here is you've got this quite more far, altRight community, which is community C. That follows the accounts in the conservative, traditional, conservative and the Trump communities. However, they don't seem to follow it back very much. Most of the arrows coming outta that group rather than coming back into it. There are a few, but these are anti.

Other groups like that who are obviously not very quite right wing as well. You've got the UTEP, British Brexit group there as well. And interestingly, I think this star group is important because it shows that it's like we got a fairly complete sample of right wing accounts on this sample.

The ones outside of this were more general author marketing, social media accounts that are less interesting. So these are this is a sample of the right wing twitterati, if you like. It's like this body of people who talk a lot about politics. And there are thousands of accounts here.

There's a more fine grain. So these were like the bigger groups and we can actually zoom quite far into these small groups. You can see the Proud Boys were there, quite interesting. So those are interesting, like more narrow confederates. People talk about masculinity. I think there's Gamergate in there as well.

But it doesn't add particularly much this.

So we've got these accounts thousands of accounts on this map, and we were interested in, we've got some details about all these Twitter accounts and we know when they're created so we can look at how these accounts are created over time. And so we can plot, we are focusing on the three kind of most interesting groups, which was the Trump Group, the AltRight Group, and the GOP, which stands for Grand Old Party, which is the Republican Party's nickname.

And you can see how like different sort of events over time have shaped how. People to go onto Twitter. And the initial kind of tea party movement around 2009, which was after Obama had been elected, there was this big tea party movement. So that's, that mobilized a lot of people to start getting onto Twitter.

To 2012 US elections, which were pretty bland. Not particularly exciting, but you can see the 2015 announcement of Trump getting on the escalator really did change things. The lots of people were setting up accounts for Trump. They were strongly mobilized. And there was a lot of interest in the.

Kind of accounts. Nobody was interested in setting up accounts to support Republican party. Everybody was interested in Trump accounts. There was an a rise in AltRight accounts at the time as well. But as you can see, the. So there is a link between sort of Trump and stimulating the alt right as well.

The second thing we can do is this kind of dynamics of who was following whom over time. So one thing is we've got information of how people were following other accounts. We can basically put the order of following and we can look for accounts that are being created. And if you follow an account that's being created after a certain time, then any accounts you follow after that time will have you'll know that's have to be followed after that account is created.

So we've got this way of inferring when an account was followed, basically. That's a simple way of saying it. And it gives you a pattern of how follower preference changed over time. Excuse me.

Excuse me. Okay. We're looking at how these follow, how people change their follower behavior. And I think the interesting thing here was like. Now the GOP group, which is the one at the bottom, was they were all following each other. And then that was declining. And then they all just decided, okay, now we're just gonna follow Trump's accounts instead.

So they all changed their following behavior to following accounts in the Trump group. The Trump groups deeply were, they were following GOP accounts, but they steeply changed

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and changed the following other Trump accounts. So you can see this kind of evolution and creation of a new group of online community based around Trump here.

At the same time, the alt-right group did shift from changing towards Trump, but they were mainly they're mainly quite isolated following each other, and nobody else was following the alt-right group. So there is a distinction between sort of Trump followers and alt-right people here that we can find.

I did a little video of how this changed over time. Actually, I'll pause that. I think there are just a couple of so Trump's announcement mobilized a lot of people to move on to Twitter. You can see a new form, community form, but it was dominant over the old GOP community. And you can see this sort of happening over time in this little video which we made of the accounts.

And you can see GOP growing 'cause of tea party protests and the sort of Trump group was growing with it, but they were mainly following GOP accounts. You can see this orange line not following back at the time, and then things start to change. Around 2015, and you can see there's this shift.

Trump announces a campaign. There's already growth there, but now there's a massive shift in the Trump group, and you can see now the GOP group is following the Trump group rather than the other way around.

Again, the AltRight was a sideshow to this, I think.

One of the questions we asked earlier was the intervention. Did foreign state actors get involved to create this pattern? Or what, what was happening? So the two types of intervention out there are troll forms. So these were like based in St. Petersburg, the IRA, it's called.

And they were stirring up trouble on the internet and they were amplifying a lot of divisive issues until they were largely found out and banned. Trump did plenty of that himself as well. Yes, I think they may have played a role. I dunno to what extent we can't measure that. But what we can measure is whether there are automated accounts generated by bad actors.

And you'd expect Russians to be doing a lot of that, as well as the troll farms. You can use these accounts to amplify people, legitimize what they're saying by agreeing with it. And we use this tool called bottom meter to look for automated accounts. Bottom meter is made by Indiana University.

And was still is at the time a very renowned tool for looking for these kind of bots. And it has a kind of bot score. And if you're over sort of 0.8, then that's considered to be a bot. So the long insurer is we didn't find evidence of bots. There were very few counts over the 0.8.

There's a kind of natural, distribution of bot scores that you'd expect just from the tool. And they're very similar to the three groups. And in fact, actually, interestingly, the GOP group showed more evidence of bot activity than the Trump group. The Trump group was found by this tool to be organic and real people in general.

And the same with the. It just seems like it's just real people here. So the numbers here, we've just are just dialed back. The GAP had 44,000 people. Trump had 52,000. Those groups, communities familiar, and the AltRight had 16,000 people in it. And they're very low, 1.5% bots in these groups.

Maybe those bots were quite active, but I don't think so. But on total they have like around 38 million followers these accounts. So they, the idea here is these numbers of followers mean that these accounts were quite active in amplifying everything that Trump said. They'd all. Message him. They'd all agree with him.

These millions of followed then output to these millions of followers. So whenever Trump said something, he would, sorry. There's a message

was somebody wanted to ask a mess a question. It was just me saying that the fact that the GOP looks more like bots might be because there's like party lines that are sent out. So maybe that looks more like a bot, but actually is just like political discipline. It's just me on that. It could be that.

Yeah. Yeah. I think the most of the way a box identifies just looking for suspicious, username and things like that. But no, you're right, they do look at a few posts and if there's a lot of repetition, then yeah, I think yeah, that could well be it. But yeah, so we've got this big amplifier, millions of followers of these thousands of accounts, all like retreating one person and following what one person's saying.

Yeah. So it is a very powerful apparatus for getting your message out that has been massively dominant. So just a bit about what I've been saying. A new movement to Trump supporters who took over from the GOP. The operator was in the fringes. And we have the anatomy of a mouthpiece here, the apparatus.

And behind that is this, basically social media have created this new ways to campaign, an organic movement of people who join Twitter and amplify the messages. And again, getting move. People who join and promote one single person's ideas and amplify them creates a very powerful movement and a very powerful political entity. The evidence of outside interference is. So just a bit about the take home messages. As I'm running outta time, I've probably gone over a bit.

Trump went from a comedy candidate to powerful politician, and there's a why, how and who here? Why did he do, why did he do that? Suddenly there was a gap in the market for him. There's a disaffected population, the future looking bleak, a rust belt who'd lost manufacturing to China. And he spoke a lot about China in his campaign.

How did that happen? Social media amplified him and that shifted the way of campaigning. It wasn't about having a media, a TV, media presence so much. He was able to go directly through social media. Who, Trump was the man who his celebrity and other characteristics fit well with this mode of populist online social media campaigns.

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And we're seeing UK analogs for that. We've got Rise of FARs, Nigel and Zach Polanski. We were both using populist campaigns and social media. Messages out. So yeah, there we go. Thank you for everyone. There's a whole list of people who helped out with these projects. So yeah. Thank you. So maybe we should move on to questions.

Yeah. Yeah, so big thank you to John. I will take some questions in a second, but I just wanna say before I do that, we are gonna run a poll at the end of this meeting and we'd really like to get your feedback on how it went. So please stick around for that. It's just a couple of questions and we really appreciate it.

I will now take some questions if people wanna put hands up or type their questions in the chat. And I'm very happy to take some questions, but yeah. Tristan? Yeah. Do you wanna ask? Hey, guys. The, in the diagram where we saw the Trump feedback compared to the GOP, was that something to do also with clustering around a single person versus the GOP being a kind of more amorphous concept?

Good question. I did not do the analysis. It's a very good question as to whether the, there's a more of a hierarchical structure, so there's more about networks as you can look at the structure of a network to see whether a few of the individuals have most of the followings. I think that's a good thing to investigate.

Actually, I didn't do that at the time, but this, because it might just be because of the nature of like a. Single person, and suddenly it's the, it's able to quite be recorded as one, one thing. Yeah, I mean I think there's a lot of in-group following here, so a lot of accounts were all following each other.

And I do remember at the time there was a lot of Twitter campaigns for Follow Friday and all sorts of things. So people all were quite obsessed. Just remembering back now, people were all quite strongly following each other. So we, I don't think we did find evidence of structure for that. Now I remember this was eight years ago I did this.

But yeah, so it's a good question. I think we're not finding evidence of how people follow each other, but there may have been evidence in the way that they retweet each other. Which this date, this, we don't have the data to study that on this. That would be my answer, if that makes sense. I also have another question, which is there more recent data for what's happened on X with Trump and the campaign?

Good question. X data is much harder to. So I don't have access to those data. I do know that I think Trump has this apparatus set up now. He has a hundred million followers on Twitter. He has 10 million followers on Twitter social, who will prepared to then retweet his messages onto Twitter.

So he has pretty effective apparatus set up. Now, I. Yeah, it just works. He just gets his messages out.

So I'm gonna abuse my business chair to ask a question I'm interested in whether, so you talk quite a bit about homily today and this idea that like-minded groups tend to fragment.

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And one of the things that we've seen is a bit of a fat flow proliferation, particularly given the Twitter takeover towards X.

There are people on truth social, on blue sky, on Mastodon, on there were a whole bunch of other ones. And I wonder if. The sort of homophilic forces which drive people to move towards like-minded groups might be creating. True social obviously has a very explicit political bet, but the same thing could very easily happen on a kind of network basis and make it much harder for these groups to interact.

Do you see that? Do you think that's plausible? And do you think there is, do you expect to see further fragmentation in the kind of platform basis, or do you think we might move towards more formalization. That's a very good question. I think there were two factors involved in the movement away from Twitter to Blue Sky.

One is, as you were saying, Homa Philly which is basically that people were beginning to associate Twitter with a certain war of people, group of people, and wanting to be apart from it. But also I think there was a sense of Elon Musk having control over the network and having the power to shift the algorithm, in particular his own favor, which is this very kind of right wing, those on authority deserve more authority kind of approach.

And Elon Musk was very much in for abusing that and has still been abusing that. So people were trying to get away from it. For me, I think the evidence is that these social media are creating these kinds of super powerful people. There is evidence that they do need more regulation in terms of the way that people who have lots of followers get more followers.

Coming from a left perspective, I think should be more equitable. There. There's these inequalities in terms of. Communication and information online now. So I think that's important, but so people might choose to go to different social networks based on how inequitable they are, and that's a different dynamic play, political dynamic as opposed to a homophilic dynamic.

Hannah, do you want to ask a question? Yeah. My question? No, you might auto mute 'cause I'm sitting next year. There we go. Yeah, my question is I think this is really interesting research because a lot of the times we as campaigners are like, oh, it's all bots. It's all bots, we can't fight this.

It's all bots. Whereas actually your research shows that there was no bots in that whole kind of ascendancy. This was organic. People deciding to create accounts in support of a person. And I think sometimes that can be really challenging to those of us on the progressive side because we're just like, it's easier to say it's all bots.

So I think in terms of like concrete lessons for campaigners, it definitely signals to us that we need to get more organized, we need to get more people involved in sharing our messages. And that building that kind of organic movement, there is no shortcut to doing that basically. So yeah, I dunno if you've got any sort of other takeaways for campaigners that you'd suggest. Yeah, about I think the who question that I said at the end of why it's there's a who dynamic to this.

And I think there's an idea that celebrity culture and influences and popularity and those getting more popular and those playing the popularity game. Are very important in the way this particular apparatus that I call it social media tools are being used. I dunno to what extent the kind of progressive movements and labor have got their head in the sand over this kind of ways.

Campaigning and promoting slightly more narcissistic individuals or whether that's something that is basically antithetical to progressive ways of movement. And the progressives have to think very carefully about where we go from here because we cornered in by this. World where world to get ahead, you have to be narcissistic and big and have a massive personality.

And that goes against a lot of cooperative values and having, giving individuals having too much power and things like that. I think those are important questions for the movements to think about in terms of the way they build these movements online.

So two things. I'm gonna launch the impact poll, but I've also just seen that Tristan put a question in the chat where he asked if you've seen anything about the Mamdani campaign in New York. So I wonder if you have any thoughts on that? In, in the context of it's just happened. Yeah, that's great. It does seem that it does seem that there have been.

There is suddenly a scope for kind of more influential young generation X media savvy people who are able to get their message out on social media much more effectively. I haven't, again, the amount of time and effort to do these kinds of studies is very time consuming.

So I can't just quickly knock up an analysis of how Mamdani's campaigning was working. But I think that's a very good question. I think here's an example that is possibly gonna be very influential on the left.

Thank you very much and thank everybody for coming. If there's any last questions, I'll state 'em, but otherwise I'll bring this talk to a close. But thank you to John and to everyone here today who came along to this. Thanks for coming. Thanks everyone. Good to see you all.