



# **Dr Angus Cheong**

Interviewed by

**Jane Bird**

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Via Zoom

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*Welcome to the Archives of Information Technology where we capture the past and inspire the future. It's Tuesday 15<sup>th</sup> November, 2022 and we're talking on Zoom as has become customary during the Coronavirus pandemic. I'm Jane Bird and I've reported on technology and the IT and telecoms industry for newspapers such as The Sunday Times and the Financial Times since the early 1980s. Our contributor today is Dr Angus Cheong, a specialist in methodology, internet research, public consultation, public opinion research, data mining, e-policy strategies and e-government. Angus is founder and CEO of uMax Data Technology which uses AI to design and develop tools for research and educational use in Asia in academia and industry. He's also chairman of the Asia Pacific Internet Research Alliance, a pioneer in internet research in the region. Previously he was an assistant professor for thirteen years at the University of Macau. In 2003 he received the Elizabeth Neilson [Nelson] best paper award from the World Public Opinion Research Foundation.*

*Angus, welcome. I'm very much looking forward to hearing more about your professional life and experience in internet and public opinion research, web mining, e-policy strategies and e-government. So, to start at the beginning, I think you were born in 1972 in the Canton Province in China, is that right?*

Oh yes. Yeah, I was born in mainland China and then I emigrated to Macau with my family when I was ten.

*And how was that? That must have been quite a big upheaval for the family.*

Oh yes, during that time, because my relatives, actually my maternal grandmother was living in Macau, and during that time quite a lot of people, because of the openness of the Chinese government at that time, so people, a lot of people moved to Macau from the mainland and me and my family were one of them. So during that time we- it's quite a dramatic, dramatical change for us in every aspect of our life.

*So, yes. I mean was it a, would you describe it as a happy childhood?*

Oh yes, even it was quite a difficult time for our life when we moved, first arrived in Macau. And we actually enjoyed our life during the time. And we started, because I was still young, a child, so not very much burden for me, actually. And I just followed my family and moved to Macau and then I started study, that's...

*So they'd moved for economic reasons, had they, presumably because there were better jobs in Macau or more prosperous life?*

Er, actually at that time I have no idea, actually. I was enjoying my life, my study life in my country, my home town, and... but after moving to Macau I found it was a little bit different, it was different and to start a new life actually. But since you started to study you made friends, you have classmates and you have teachers, so you started to enjoy what actually as a child you enjoy in schools and you can, you could do like, say, study, activities. And also since at that time we started our new life we got to work, my mother, actually I, my mother brought me and my young sister to come to Macau first and later my father joined us and my, another younger sister with my father joined us maybe three or four years later. So we are, we are not from a rich family, I would say. Of course at that time it's the seventies, it's the seventies in the last century, so you know, the situation during that time, it was in a situation that we were not able to – how can I say – we are not, we were not from a city, we're from a village, a small village, so we got to start everything, actually everything from the very beginning in Macau. And my mother needed to work and it's not easy for her to find a job at the very beginning and we got to rely on our relatives at the beginning of our life in Macau, especially my grandmother and my uncle, so they help us to settle down.

[00:06:32]

*Yeah. I see. So were your, were your parents quite concerned about your education, was that a strong driving force in your family?*

Yeah, maybe one, economic is, was one of the reasons. Second, education was also one of the reasons. And the trend for those people who had relatives in Macau

actually had the opportunity to come to Macau. So I think it's a combination of several reasons.

*I see, yeah. So it wasn't just that they wanted you to be educated, but a number of factors together. And your sisters as well, did you have a happy relationship with your sisters and your parents? Were you...*

Oh yes, absolutely. Even now we, because our whole family now is in Macau and my two younger sisters, both have two sons respectively and I have a son and daughter, and my parents are living nearby. One of my younger sister also, my younger sister's family are also living nearby, so we got together very often and we communicate and gather quite often actually. We had a very happy family, big family.

*Yeah, that's right. Okay, so that's good to know. So you developed various hobbies, I guess, including technology. Were you always inspired by technology from the early days?*

Oh, course at the early days we were actually not in a good situation in terms of economics, in terms of the living standards. And we, I myself actually work since I... I, actually I – how can I say – I work through my way with my studies when I was in primary school actually, from primary school I work while I studied. So...

[00:09:29]

*What sort of work did you do then?*

Yeah, you know, in the early of eighties last century, seventies, late seventies, early of eighties and actually the whole eighties of last century, Macau's economy was very much relying on, say, the government processing industry, the incense industry...

*Incense?*

The incense, the incense.

*You mean...*

The smell...

*Perfume? Yeah.*

Yeah, the incense industry. And the plastic processing industry, plastic flower processing industry and watch assembly industry. You know, Macau is the neighbour of Hong Kong and Hong Kong is the manufacturing centre during that time. So some of the processing procedures were done in Macau. That's why many of the young people during that time helped their family and we went to some factories and brought the plastic flowers, the watchbands back home and then we assembled them and then returned them to the factory. So that's how we work actually at that time.

*Wow, yeah. So yeah, and you were doing that from the age of ten then, were you?*

Not ten, I think it's eleven or twelve, something like that. Because during that time you helped your family and that's all how we spent our childhood. We went to school, we had activities in school. Actually I played, I practised table tennis, you know, people, when they meet Chinese people, oh, you know kung fu, you know table tennis? [laughs] Actually in Macau when I was at primary school I started to play table tennis. So, three things we actually were doing at that time: help your family to do the product processing work; second – the first of course is to study, okay? And after study, after school, you have some kind of activities, I liked playing table tennis. And after that we work at home. Yeah, that's three things that we normally, we were doing.

*Yeah. So there was some time, some leisure time in the sense that you could do your sport, your table tennis or presumably football as well? I think you said you like English premier league.*

Yes, we played football, but during that time it's not the grass ground, it's the sand ground, you know. [laughs] Yeah, we played, actually we played in the evening or on Saturday weekends.

*Okay. You were always a highflyer at school, you seem to have done very well academically. Was that from the beginning? Were you always successful at school?*

It's quite embarrassing. [laughs] No, no, no. Actually, yeah, thank you so much. I was lucky that I performed, yeah, quite good in school and I got scholarship. So, yeah. It's just, I don't know how to say it, but I didn't spend too much time on study, but... [laughs]

[0:14:02]

*But you did well. And was your interest in technology, did you, I mean okay, so we're talking about the 1980s, I guess you started to have computers in school a bit, did you? Did you start to get interested in the internet? Well, that was before the internet but...*

Yeah, before the internet.

*... at an early age?*

Yeah. Late eighties last century I had my first computer. I'm not a computer guy, but I, but all around me, the stuff around me was so technology related. When I was in high school, the senior secondary school, the last year, I started to work for a company which sold the office equipment, the office equipment, including the PBX telephone system, the photocopier, fax machines, these kind of things, you know. So I work part-time for that company after school.

*That was when you were what sort of age then, about sixteen?*

Yeah, sixteen, I think seventeen, something – sixteen, seventeen, I started to work as a part-time- they called it as a salesperson but actually I was not, I was helping the company to do the translation of the user manual from English to Chinese. And then I taught, I trained our client to, how to use those equipments during that time. So, that's why I learnt how to operate the telephone system, what they called the PBX

telephone system, the fax machines and that's why I became, oh, it's quite skilful things. And of course you need to learn how to, you need to learn the process of those equipments and it still has some kind of electronics elements there, some automation there, so that's how it worked for me that I became more familiar with the technology, started from that time. And of course, in schools we were taught some language like Fortran, C language and BASIC. At that time we are still using DOS, so it's, yeah, at this time it's, yeah, different kinds of practice that affect me to become fond of technologies.

*And it was partly then your language skills, because obviously you'd been learning at school, English at school, hadn't you? As well as Cantonese. Was that not your native language then?*

No, you know, I came from a village, right? And in a small village which is in the southern part of China, Guangdong Province, and, you know, we have a lot of dialects in one province. So, I spoke dialects, but when I came to Macau people speak, people speak the, what we call the official, the official Cantonese, I would say that. So, our dialects are different from the official Cantonese. I'd got to learn, but I can understand. I can understand what people say in Cantonese, but when I spoke in our dialects, the people who speak Cantonese could not understand us. [laughs]

*No, so you had to learn a lot of, you had to develop a lot of language skills at an early age.*

Actually, not a lot, but from our dialect to Cantonese and of course I learned Mandarin also, so...

*Oh, did you?*

Yeah, yeah. Yeah. I learned Mandarin when I was in the mainland and actually I stopped speaking Mandarin for quite a long time since I moved to Macau. And then at the university life I resumed to learn Mandarin.

[00:19:20]

*Okay. So you had a lot to cover with the technology and the language skills then, but you decided you had this fascination for communications, it seems, from quite an early age. When you were leaving school and deciding what to do at university you chose that communications route, was that your main interest? Not technology.*

I think it's quite natural, it's quite natural. At that time the University of Macau actually didn't have the department of communication. They had a programme called English Communication, actually it's Communication in English Language. And the programme looked quite interesting, which covered something like technology oriented courses, communication skills courses, language courses. So I think it's quite, it looks like what I was doing when I was in high school and when I was working as part-time in a company. So it became quite natural for me to choose that.

*Right. And you became president of the Communications Society of the Student Union, I think?*

Yeah, I think it's one of my personalities that I like to be pioneer, I like to be a pathfinder. You know, in a, as a part-time staff in a company I actually helped the company to work out all those concise user manuals in a diagram so that we can help our clients to understand how to operate the machines more efficiently. This was one of my capability to do something new. So when I was a university student I liked to invent something or organise something new at that time. So the Communications Society was one of them that I started to organise and advocate including those activities like the newspaper, campus newspaper, and other activities related to media, advertising, public relations and this kind of stuff.

*And what, so were you concerned about censorship and were you restricted in what you could say at that time? I think you said that it was quite notorious – you didn't exactly use that word – but the newspaper was obviously, received a lot of attention, I think you said. Does that mean you were trying to push the boundaries in terms of freedom of speech?*



No, I don't think we at that time, because we are quite, we were quite supported by the community, the school, the faculty and the university, so it's quite liberal for us to do this kind of stuff at the university at that time. And the newspaper actually received quite a lot of attention because it was the first of its kind in both Chinese and English. And we had, we learned from our... yeah, two of our lecturers are from the UK at that time, and we learnt from them how to publish the newspaper. We have photos, cartoons, different kinds of sections, so it looks not like, not a traditional campus newspaper, actually it's a very, very like a real newspaper. So it received quite a lot of attention.

[00:24:25]

*Okay. But you're not at this time, you're fascinated by this world of communicating with natural language, you're not wanting to be a computer programmer or get into that side of things, you're always more interested in the media?*

Yeah, because, you know, communication actually is a discipline very much related to media industry and I myself, I knew myself was not a good programmer because I liked to do many different kinds of things at the same time. So programming or coding was not my interest. But I would like to know why and how we can apply these programming techniques or skills to help, to help people to work efficiently and effectively. So, yeah. And I, my personality is more outgoing, more outgoing and I would like to do something at the same time. So that's how it goes.

*I think, I mean, yes, one doesn't want to pigeonhole or kind of put people in categories, but yes, you could say to be a programmer you've got to be, I guess, quite single-minded and quite focussed on one thing and you wanted to be more wide-ranging and so on. But you're interested in the application of the technology more than in the technology?*

Yes, yes, exactly. That was one of the reasons that I left the university. I wanted to apply the knowledge that I gained from academia into the actual practice.

*Okay, so, but you did stay in academia quite a long time, didn't you? You did a doctorate and so on and you moved universities as well. So just perhaps you could explain a little bit more about that sort of, you know, your education at that final stage, you wanted to do the research for yourself.*

Oh yes. Actually, after the graduation of my bachelor degree I work for a manufactory which produced the computer monitors. You know, during that time it's not the flat screen, it's CRT display during that time. So, what year? It was 1995. 1995 I joined a company which had a factory in the mainland, so I was a marketing, I was recruited as a marketing executive at that time, because in the company not many staff understand English, speak English, and the factory needs people to communicate with people from the suppliers of the CRT from South Korea. So I actually play a role as a marketing person and a translator, so I communicate quite a lot with people from, like from LG during that time. And so you see, it's still very much technology oriented work.

*So were you using the English language to communicate with companies in South Korea then, or ...*

Yes, in English.

*In English, yeah.*

Yes, in English.

*And they were speaking in English too?*

[00:29:06]

Yeah. They had the branch office in Hong Kong and then we also travelled to meet people in South Korea, in Seoul at that time. And so after one year it's quite – how can I say – it's serendipity, it's quite a serendipity that I met, actually I was informed by my former teacher, my former teacher at the university that they started to recruit teaching assistants, teaching assistants at the university because it was 1995 at that

time and Macau returned to mainland China in 1999. So they'd got to prepare people who can, prepare the qualified teachers at the university. So they have a programme for recruiting local people to take up some positions, teacher positions at the university. And I was invited to have a go, so I try, oh, why not? Because it was the department, actually it's not Department of Communication, it's the Communication Programme. So I... And the prospect looked quite good for me at that time, so I joined the university.

*And that was the University of Macau was it? Or Hong Kong?*

University of Macau, as a teaching assistant.

*Right.*

Yeah, as a teaching assistant. So I started to teach as a teaching assistant, started to teach at the University of Macau, since 1996. And after you became an academic person, then you got to pursue a higher degree, right? So I applied for Masters degree in, Masters studies in Hong Kong. That's how it started my academic life, since 1997, one year after I joined the university.

*Ah, I see. And that was, so did that mean you had to relocate to Hong Kong or...*

No, no, no, no, no. Because for the teaching assistant the programme looked quite good, was that you can, you work a while, you can also, you can also study. Because they want to have more local people to be able to be the professors at the local university at that time. So the programme supported us to go abroad, go to Hong Kong or whatever, they encouraged you to get a higher degree. So they allowed, they have a very flexible time for me to go to Hong Kong every two days, two days every week. So, they had courses on two days, then I went to Hong Kong. Yeah, back and forth, back and forth.

*Yeah, I see. And the reason for this was because they felt the teachers, the existing teachers in Macau were lacking in- I haven't quite understood what you needed extra,*

*why they needed to change the, well, just to become part of mainland China, what did they not have that you were expected to get for them?*

Actually, the University of Macau during that time was expanding. They need more professors, they need more teaching staff.

*Okay.*

And they have the programme, encourage the local people to be professors.

*Okay.*

So I joined the programme as a teaching assistant, then I got to get a higher degree in order to be promoted to be professors. So otherwise, you stay just for a few years, then you were out. That's why we, during that time I had several of my classmates also joined the programme and almost every faculty had that kind of programme, to encourage local people to join them.

*I see, because basically the university was expanding, more were going into tertiary education and they needed the staff.*

Yeah. And during that time most of the teaching staff were from either Hong Kong or overseas.

*I see, yeah. So they wanted indigenous people to...*

Yeah, exactly.

[00:34:44]

*Of course. Yeah, so, and so then you wrote this paper which won you the Elizabeth Neilson [Nelson] award, the World Public Opinion Research, so you became obviously quite interested in public opinion and, you know, finding out what people thought. Was that a special particular interest for you?*

Oh yes, actually I was very interested in understanding people's behaviour and attitudes, so surveys was one of the methodology that you can achieve that goal and when I was studying at the Hong Kong Baptist University my supervisor was an expert in that area, in media consumption and media effect. And basically those people who are doing the media effects and media consumption rely on the methodology of surveys, interviews and these kind of things. So I started to work on that and I became very much fond of the methodology part. And later on at the University of Macau I initiated the establishment of the polling centre, or what they called the laboratory of computer assisted telephone interviews. So I was in charge of that laboratory and started to work on the surveys and at that time we used the system from a company from the US. So, but they don't have, they didn't have the Chinese version, so I communicate quite a lot with the technicians of that company and I... and later on they tried to make the Chinese version. So I helped them quite a lot actually. [laughs]

*Ah ha, yes. So the Chinese version...*

And I helped them to be fluent.

*Would the Chinese version need to be very different then from the US version? Why would it... it couldn't easily just translate or...?*

No, no, no, no. It's not a translation, but because there are quite a lot of technical problems with the Chinese character and the English letters.

*Yes.*

Because Chinese is, Chinese characters quite completely different from the other languages, so we have quite... we sometimes when they translate one function to another, then it's all in unrecognisable characters. So I helped them quite a lot in this sense.

*Yes.*

And then I became very familiar with the architect of the server system.

*Yeah. So you got quite into the technology then, even though that's not your natural sort of habitat, that you don't think of yourself as a technical person, but you obviously did get into it in some detail.*

No, I'm not a technical person but I'm very interested in knowing and understanding the logic and the architecture behind. So that's why you will see later on I had quite a lot of self-invented systems and products.

*So, is that, what do you think won you that award from the World Public Opinion Research Association, what was pioneering that, you know, really stood out that made you get that recognition, do you think?*

It's just a paper, not to me, it's not a... it's an achievement but not as significant as it looks like, it looks. It's a co-authored paper with my supervisor, which, based on a large-scale survey, so I think the significance of the paper was maybe the large scale of the surveys and the media effects of what we were looking at and we found something interesting about how people used the newspaper and used the media to form their perception of the national identity and nationalism, something like that.

Wow.

So, yeah.

[00:40:21]

*So, yes, all this gauging of public opinion and working out what people really think and why they think it, that's fairly ground-breaking stuff, isn't it, or it probably was at that time. As you said, they've always done surveys, but were you really at the forefront of moving this into a new, you know, new areas and into a new realm?*

Yeah, you know, the internet was open to the public in 1995 in Macau and we started to use the internet since then, and then in, maybe in 2000, you know, the millennium and the internet became quite a big phenomena in the area and it's by chance that I met one of the professors from Hong Kong that he was working with a group of people from all around the world on a project called World Internet Project. So I was very interested in the project, it used the methodology of survey to study the people's usage of the internet. So it's quite a, very early days for people to understand how they use the internet. Because in the past the academia studied most of the stuff in the traditional media like newspaper, broadcasting, TV or radio, but for internet it's quite new. So that's very profound and inspiring stuff for me at that time. So, if they used the methodology of survey, why not, I joined the project because I was in charge of the laboratory, the laboratory at that time and I had the resources to work on that. And I'm also very technology-oriented, so internet is one of them, so why not I give it a try, and then I joined the project and then I met those people, including our friend, Bill Dutton, Professor Bill Dutton, who was also in the project. So that's how I started to study the internet. And then even you are studying the internet in a social science perspective, but at least you've got to know the technology behind, the logic behind, for example, how people use Google, and you've got to keep an eye on why we can search, right? During that time not many people know Google, we used AltaVista, you know? [laughs] You remember AltaVista?

*Yes, yes.*

And we used Yahoo, right? But Yahoo is not actually a search engine, it's a directory. So yeah, quite a lot of interesting stuff since then.

[00:44:20]

*Indeed. And is that a group that you're still part of, the World Internet Project? It's a very grand sounding title.*

You know, now it's already twenty years old, so I maybe help on and off. And after I left the university, although I still conducted annual surveys on the usage of internet, I have not participated in the activities since, maybe since, I think it's 2015? 2015.

Yeah, because they have annual meetings, but after the pandemic we almost stopped the meeting in person. But still sometimes we have some meetings online, but I did not participate quite often for the past several years.

*I see. So...*

I still host the website for them.

*Is it actually global, or is it just in...*

It's global, it's global.

*It is?*

It's from thirty countries and regions.

*Right.*

Supporters from thirty... yeah, thirty. And I'm still hosting the website for them.

*Okay. And what would you say, so how would you say our use of the internet has changed then? I mean obviously over those twenty years or more that you've been examining how people use it, what have been the sort of big factors that you've noticed?*

Yeah, it changed dramatically in terms of life, in terms of economics, in terms of politics. I mean socially, culturally and politically changed people's life. And it also helped to boost the booming of the development or advancement of technologies, especially the AI, cloud computing, machine learning, Internet of Things, smart cities. So you can see internet is the backbone of everything for these advancements.

*Indeed, indeed. So your, so then you didn't stay in academe – you had thirteen years in academe in total, is that right? Is that from...*



Yeah.

*Yeah. But you obviously decided to break away and set up, was it in 2009 that you set up...*

2009, yeah. 2009.

[00:47:37]

*Yeah. So what made you decide, right, you want to break free of academe and enter the commercial world?*

Oh, one of the major reasons was I saw myself at the university that I can be, I could be promoted to be a full professor in a number of years if I work hard for publications for teaching, but I realised that my work related to internet research and public opinion polling, these are quite... all I can say, you can put a lot of effort in academia, on the other hand, you will miss something that, which can help the industry. You will miss something. I realised that if I can apply my knowledge in both academia and the industry, that would be fantastic, right? And of course there are other reasons, because I, maybe I saw something that I could contribute to something which not quite popular at that time. For example, I did the survey, I did the polling, I did interviews, but in 2009 the popularity of the social – not social media, actually at that time it's forums, BBS, people participated in forums, people spoke there, people expressed their opinions there, they left their comments there. So I saw, other than the traditional methodology using polling or using surveys, questionnaires, we could have a new area of understanding people through their comments expressed in those forms. So, but at the university there was no such kind of resources or opportunities for me to work on that. Yeah, because, you know, at that time we still, they didn't call it the big data, we didn't call it big data, we just called it, oh, there's some opinions, some textual data there, why don't we, we can find meaning out of the comments.

*Do you mean unstructured data as opposed...*

Yes. Yes, those unstructured data, yeah, the textual unstructured data. You need a larger set-up to do that. You need more resources to do that, right? And especially if you want this unstructured data to be variable, it has to be in a real time manner. It's not several months' or years' research, it's a very practical thing. So if I want to combine the offline surveys and the online textual, what we call textual, text mining or web mining, at that time I called it web mining, because we are mining the content. So if I can combine these two things, then I can have a fuller picture of what people are talking about, what people's behaviour and attitudes towards an issue, towards end product, towards an image, towards whatever, right? So that's how I project, I projected there be an opportunity there. So, a number of factors. Then I decided to move on and left the university and did the start-up.

*And how easy was that to do a start-up in Macau at that time? How did you do that financially?*

Oh, it was not easy. I would say I was lucky at that time because I had some real consulting projects to- the government departments and some commercial companies. I had experience because I was in charge of the laboratory. So I had experience of communicating with those people how to transform an academic paper to a practical report, so I learnt that kind of skills. So when I started up my company I actually had some kind of connection with the industries and some government units, so it was a good start for me to have some kind of projects in hand. So when I started it was easier for me to take the business lead.

*Yes, I see. So you kind of did, I mean in this country we have whole kind of systems for trying to spin out commercial ventures from academic research, but in your case it was a kind of private spin-out from your academic research that you were able to start up?*

In terms of financial situation at that time, it was not a big issue for me at that time, because we are, we were small, we are just a team of three people, okay? Just a team of three people: me and two of my assistants. So it's not very big ambitions at that time. I just want to work it out, so just try and then, oh, it's, there were, suddenly there was quite a lot of requirements, demands.

[00:55:14]

*So you took, you left the department and you took two of your assistants as well, so they lost the three of you, that you said you left and set up this commercial...*

Well, actually they were my MA students. MA students. So I set up the company and they said they would like to join me then. Why not? So we just, you know, sometimes you did not plan so in details, you just ask them, would you like to join me? And they said, oh, why not? That's it.

*Sure, sure. Great. So that was in 2009 and then you were, that was in Macau and then you expanded, so well, actually in the notes I think you don't mention anything more till 2017 when you then opened a Hong Kong office, is that right? So that's quite a, what, eight years that you're working on it before you expanded to Hong Kong, is that right?*

Yes, but before that, actually since 2009, we work on public opinion, we collect data online and offline and we combined how to do this and combined them to see the fuller picture of the public opinions. And then, you know when we did this, we started to create our own system, because there was no such kind of system at that time, we had the survey system, we have CATI, we have web online surveys, we have these kind of systems, but we didn't have the system for us to manage to analyse the textual unstructured data, right? So I thought why not we start to create one for ourselves, and then I started to recruit people from the computer science, from – at that time we don't have data science – statistic people, computer people and then we create our own text mining system. So after that, in two thousand and- because of the shortage of the manpower in Macau in computer science and statistics and data, so we established a branch office in the mainland which is the, the city called Zhuhai, the city of Zhuhai, which is just next to Macau. It's adjacent to Macau, we just cross the border, you walk a few minutes, then you can reach your office there. So it was easier for us to set up an office and we could more qualified people who can help us to develop these kind of systems.

*Yes.*

And of course, later on we found that it's not enough, because we need to recruit more people from different places, like in Hong Kong, Malaysia, Taiwan, Singapore. So we started to think in a bigger picture. And then, in 2015, more or less 2015, we started to think about, hey, this kind of system worked quite well for us, why not we could transform it into a commercial product. That's how the idea came out.

*Okay.*

So, but in Macau it's very, the economy is so small, it's a tiny economy area, the city is so small, we only have a half million of population, so the economy itself cannot help us to sustain if we commercialise it. So we started to think about to go abroad and Hong Kong is next to us, that's why we started to set up a company in Hong Kong. So in Macau our company called ERS – e-Research Solutions, ERS. But in Hong Kong we called it uMax Data Technology because we want not only research, because ERS is too research oriented. But in Hong Kong we wanted to make it as a product, a sales product, service, a software as a service. So we've got to have a kind of data technology or technology related image. So that's why we called it uMax Data Technology and then we start to market a text mining product combining the traditional content analysis and the AI technology of big data technology. That's how the whole idea came out and how we expand our business.

[01:01:19]

*Yeah. Okay, and that's, it's grown from then, then sort of since it's just grown and grown, presumably, has it? How big are you now?*

Oh, yeah, since 2017 we started a uMax Data in Hong Kong, it was not easy because, you know, Macau traditionally was perceived as a casino economy. So how could you imagine that a team from Macau could create a product using technology, technological company from Macau, it's quite difficult for us at the very beginning. But of course, we were, we try our luck and we try hard and put out quite a lot of

effort and over the last two or three years we could say that our business stabilised and then maybe after the pandemic we can grow faster.

*Yeah. So, sorry, the last two to three years, you mean from now, the last two to three years, or you mean the first two or three years that you had the company from 2017 to 2020?*

Yeah. Yeah, because I have a team in Hong Kong, I have a team in Hong Kong, before the pandemic I travelled to Hong Kong every week, twice a week, so it's quite normal at the time. But since the pandemic I was restricted because of the pandemic quarantine measures, so it was very difficult for me to go to Hong Kong and I had to rely on my colleagues in Hong Kong to do the business. And very luckily that our business model is such, so it does not require me as a creator of the product to be in person there.

*No, absolutely. So how, so okay, you mean you've carried on developing and growing through, since 2017 and through the pandemic to the point, how would you characterise where you're at now then and looking ahead for the next five years or so?*

I think for data business or technology business, the most, I would say, I would say we are lucky that our business model has not been affected quite a lot. Actually it has growth, because of people rely on the internet more often and our product is for people to understand the online stuff, the comments about a product, about an image, about an issue. So it, the demand is increasing, actually. And we, actually we target to three different sectors: government, commercial and academics. So our- we recently, last year we set up a company in Singapore which we will have business activities maybe next year, because the travel is not easy for me to go there at the moment, but we are trying to expand it in Singapore and we market our content analysis AI aided – what we call the AI aided – content analysis platform as an international platform, because it's very much based on the technology of AI and the traditional methodology of content analysis. So we combine these two together and actually there are more and more scholars and postgraduate students are using this platform to do their research.

[01:06:15]

*And the platform is called uMax isn't it?*

DiVoMiner.

*How do you spell that?*

D-I-V-O...

*Oh yes, of course. Yeah. No, I looked at your... yeah.*

Why we call it DiVo, because we believe that there should not be Garbage in Garbage out, it should be Data in Value out.

*Yeah, yeah, yeah. Okay, that's great. So, ah, so looking at the big picture of your influence and the effect that you may have had in the world and in your area, would you say, how would you say that, what's sort of been the biggest change because of your work? Has it had an impact that you could identify?*

I think AI is very important. It would be crucial to everything. But, only AI is not sufficient. I believe that the integration of AI and human intelligence would be more practical and sensible for us to move forward to make meaningful things happen. Because especially for our field, when you try to understand people's behaviour, people's attitudes, if you rely on AI solely there would be some issues of like what I just mentioned, the data itself. The meaning, the accuracy of the meaning, the interpretation of what the data could tell you. AI would help us to increase, to enhance the efficiency and the complexity to simplicity. But still in the end, we need people's intelligence to interpret, to make decisions. So I would say, I cannot say, I cannot say the other area like for recognition, picture recognition or the medical, medical uses of AI, but at least in the area of natural language processing, if you want to understand people's mind, you've got to combine AI and HI. Artificial intelligence and human intelligence.

*Yeah.*

So, I would say with this kind of philosophy and beliefs we can understand people in an appicate manner, based on the data we can collect from the internet, because they are the comments, they are the expressions open, these are the open datas, not the privates, not related to privacy or the intrusion of people's privacy. So it would be a very huge potential for us to understand the consumers' behaviour, the consumers' perceptions, the consumers' experience in a more efficient and more accurate way.

[01:10:24]

*Yes. It could be quite scary and dangerous as well, couldn't it? I'm thinking of things like, you know, potentially alleged Russian interference in the US election, I mean trying to, you know, sway opinion. When you understand why people think what they think, the next step is obviously to change their mind, alter...*

Yeah, it's one area that you can apply this technology and methodology to understand people's preferences, especially, let's say, what are the- in the past, when we want to look at the agenda of the election of candidates, you've got to rely on interviews, you rely on the public polls, right? But nowadays, if you can understand people by analysing their comments through social media, that would complement or add more value for the candidates for researchers to understand more accurately and more widely.

*Yes. And that, I suppose you can argue that information can be used or abused, but all you're doing is creating...*

Of course there are quite a lot, quite a number of issues that we need to pay attention to, like the misinformation, disinformation, the fake account. There are always this kind of stuff happens.

*Yes.*

Even if you are using the traditional method, still there are quite a lot of challenges. Every day we face so many challenges and we try to find the solutions or try to reduce the noise as possible as we can.

*If you had to be a bit visionary and you have to think how are things likely to develop in the next sort of five to ten years in this area, what would your forecast be?*

Yeah. It's a fast-paced industry, it requires not as what people think about the AI or technology, but the technology and AI, and especially the cloud computing, distributive storage, the power of the CPUs and the advancement of the integrated system, the cloud, can help us to move much, much faster in terms of the efficiency, like collecting data, collating data, analysing data, visualising data. In terms of the business model, because in the past- now you can pay as you use, right? You pay as you use. But in the past you need to buy a system, you need to, if you want to expand the capacity of your system, you need to wait, but nowadays you don't need to wait. As long as you have the, you have the notes in your bank account, in your credit cards, you just pay online immediately and then the service can be expanded, can be upgraded. So business model will change, will dramatically change and that would both benefit the provider, the supplier and the demander, and the users. And this is the second thing. And third thing is it can be applied to more diversified areas. What we just talk about, the people's comments on the internet, right, on the social media, but actually our team now is developing a more integrated platform for the cross-platforms, cross-channels. Like if you are a big brand name or you are a service centre of the government, you need to collect, you have a different, many touchpoints, right? For example, you have the front desk, you have email, you have telephone, you have social media. So it's very much the combination of the data from inside the organisation and outside. So you need to have the techniques and you need to have the technology, you need to have the algorithms to converge these various touchpoints. And then you combine them, integrate them, that will help, that will benefit, I can't imagine, almost all different sectors in the world.

[01:16:24]

*Sorry, it can help who?*



Yeah. It can help different sectors, different industries, different demands, different requirements. No matter you are a small company or a big company, or government agencies or research institutes, you need not only one dimension, a source of, dimensional source of data, you've got to integrate cross-channels. Yeah, so that what I will see in the next three years or five years or ten years, you have the capacity or capability to gauge the data from different touchpoints.

*Yes.*

And you can analyse the data, whether they are structured or unstructured. And you can disseminate the result, visual the result to different stakeholders. In a real time manner.

*And does this include the Chinese government, by the way?*

No. Unfortunately we are not... [laughs] Our business in Macau and Hong Kong and other places.

*I see. So what would be your advice to young people who might be thinking about whether to pursue a technology career a bit like yours has been, or in the area generally?*

Oh... you mean the abilities of the people who work in this area, in this field?

*I mean, I mean one of- so the context of our profiles on the AIT database is partly as a resource to young people thinking of a career in technology and whether it's a good idea and how they might go about it and maybe what they could learn from the experience of people like you. I mean, obviously, as you've already said, the world is changing a lot and things will be different in the future, but if you had, you know, an eighteen-year-old or younger saying to you today, shall I look for a career in, you know, web mining, what would, would you say yes, and if so, how to do it? What's your advice in general?*

[01:19:08]

Oh, you know, the journey for a person in this field is quite lengthy, quite lengthy. From data collection to the dissemination of your visualised result there are so many steps, procedures along this journey. If you are computer science, of course, it's an area that you can, you can use your knowledge and techniques quite well, but we also need people who are in, not only in computer science or natural science, we need people from social science, we need people from psychology, from public administration, from marketing, from communication, from education. So it's a cross the disciplines area.

*Yes.*

So I think even for our team we have the mixture of different talents from different fields, from different disciplines. So I would encourage people, young people that don't think that it's only one field. It's not only one field, it's a cross-disciplined field, we need different kinds of talents.

*And if you have to look back over your career, do you have a proudest moment that you might highlight?*

Yes. I would say... when I was at the university I would never think that one day I would have my own created product or system, whatever you call the platform. Now I can market it internationally, which is quite a proud thing. I'm proud of myself and I'm proud of my team, that we can make this happen. And hopefully it will be one of the standardised products for people who want to work, analyse or do research with unstructured data, no matter what field, no matter what disciplines they come from. And I would say if I – this is my plan actually – hopefully one day, maybe five years later, I will go back to the campus, I will teach students with my industry experience.

*And is there anything...*

So, so I never thought I have left academia completely, I'm still part of it.

*Yeah. And I guess, is there anything that you would not do, that you might say oh, that was a mistake, I'd do differently?*

Erm... maybe... we are not, we were not ambitious enough at the very beginning because we just want to do, at that time we just wanted to do something different and we just wanted to, started to work on the ideas. We never thought about how we can grow our company and we invite the investment, invite the VC, this kind of stuff. So we are still limited to a very small scale in a business sense. And if we can start it again, maybe we have more, we could have more financial support behind so that we can move faster and we can... But, who knows?

*Yeah. Well, thank you for being so honest. And thank you very much, Angus, for talking us through...*

It's a pleasure.

*... account of your life and experiences in the world of data mining. And it's been fascinating and a pleasure to talk to you, so thank you very much.*

Yeah, yeah, it's a great honour to be interviewed and it's lovely to talk to you, Jane and hopefully you have a nice day.

*You too.*

And I wish you the best.

[end of recording]