

Get to know HAS President Dr. Timothy Chan! The HAS student liaisons met with Dr. Chan to learn more about his professional background, what advice he has for graduate school and early career, his plans for HAS, and what he likes to do for fun.

Che-Yi Liao (Georgia Tech):

Fill in the blank. I am an expert in [blank], and I wish I knew more about [blank].

Dr. Chan:

I suppose you could say I'm an expert in healthcare. And, frankly, I wish I knew more about a ton of subjects. I wish I knew more about statistics. I wish I knew more about economics. I wish I knew more about deep learning! These are all things that I think if I were able to go back in time a little bit and study them more when I was a student, I would have put some more time into that.

Che-Yi:

When did you actually start doing healthcare research?

Dr. Chan:

In my first two years of my PhD, I wasn't working on healthcare. I was working on a mix of applied problems and theory of MDPs. It was fine, but I wasn't super satisfied with that type of research. So right around that time of the start of my third year of the PhD, this opportunity came to work with Massachusetts General Hospital. They were looking for a researcher, somebody with optimization background to work together with them, and that's when I started doing it. I haven't looked back since.

Che-Yi:

After completing your PhD, you spent some time in industry before moving back into academia. What drove you to make that transition?

Dr. Chan:

The bottom line is that I really enjoy being in the academic environment. I really enjoy teaching. I really enjoy doing research. I really enjoy interacting with students. That's the main reason.

Che-Yi:

What did you envision for yourself and your future when you were a student?

Dr. Chan:

In my last year of the PhD, I started thinking seriously about academia. I was really uncertain until my final year of the PhD. I also thought I hadn't really had a real job up until that point in my career, so I wanted to go to industry to work for a bit. But I kind of knew deep down that in the long term I wanted to be back in academia.

Che-Yi:

You've completed many projects in your time at U of T. What is one of the projects that you are most proud of?

Dr. Chan:

I like the project that I'm working on right now. It's a project that we're doing with the milk bank here in Toronto, and the essence of it is that we're helping them to optimize the recipes of donor milk. So, moms donate milk, and the milk bank puts the milk together into various recipes to create milk that they then give out to neonatal intensive care units, for example.

When I look back at this project, from where we started until where we've gotten to now, I'm really proud of it because I think it's a very meaningful project, and I was able to work with several really great students. There is an excellent master's student who is really driving this project, as well as a couple of PhD students and several collaborators from the hospital.

I think it's a really impactful problem. It's one of those things you feel really good about.

And at the end of the day, I think we've convinced the clinicians that using analytics to solve these problems is very valuable. We did an implementation trial with them, and we demonstrated that our approach was much better than the baseline approach that they were using before.

Now we're talking about how we go about implement something like this. So that's very exciting—to take a research project all the way to thinking about implementation.

Che-Yi:

That's awesome! After all these years in research, what keeps you motivated like this?

Dr. Chan:

I mean, it's a bit cliché, but honestly, it's my students. I've taken on an administrative leadership role at the university, and because of that I feel like I kind of have two jobs. One of the jobs is the admin job, and the other is my day-to-day research and teaching job. Unfortunately, the admin job is the one that takes up most of my time.

And I say, unfortunately, because that means I don't get to spend that much time teaching and doing research, and what I miss most, when I reflect on my day to day, is the time actually spent with my grad students, the time that we spend writing together on the computer or problem solving on the whiteboard, or whatever. The students keep me motivated. If I didn't have that aspect of my job still, and it was only doing the admin stuff, I think it could get very tiring very quickly.

Che-Yi:

My final question is, what goals do you have for the rest of your career? What problems do you want to work on, or what do you want to achieve in any aspect?

Dr. Chan:

You know, specific problems are a bit hard to say. I wouldn't say I've had this grand plan of what problems I want to work on now and then what I want to work on next and so on.

Things kind of come to you, and you go meet people. You go talk to people, and then problems come up.

But if there was one thing I wanted to really point my finger at and say I really want to achieve something from this point forward, I think it would actually be implementation.

I think we can all do research that can get published in papers, but I think more and more I have this desire to see what I do get implemented and make an impact somehow, making something cheaper or better or faster. I think that's what I'm really trying to do in the next little while.

Jacob Jameson (Harvard University):

What is something that you wish you knew as a graduate student or earlier in your career? What advice would you give to graduate students or early career professionals?

Dr. Chan:

We could probably do a whole interview just on productivity tips! I won't get into that, but I would say one thing. I remember this conversation I had with my PhD advisor when I was a student. It was something to the effect of, *Oh, it must be great to have tenure*. And he was like, *What do you mean!? It's horrible to have tenure! You have to do more committee work. You don't have time to do research anymore*. I mean he was probably partially joking but partially serious.

One of the things I realized, looking back, is that it may not seem like it at the time, but when you're a grad student, it is actually one of the best times in your life when you have, generally speaking, the least amount of responsibilities and the most amount of freedom. And your brain is fresh. As you get older, you have kids, you don't get enough sleep and stuff—you might not get enough sleep now, for other reasons—but the point is: it's a good time, and you have the time to be creative and the time to sit back and think about stuff, pursue random interests, and chase different creative ideas. I guess the advice would be to really not waste that time.

Especially if you want an academic career, really invest that time into carving out a niche for yourself and exploring things that you're interested in. If you want to go into an industry career, then take that time to network and to build the skills that will be important.

Jacob:

What advice would you have for prospective PhD students, including those who are trying to decide between doing a PhD in a business school or an engineering department?

Dr. Chan:

I think most people who do a PhD in a business school are very much leaning toward the academic craft, whereas those in engineering tend to split between academia and industry, so you might pick a program based on where you think you want to go down the road.

But I would say probably the most important thing in a PhD journey is your relationship with your advisor. I guess the advice to a prospective student would be: You're going to interview with people. You're going to worry about whether or not you will get accepted. But I think you should also take that time to interview the person who is likely going to be your advisor because it goes both ways. I think I read the stats somewhere that the number one factor for dissatisfaction in grad school is the advisor relationship.

Tactically, what does that mean? That means go talk to this person's students and see what they say about this person. Maybe ask some of their other alumni, the students that they've graduated, what do they think? Talk to other people in the department. You will get a feel for whether or not the department is healthy and whether or not this group is happy.

Jacob:

What can job market candidates do to make themselves more valuable on the market?

Dr. Chan:

I think this depends on which job market you're going to. I'll start with the academic market. It's tough, I feel like there is increasing inflation for what students need to come out with after a PhD to be competitive in the job market. When I look at my own CV from when I was graduating compared to the CVs that I'm evaluating for positions, or even my own students, they blow my CV out of the water. So I guess the very narrow answer would be, if you go academic, then you really need to invest the time to do good research and to have hopefully one or two really strong publications very far in the pipeline, if not published, in order to be attractive. But I think you probably have to do more than that ideally. You probably want to have some good teaching experiences, whether it be a TA or even an instructor experience to demonstrate that you can teach. This is quite important to a lot of schools.

Then there are other important things that show you add a lot of value. For example, what experience do you have with DEI? Have you participated in initiatives that promote equity, for example? More and more schools are very attuned to the importance of things like DEI, and so experience with that will help make you stand out.

If you go to industry, that's hard. I'm probably not the expert to talk about that, but I would assume you know, having some high-profile internships would make you stand out a bit.

Jacob:

What areas of healthcare are you personally most excited about right now?

Dr. Chan:

It's hard to nail down a couple of areas. One of the nice things about healthcare is that it's grown so much since the early days. There are applications and tools that we would have never thought about 15-20 years ago.

But I would say AI is one area that's exciting. There's increased awareness in the healthcare industry around the value of or provided by data science and ML. Certainly, when I talk to people from the hospitals these days, there's a ton of interest in ML because they're now overflowing with data more so than they ever were before. And they've heard a lot about ML. Now they can conceptualize what an ML problem is. I've got a bunch of X's. I've got a Y. How do I get from X to Y? Or how do I predict Y from X? They can understand that pretty well.

For all our people, we use that to get in the door, and we start to talk about the problems that they're interested in. Then often you find out that there's a problem that's brilliant.

I think that more and more healthcare organizations, hospitals, whatever, are keen to collaborate with people who are seen as data analytics people. I think that's very exciting and that gives us an opportunity to really make an impact.

Jacob:

How has being an INFORMS member affected your career?

Dr. Chan:

I joined INFORMS in 2002, so I had just started off as a first year PhD student. My department actually had this really nice policy, where they would give a free INFORMS membership to all of the first-year students to kind of get everyone on board, and then after that, you're on your own. I've been paying for it ever since, and so I'm at what? 21 years now in INFORMS? It's kind of scary now that I think about it because they used to give out these ribbons for people who hit 25 years and I'm a few years away from hitting 25!

It's been very positive. I love INFORMS. It's such a great community. It's a huge community, but at the same time it feels very small. You go to INFORMS, and you're going to see all of your friends and the people you know. One of the things that I look forward to the most about going back to INFORMS is to see friends from grad school, so I would say it's just had a very positive influence on my career. Going to the conferences, learning about new research topics from going to listen to other people speak, the opportunity to participate in competitions, the opportunity to get involved in HAS, the opportunity to actually use INFORMS as a vehicle for my own students to become integrated into the international OR community.

It's just been very positive all the way around, and that's why being able to serve as President of HAS, for example, is very rewarding because I feel like I've gotten a lot from INFORMS over the years. It's nice to be able to contribute back.

Yu-Hsin Chen (Pennsylvania State University):

What are your goals for HAS this year?

Dr. Chan:

That's a great question. I certainly want to keep the momentum going, I think HAS has great momentum. We've really benefited over many years from having excellent leaders who have made this society a really healthy and engaging one.

So one of the goals basically is to not screw anything up!

I would say another goal would be something around mentorship. I think it's really healthy for a PhD student, for example, to get to know faculty at other universities, whether it's for a future research collaboration or just to have another friendly face at INFORMS or someone who could eventually write a reference letter for you who's not your advisor. I think these are all very helpful things.

The same goes for junior faculty members. You want to talk to people outside of your institution about tenure and grants and whatnot.

So that would be one thing I'd really like to figure out is how to start some sort of mentorship program within HAS.

Rebecca Alcock (University of Wisconsin):

What hobbies and interests do you have outside of work?

Dr. Chan:

I do really like to play tennis. That's my sport of choice, although I kind of have an on again off again relationship with tennis. Sometimes I'll play for a summer and then I'll go a couple of years without. But I do like to play tennis when the weather is nice.

These days, you know, my main hobby is my kids. That's the hobby that never goes away.

Rebecca:

And lastly, do you have a favorite book, TV show, or movie?

Dr. Chan:

The one thing I have discovered recently—and it's a bit nerdy—is going back and watching Star Trek on Netflix, which I remember being a big fan of when I was younger and then kind of forgot all about them. Now they're just so easy to go back and watch old episodes, an episode before bed, or something like that which has been fun.

I also do like music. I play the piano. When I left home, that was the last time I had a piano. Only like a month ago, I bought a piano, so we have a piano in the house again after more than 20 years. So I'm trying to get my kids into piano, and one way to do that is to basically find popular songs and songs from TV shows and things that they'll recognize to motivate them to learn piano.