

Nausheen Basha: I'm Nausheen Basha. I am originally from India - south of India, Chennai, but I grew up for the most part of my life in the United Arab Emirates, UAE. And after completing my Bachelor's course in India, which was in Aerospace Engineering, I then moved to University of Manchester for my Masters in Aerospace Engineering. And after that, I worked for a couple of years as a modelling and simulation engineer for a project funded by Innovate UK.

I then moved to London, where I started a research assistant position, as well as my PhD on Computational Modelling of Compressors. After that, I took up position as a research associate at Imperial College London.

Dave Espley: What did you think about Manchester, both the university and the city?

Nausheen: Manchester is actually a great place. Both the city and university, because computational fluid dynamics, in which I am expert today, is something from the modules that I learned at Manchester. So that was quite helpful for me - to build the foundation, because quite a lot of academics were working in the area of modelling CFD-related software development, or related to turbulence modelling. And also many people that I collaborate with in terms of research have done their undergrad or their Masters as well as their PhD at Manchester. So yeah, I come across people who have had some relationship with the University of Manchester. Also Manchester is a great place to live, because it is a vibrant student city. There is food from all parts of the world, so you can never get homesick. And yeah, I think it's a nice place to live. It's affordable - very affordable compared to London. I'm very grateful that when I was a student, I lived in Manchester, not in London.

Dave: Whereabouts did you live? Were you in halls to begin with?

Nausheen: No. I lived in a private accommodation just 2 minutes' walk from Oxford Road. So that was quite a central area, and easier to get to lots of different campus areas, as well as to get to Piccadilly Station, or to take a bus and get to the Lake District. So it was quite good.

Dave: So you did explore - I was going to ask about the sort of north west region - did you explore places around Manchester? You mentioned the Lake District; were there others that you went to?

Nausheen: Yes, I did. I got to Yorkshire, places like Durham - where I was interviewed in Durham for my first job. So it was easy to get the Transpennine Express and get to Durham and explore the areas around Manchester and to take a bus and get to London as well. So I did manage to explore London, from Manchester!

Dave: And what about your interests and hobbies? Were you able to do anything around Manchester for those or was it all study?

Nausheen: I remember there were lots of student clubs in Manchester, very active student clubs though I didn't have a chance to be a part of lot of student clubs. There was this flying club - which was not actual flying, but a flying simulator club. So I was a part of it for a few weeks. And then there was this coding club. I was a part of coding club, but then I was never a permanent member or a consistent member of these clubs.

Dave: But it's nice, though, that you obviously took what you were studying and sort of expanded it into your interests outside?

Nausheen: Yeah, I did. So it gave me a lot of... I think it gave me holistic development. So yes, I was able to holistically develop as a person being in Manchester.

Dave: Thinking back, what made you apply to Manchester in the first place?

Nausheen: When I did my Bachelor's, I had studied the modules on computational fluid dynamics. It was just one single module, so I was interested to explore this further, and I realized that Manchester has some of that kind of mix; they have an expertise in working in this area, so I decided that I wanted to gain some expertise from them and Manchester had some modules on computational fluid dynamics, and one on advanced computational fluid dynamics. So I thought it would be a career for me. So I went ahead and applied for Manchester, and I actually applied for Imperial as well. But then it was too expensive. So I thought Manchester is somewhere... it wouldn't be affordable for me to live in London as a student. So yeah, so I went for Manchester.

Dave: And you're at Imperial now, yeah? So in terms of what's changed - is it now a question of just being able to earn more money and live in London or what?

Nausheen: Yes, I think. And also the way to manage money. I think when I was younger I didn't know how to manage money and as I grew older, I had learned lessons on how to save and how to save money for a rainy day emergency fund. And also I think when I'm working in London, I also get the London Allowance. So I think that that makes up for... that makes it easier to live in London compared to if I would have lived as a student.

Dave: Sure, yeah, yeah. I mean, there are financial lessons that we all have to learn and I suppose being at university is as good a place as any to learn those financial lessons – they help you in your future life, I guess. You've sort of covered your journey to Imperial. Could you give us a bit more about what your work actually involves at the moment at Imperial, what you're actually doing day to day?

Nausheen: So I work in the Chemical Engineering Department where I work on developing ML (Machine Learning)-based designs and optimization models for chemical reactors. So I apply quite a lot of computational fluid dynamics that I studied as well as some machine learning. I combine them with the machine learning models in order to optimize or make the reactors to be more energy efficient and performing well, which is very important from the sustainability aspect.

Dave: So that brings us on - quite appropriately - to the main reason for us talking today, which is - and I need to make sure I get this right! - it's the institution of Mechanical Engineers, Most Distinguished Developing Career Achievement prize, which you've just won. So first of all, congratulations on that. Could you tell us what that involves, and what did you have to do to win it?

Nausheen: Okay. So I think that involves a build up of a few things. First, it's been awarded by process industries. So I work in the area of designing - optimizing - chemical reactors, so which totally ties up to the process industry. And also I have a publication in one of the premium publications, in the Chemical Engineering Journal; and the other aspect was in 2022 I won an award as one of the top 50 women in engineering - inventors and innovators. So that's awarded by the Women's Engineering Society. And then prior to that, for my PhD work, I was awarded a Ted Perry Prize from the Institute of Refrigeration.

So I think that's an accumulation of some of those research achievements that I have, plus I like doing EDI work. So I'm a part of the Women's Engineering Society, but I mentor women and also I'm a STEM ambassador. So it's a combination of the technical aspect as well as a responsible leadership, I suppose, that led to the prize.

Dave: Fantastic, well done. It sounds like quite an impressive list of awards and achievements there. So I suppose that leads onto the next question, which is what does the future hold for you in terms

of your career? Would you say that you will stay within academia or are you going to go into private industry, or what are you going to do?

Nausheen: Currently I'm applying for Fellowships within various organizations, so I'm hoping to compete for a Fellowship, basically. So that's what I'm hoping for, and then possibly look for an academic position.

Dave: Okay. So in the longer term, you see your career in academia then?

Nausheen: Yes. But for now, I'm more interested in applying for and getting through a Fellowship.

Dave: What would you say to anyone thinking of applying to Manchester?

Nausheen: I'm perfectly positive about Manchester. So anyone doing that, I would say go ahead and apply for Manchester. It's a great place to live and as well as a great place to study. There are lots of supportive academics at Manchester. There's a whole student community and it's more like a student city. Though there are lots of top universities, lots of good universities in London, but it doesn't consider as a student city. So in Manchester, if you're on Oxford Road, everyone is a student, so you feel like a positive student community there, so you don't feel like you're by yourself. So yeah, so go ahead and apply for it. That's what I'd say.