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Future engineer in Australia

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We at Cybernews Academy introduce Duneesha Tharangie Fernando, a Ph.D. student of Engineering and IT at the University of Melbourne. We spoke to Duneesha about her university experience, moving away from home, and the mechanics of her course.

Finding the University of Melbourne

Originally from Sri Lanka, Duneesha moved to Australia after completing her bachelor's studies at the University of Colombo School of Computing and gaining industry experience. Coming from a prominent university in Sri Lanka, she wanted to continue attending good-quality universities. Before deciding on the University of Melbourne, she researched and found herself looking at some exceptional universities. Duneesha expressed that the University Melbourne is one of the highest-ranked universities in the world for her particular subject

research papers. She found some relevant information surrounding her research interests and felt compelled to write to the supervisor, asking for a chance. During the COVID-19 pandemic, Duneesha recalls working from home and actively looking for universities to undertake a Ph.D. At the same time, she applied for the Melbourne Graduate Research Scholarship and eventually got accepted in 2022, just as the Australian borders opened.

Sri Lanka to Australia

This intrepid traveler discussed her transition from life in Sri Lanka to life in Australia. "I have never lived away from my family because even at my university in Sri Lanka, I traveled from home to university. So this was a big move for me." But Duneesha explained that she had to leave her parents to achieve this big target. She received some help from some friends and family from Sri Lanka and slowly became accustomed to her environment, "I gradually got to know the people in my laboratory, and at my university, we have a lot of people from other nationalities at the University of Melbourne, so we're all in the same position, helping each other and enjoying the city." The University of Melbourne supported Duneesha and other international students throughout this transition. "Many induction programs and orientations helped students bond alongside facilities that provided support." Alongside the physical support, the university also provides monetary support. "In terms of the monetary aspects, the university provides a generous stipend." The University of Melbourne allowed Duneesha to work on a subject she was truly passionate about through the total support of its students.

Why the University of Melbourne?

Duneesha detailed why she was most interested in the University of Melbourne. Not only was it the university's high-ranked status that caught her attention, but she was captivated by the type of research conducted at the university, specifically how machine learning and artificial intelligence are being applied to solve problems in distributed systems. "I felt comfortable going to this university to pursue my research, as some of the research being done in this area at the University of Melbourne already aligned with my previous research experience." Duneesha found that the University of Melbourne was researching areas aligned with her previous research experience. Another reason Duneesha was interested in her university was the facilities available. "I found it interesting to work in this particular lab."
Furthermore, Duneesha thought Australia was an exciting country that offered the opportunity to complete a Ph.D. in three to four years' time. So, before attending, she assessed the university's quality and the work produced at the institution. Duneesha noted that the structure of the Australian Ph.D. is highly unique.

"In the Australian system, you have your first-year confirmation, a milestone where you must

your study.

Feels like home

Alongside these facilities supporting students, the university organizes events allowing students to experience multiple cultures. "I was a member of the Sri Lankan Graduate Student Society, where I was a general committee member. I was mainly involved in organizing events that provide welfare and promote Sri Lankan culture among the students." As everyone moves away from home, Duneesha views her Sri Lankan community as almost family. Duneesha believes it's important to celebrate cultural events even when she's far away from home. "We organize events that coincide with festivals in Sri Lanka, where we can celebrate. It's a way of making everyone feel at home."

The laboratory

During the interview, Duneesha described her laboratory at the University of Melbourne. "My laboratory is called the CLOUDS laboratory, managed by Professor Rajkumar Buyya." CLOUDS stands for Cloud Computing and Distributed Systems. "We mainly focus on managing and scheduling Distributed Systems resources while satisfying various factors such as QoS requirements and energy efficiency." In the lab, Duneesha and other Ph.D. students work on various cloud and edge computing avenues. "I am focused on performance anomaly-aware resource management in edge computing environments. Duneesha mainly focuses on finding performance anomalies due to malicious attacks or internal issues with the system. "If an anomaly arises, I need to mitigate and manage the resources and provide reliable systems to users. Particularly in edge computing environments." Duneesha detailed the facilities at the University of Melbourne. "There are very good facilities, like working spaces, and we are given appliances starting from a laptop, cloud computing services, and HPC servers used to conduct experiments."

Newfound freedom

Throughout her academic journey, Duneesha learned a lot about herself and how she works, as her research focus is unique. She mentioned that independent learning is one of the hardest and most rewarding aspects of undertaking a Ph.D. "Compared to my previous studies, I have to learn many things alone, formulate problems independently, and keep myself motivated," Duneesha mentioned that sometimes a Ph.D. can be daunting because students must keep working without much reward. "There is no instant reward along the journey, we must revise our work based on journal feedback. We are not evaluated through

projects where people are instructing you on what to do or assignments with predefined questions and definitive answers during bachelor's or masters, your Ph.D. is where you have the freedom to work in a new area." Duneesha mostly enjoys her work's creative and imaginative side. "We are working towards things that haven't yet emerged but anticipate in the next few years." So the imaginative aspects are something that Duneesha relishes.

Advice to future students

This pragmatic Ph.D. student explained that she had previously had some experience in the industry, which helped her massively when she started her Ph.D. She advises, "For someone who has never done scientific research before, I would say to do your research and talk with some former or current Ph.D. student to familiarize you with the course structure." The inherent challenges present within a Ph.D. is something that this student wishes she'd known earlier. "Although I have done research before, it is about consistently conducting experiments until you reach a publishable result while maintaining a healthy work-life balance." Duneesha recommends that "someone fresh from a bachelor's or master's should gain experience in the industry as this provides an invaluable understanding of the practical applications of the theory present within your Ph.D."

In the future, Duneesha wants to complete her Ph.D. and start working in the industry. She's also interested in public speaking and content writing. Duneesha is also intrigued by technological evangelism, which requires spreading the word about new, upcoming technologies. This future doctor of engineering hopes to continue working in the field while perfecting her craft and securing an excellent work-based opportunity post-graduation.

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