

## Counting on her mind

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You can reach for the stars with Jaws, Braille and determination, **mathematics** whiz Yeo Sze Ling tells HELLEN TAN

Given that multiple degrees are common today, the fact that Miss Yeo Sze Ling has two degrees in **mathematics**, and is working on her doctorate in the same field, is probably not news.

Until you find out that she is blind.

The 27-year-old who earned her Bachelor's degree (Honours) and a Master's degree from **National University of Singapore** (NUS) is now into research on coding **mathematics** theories and cryptography.

These are used in computing algorithms to protect passwords or data from being stolen when they are zipped from computer to computer.

The field is an interest she shares with John Nash Jr, a mathematical genius who won a Nobel Prize, portrayed in the Oscar-winning movie, A Beautiful Mind.

Certainly, like Nash, her achievements should mean a lot.

He was a schizophrenic who thought he was doing secret cryptography work for the American government.

She has been blind from the age of about four when glaucoma struck. Glaucoma is a condition that increases pressure within the eyeball, causing sight loss.

Technology has come in handy.

On campus, she totes a laptop.

At home in a four-room HDB flat in Bishan, her desktop Compaq PC holds today's tech staples - e-mail and MSN Messenger for exchanging notes with friends.

The Internet is her source for research as well as for online newspapers or electronic books like A Beautiful Mind.

Both her computers have this special software called Jaws 5, short for Job Access for Windows, to convert text to speech - it reads and spells. So she hears the content that she cannot see.

Over the years, she has trained herself to learn to use Jaws, including sharpening her listening skills.

To an ordinary person, the speed at which she hears the computer reading text to her sounds like a tape being played at twice the speed. In a demonstration for me, Miss Yeo could hear the computer say that there were 121 links on the opening webpage on last Friday's online version of the Straits Times.

She has also memorised the keyboard layout so she can type and send the cursor to where she wants it to go. 'The computer screen and mouse are for those who can see; I don't use them.'

Miss Yeo said she saved up from her scholarships from NUS and the Agency for Science, Technology and Research (A\*Star) to buy the assistive technology gear she now uses. Her current A\*Star scholarship pays her \$2,700 a month in allowances.

The Jaws software alone cost \$2,000 and was sourced from a company called Freedom Scientific in the United States. She also bought electronic Braille typewriter called Braille Note and paid a special price of \$4,500 for it for an 18-cell model. A cell represents a letter. Its usual price is about \$6,000 to \$7,000.

Which leads her to point out that assistive gear is expensive, putting it out of the reach of disabled people with lower incomes.

Her own family's monthly income is slightly more than \$1,000, she said. Her mother, 56, works as a hawker's assistant. Her 64-year-old father is retired and is beginning to lose his sight because he also has glaucoma. Miss Yeo, who is the middle child, has a younger sister aged 17 who is a student, and an older married brother, 30, who works as a technical officer.

She counts herself 'fortunate' to be able to get the scholarships and afford the equipment that she has.

What do people think of your achievements? And how do you react?

Sometimes people say, 'Why do you work so hard? You are blind after all'.

Nothing is too hard. You just need to look for alternative ways to help yourself. Lots of things can be managed. You just need time and must be willing to try.

Has assistive technology made a difference?

It's provided almost equal access to information and to be able to communicate with people. It's good to have this access, but they 'assistive technologies' are too expensive and there's not enough training on how to use them. I have to pick up a lot on my own.

I didn't use a computer before 1997, the year I entered NUS. I took up a computer course then and the university, Professor Bernard T in particular, got approval to buy me a computer with the Jaws software to use on campus. 'Prof Tan is now in the department of physics faculty of science, NUS, and is also chairman of the National Internet Advisory Committee.'

I also bought a computer and the software to use at home.

Of all the gear you have, which is your favourite?

The Braille Note I bought two years ago. I carry it everywhere I go. It's like a portable Braille typewriter except that it's more like a PD, so I can type in notes with it. It's battery-operated and can be connected to my home computer to download the Braille notes I've type into text so Jaws can read it back to me.

Why did you take **mathematics** with all its formulae and symbols?

You think studying humanities is easier? I like maths because the amount of reading involved is not as much as in humanities.

When I entered university, the use of computers was not that widespread yet, so it would have been difficult to get books and a computer to read to me.

How helpful were the sighted?

I was fortunate that my lecturers and supervisors knew my constraints so they highlighted what I should read.

I have readers, some of them friends, some graduate students whom I pay to read lecture notes or books, record them into MP3 files, and e-mail them to me.

I play the MP3 files on my computer and then take down notes with my Braille Note.

Would you consider yourself leading a rather normal life?

First of all, I have to accept myself as I am, and not take too many things to heart.

As long as you communicate properly what you need help on, people will help. Like asking people to tell me that Bus 95 is here - oh yes take the buses and train to NUS, with the help of my white stick.

My friends know I can't read, so there is no point sending me emoticons in e-mail or in MSN. The software can't read visuals. Instead, they write 'smile' and the Jaws software reads that for me. I can't use SMS on my phone so my friends don't text me.

Are there things that people with eyesight do which you envy?

My concerns are more on employment prospects. It's still difficult for disabled people to look for a job in this society.

In movies on blind people like Ray Charles, he uses his hearing to make up for his blindness? Is that true for you?

I have not tuned my hearing to such perfection that I can recognise the sound of my bus or which footsteps belong to which member of my family.

If the eyes are the window to the soul, how do you reveal yours?

(Laughing) I talk a lot.

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