

# Models of ingenuity

From analysing river health to studying snake venom and creating safety tech, these scientists are ones to watch

## ALEX MOSS TECH INVENTOR

With a background in fashion, fine art and design, Alex Moss doesn't present as your typical scientist. But her passion for fashion was the catalyst for one of the mining industry's greatest technological breakthroughs in recent years.

Her idea for an earpiece that can predict fatigue and save the lives of miners in high-heat environments took off when she won a global technology award from NASA in 2016.

Given 48 hours to build a prototype, the 25-year-old took inspiration from an elaborate haute couture headdress she had worn during her modelling days, creating a self-contained computer earpiece that can predict cognitive function through vital signs.

What makes her story even more remarkable is that she has no formal science and technology training, having taught herself through online courses and "a lot of coffee".

"I was not meant to do what I'm doing now," she says. "I was watching a TV program about women in technology and they were using their skills to create gossip apps. I was so unimpressed because I consider it such a waste of skills, and I thought if this is the standard out there, I should go into technology."

"My family and peers were so profoundly shocked when I won the NASA award that many thought it was a joke; some sort of ironic performance art piece I was doing."

Born in the UK, Alex is a graduate of the famous Courtauld Institute of Art in London. She is also a successful model and creative director who has developed advertising campaigns for Italian *Vogue*, and was on track to become a successful art dealer when her life took a change of direction.

Now based in Brisbane, she is the founding chief executive and head designer of Canaria Technologies. The Queensland Government has invested \$170,000 into her Canaria earpiece, and some of the state's biggest mining, oil, and gas companies are putting in orders.

With fatigue causing two-thirds of accidents in heavy industries, Alex says the creation of her earpiece is as big as the introduction of speedometers in cars.

"If you stop to think about it too much, you will fall over," she says. "Fatigue is a problem that's been plaguing the industry, and no one has ever quite worked out what to do - until now. It's like inventing the computer for the first time again. The next step is to use it for predicting heat stroke and to prevent people from falling asleep at the wheel."

Alex, who lives in the CBD with her fiancé, says she made the right choice in switching from art to science - not least because she recently won the Entrepreneurial Startup Award at Brisbane's 2018 Women In Technology Awards.

"It's normal for me now, I don't switch off. I spend my time seeking out the most talented people and the most intelligent scientists, and there is a huge amount of those in Brisbane."

HANNAH DAVIES



### SKY'S NO LIMIT ...

Alex Moss, chief executive of Canaria Technologies, models the life-saving earpiece she invented.

Picture: AAP/Richard Waugh

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Working specifically with pit vipers, Jordan is also hoping to improve antivenoms and snake-bite treatments across the globe.

"Of the 40 species of pit viper I work with, only two or three have an antivenom listed," Jordan says. "The toxins in snake venom have been evolving for millions of years and they're doing a specific job (killing prey) really, really well. This is something we can benefit from in the medical world."

Jordan, who grew up in rural northern NSW, moved to Yeronga, in Brisbane's south, in 2011 to study evolutionary biology. She holds a Bachelor of Science (Hons) majoring in zoology, and is in the third and final year of her PhD. A diligent student, she began working in the UQ laboratories – for toxicologist Associate Professor Bryan Fry – feeding spiders, centipedes and scorpions.

"I was also looking after saltwater crocodile babies and green tree frogs in different labs across campus," she says.

Jordan is also a qualified lifeguard, swimming teacher, and captain of her Mt Gravatt Vultures AFL team.

But "making science fun" is her passion and she dreams of a job in science communication.

"I like talking and being able to distil a lot of the information I have and make that accessible to people who aren't necessarily involved in science," she says.

The science faculty at UQ has recognised Jordan's flair for communication, sending her to present at international conferences in Germany, China and the UK. She was awarded the faculty of science PhD Future Superstar Award this year, and in September was highly commended in the Life Sciences Young Achiever Award category at the prestigious Women in Technology Awards.

"(In winning these awards) I've been given an amazing opportunity to be a voice for science and for women," Jordan says. "I hope I'm the correct voice for the women who are in labs day in and day out doing an amazing amount of research who may never get the opportunity to get that funding they need or win that award."

EMMA SCHAFFER

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## JORDAN DEBONO ZOOLOGIST

Award-winning scientist Jordan Debono isn't afraid to wrangle a deadly pit viper in the name of medicine. The University of Queensland PhD student spends her days surrounded by venomous creatures – mostly snakes – studying their venom and its effect on human blood.

"Yes, snakes can kill you, but they can also save your life," says Jordan, 26, as Wesley, her pet woma python (pictured), snuggles under her hair to sleep. "My PhD asks questions like: Does a venom make our blood clot or not? For people suffering from clotting diseases like diabetes, or people who over-clot and are prone to stroke, this could be very useful information. Hopefully, it will aid future drug design and development."

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