

# CAREERS WITH STEM™

## TECHNOLOGY

**SOFTWARE  
ENGINEER**



**Unlock  
a career  
in gaming**  
p34

**Tech  
jobs using  
psychology**  
p40

**USER  
EXPERIENCE  
DESIGNER**

**Match  
your hobby  
to a career**  
p12

SUPPORTED BY



CAREERSWITHSTEM.COM





**MACQUARIE**  
University



---

**YOU CAN KEEP THE  
WORLD OUT OF  
HOT WATER**

*with us*

---

**(YOU)<sup>us</sup>**





Think technology is a dry topic? Not at Macquarie University. Our technology experts are creating smart sensors that monitor water quality to help oyster farmers deal with climate change challenges like heatwaves, floods and drought, and developing advanced data analytics to increase the cost-effectiveness of mushroom cultivation.

We're also using cutting-edge IoT, advanced data analytics and AI to enhance future water security, productivity and management.

Macquarie is ranked in the world's top 50 for Data Science and Artificial Intelligence (QS World University Rankings by Subject 2024), so when you enrol in one of our IT degrees, you'll be learning from world-leading researchers.

You'll study a future-focused curriculum developed in consultation with industry, which allows you to specialise in artificial intelligence, cybersecurity, data science, game design and development, information systems and business analysis, networking, software technology solutions, or web and mobile app development.

Your learning will be enhanced by our 14-lab computing hub with VR space and cybersecurity, networking and gaming labs. You will also study in Australia's largest high-tech precinct, offering the potential for collaborative, internship and employment opportunities.



**FIND OUT MORE  
AND APPLY TODAY**



# What's inside...

## Tech that helps people

Be inspired by tech careers that help us all!

**P6** A-Z of tech careers

**P8** Tech needs soft skills too

**P8**



**P14**



**P10** Sci-fi tech made real

**P12** Match your hobby to a tech career

**P14** Making tech greener

**P15** Affordable (or free) cyber security study options

**P18** Work experience with a difference

**P20** How to choose a tech school

**P44**



**P22**



**P34**



**STEM + X =** 😊  
Combine technology (STEM) with your passion (+ X) to discover your dream career...

Technology +...

**P22** Transport  
Help people get from A to B

**P28** Cyber security  
Protect people from online threats

**P34** Gaming & animation  
Hook gamers with your sick skills

**P40** Psychology  
Put tech users at the centre of everything

**P44** AI & robotics  
Make AI human-friendly

**P48** Fashion  
Work at the cutting edge of fashion



### FREE DOWNLOAD

This free Careers with STEM job kit download is your introduction to careers in ethical AI. Inside, you'll find stories on what AI ethicists do, plus salary insights and advice from those already working in this field.





# INVENT THE FUTURE

Technology is the key to solving problems you're passionate about

**T**echnology is something we often associate with the future; innovation and the endless possibilities for what our world could look like, the challenges we could solve and the people we could help.

But a quick flip through this magazine shows that Aussie and Kiwi technologists are already addressing some of the most critical challenges and improving lives around the world. They're fighting climate change, making healthcare smarter, protecting us online and using AI to solve tricky problems – like predicting traffic jams so you can get to school on time!

And these advances are also creating new careers. Australia already has about the same number of AI workers as it does school principals or architects, according to the Tech Council of Australia, which is predicting AI could create 200,000 AI-related jobs by 2030.

But technology like AI isn't just for adults. Students like you can come up with amazing ideas and learn coding, app building and

design skills, right now. You're uniquely placed to invent solutions to challenges in your local school or community – all you need is a little tech know-how!

As you read through this magazine, you'll notice the varied and sometimes surprising pathways that the technologists within have taken. I hope you find role models, jobs and careers that you didn't know existed. Take a moment to think about how you could use technology to solve a problem you care about or make life a little easier for others.

**Marie Efstathiou**  
AUNZ Lead, Computer Science Education and University Relations, Google

**MARIE EFSTATHIOU**  
COMPUTER SCIENCE  
EDUCATION LEADER

**AUSSIE AND KIWI  
TECHNOLOGISTS ARE  
ADDRESSING SOME OF THE  
MOST CRITICAL CHALLENGES"**



# A-Z of tech careers

The careers of the future are here! Get ready with this A-Z guide of careers with tech

**T**echnology is now part of almost every aspect of our lives – which means that when it comes to choosing a tech career, your options are almost limitless! Below, we've listed some of them to get you started. – Amy Briggs

## AI ETHICS SPECIALIST

Prevent AI biases and misuse by researching the ethical implications of different AI models and how they're trained.

## BIOTECHNOLOGIST

Study and work with genetic materials to help with everything from making crops more resistant to pests, to developing new medical treatments.

## CYBER SECURITY ANALYST

Protect individuals, businesses and organisations from cyber threats. Learn more through our Cyber Security Analyst Job Kit!

## DATA SCIENTIST

Analyse large data sets to uncover patterns, trends and insights, and develop algorithms and predictive models that can help solve complex problems.

## E-LEARNING DEVELOPER

Create interactive and engaging online learning content for everyone from employees wanting to gain new skills, to homeschooled kids!

## FOOD SCIENTIST

Look for pathogens in food, examine the molecular structure of ingredients and even analyse food trends through large sets of data.

## GREEN ENERGY ENGINEER

Design and implement renewable energy systems such as solar, wind and hydro-electric power.

## HUMAN-COMPUTER INTERACTION DESIGNER

Study how users interact with computer interfaces and feed that understanding into the creation of more intuitive and engaging user connections.

## IT CONSULTANT

Have you tried turning it off and on again? Help businesses and organisations to manage their tech systems, from assessing cyber security threats, to recommending cloud-based storage solutions and providing ongoing training.

## JOURNALIST

Gather and analyse data to develop compelling story ideas and enhance our general understanding of different trends and topics through data journalism.

## KINETIC ENGINEER

Design and develop wearable devices that monitor and enhance physical activity and health.

## LAB TECHNICIAN

Prepare samples, design and run tests, interpret results and maintain equipment to help scientists working on everything from pharmaceutical research to conservation biology.

## MEDICAL IMAGING SPECIALIST

In this tech + health career, you'll use different imaging technologies (think: MRIs, CTs and X-rays) to help diagnose different injuries and medical conditions.



## NEUROTECHNOLOGY SPECIALIST

Develop and apply technologies that interact with the nervous system to treat neurological disorders, enhance brain function or facilitate brain-computer interfaces.

## OCCUPATIONAL HEALTH SPECIALIST

Analyse work environments and design ergonomic solutions to prevent injuries in the workplace and enhance productivity.

## PRECISION AGRICULTURE SPECIALIST

Increase agricultural productivity while minimising environmental impact in this tech gig, which could see you working on everything from remote sensors that monitor soil conditions, to drones that track crop health.

## QUANTUM COMPUTING RESEARCHER

Study and develop quantum computers, which use the principles of quantum mechanics to perform complex calculations much faster than traditional computers.

## ROBOTIC PROCESS AUTOMATION DEVELOPER

Create and implement software robots to automate repetitive and rule-based tasks, freeing up employees to focus on more complex (and interesting) projects.

## SOFTWARE ENGINEER

Design, develop, test and maintain software applications and systems in this gig that requires a good understanding of programming languages and tools.

## TRANSPORTATION PLANNER

Transportation planners use data from sensors, cameras and GPS to analyse traffic patterns, improve traffic flow and reduce congestion.

## UX RESEARCHER

Use cool tech like eye-tracking systems to research how users interact with digital products and help designers create more intuitive and user-friendly interfaces.

## VOICE USER INTERFACE DESIGNER

These high-tech designers give users the power to interact with technologies like mobile phones, speakers and even cars, using human speech.

## WI-FI ENGINEER

The world would be a very different place without these experts keeping us connected. As a wi-fi engineer, you'll install, configure and maintain wi-fi networks.

## XR DEVELOPER

Create extended reality (XR) experiences that blend physical and digital environments using augmented reality, virtual reality and mixed reality technologies.

## YOUTUBER

Edit footage, publish content and use analytics to track performance, understand viewer preferences and optimise content strategy.

## ZERO-EMISSION VEHICLE TECHNICIAN

Maintain and carry out repairs on electric- and hydrogen-powered cars to keep them operating efficiently and reliably.



# SOFT SKILLS PAY THE BILLS

The 5 big ones you need for your future tech career!



## 1 Communication

In tech, you'll often be working on collaborative projects, so good communication skills can go a long way to achieving shared goals. You'll need to listen, use positive body language and practice having empathy for your team members.

**Sort it at school:** Get comfortable speaking in front of your classmates and remember to use eye contact.



## 2 Teamwork

Amazing innovation happens when we work together, use people's strengths and nurture talents. Work tasks and projects are a team effort, so you'll need to be thinking about how you can cross the finish line together while producing solid results.

**Sort it at school:** Join a school sports team – not only is it fun and social, but you'll learn a lot about being a team player.



## 3 Problem-solving

If you can nail good communication and teamwork, you'll already be well on your way to being a pro problem-solver, but being creative and flexible in your thinking is key to coming up with out-of-the-box solutions too.

**Sort it at school:** Take creative electives or try extracurricular activities to give you new perspectives on how to tackle problems.



## 4 Confidence

Believe in yourself and your abilities, and don't be afraid to ask questions. In tech, it's important to speak up when you don't know something.

**Sort it at school:** Find a mentor (this could be a teacher, family friend or professional contact) who can give you advice and guidance.



## 5 Time management

Help ensure you never miss an important deadline by using digital calendars, time management apps and to-do lists.

**Sort it at school:** Practice breaking your assessments down into smaller, more manageable chunks, and plan out how you'll chip away at them gradually rather than waiting until the last minute.



# Code life into your ideas

Graduate with a degree in Technology.



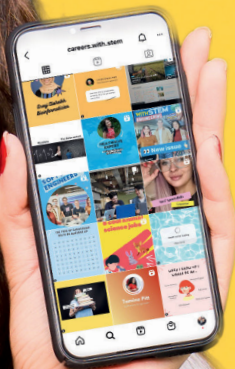


# CAREERS WITH STEM.COM

## YOUR ONLINE INSPIRATION HUB FOR STEM CAREERS

- Keep up to date with daily **career news** and **study tips**.
- Meet hundreds of **real life** STEM professionals
- Explore the jobs of the future with our **FREE Job Kits**
- Discover your **STEM** personality with online quizzes
- **Subscribe** to our **yt channel** for career **videos** and **webinars**
- Connect, share and reach out on **Insta** or **TikTok**!

Join 1 MILLION  
STUDENTS each  
year growing their  
future with STEM!



**Like Careers with STEM?** Join us, connect with other STEM-minded peeps and widen your network before you've even graduated!



# Your career in Game Development starts here.

Our alumni work at studios around the world working on games they love, and ones you'll love to play. Begin your journey at Media Design School and develop your dream into a career.

## Choose your path:

**Game Art** – Craft spectacle and beauty in the forms of characters, environments and objects to tell your story in the most captivating way.

**Game Programming** - Bring art to life and make it work, providing your players with a fulfilling and satisfying journey.

Year 3 will blend these classes into teams, where you'll create your own game with a small group of your peers. With your combined expertise of artistry and programming, the sky(box) is the limit!

## So, are you ready?



**Media  
Design  
School**



Scan the QR code, or head over to **[mediadesignschool.com](https://mediadesignschool.com)** to start your adventure!

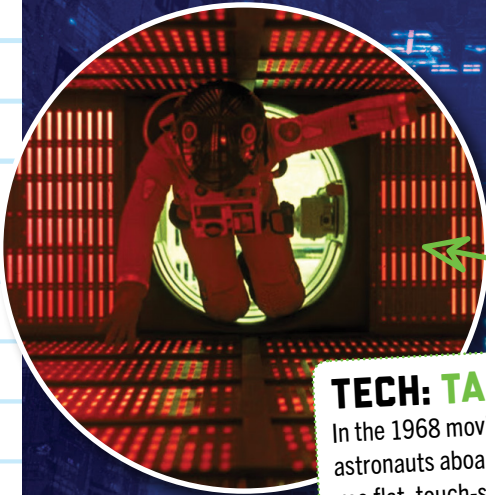


# Sci-fi tech IRL

If you can imagine it you can invent it!

**A** lot of the tech we use today was featured in the sci-fi of old. It has always been so! And it follows that some of the super-theoretical tech we see in today's sci-fi might one day emerge in our future lives.

Aside from the fun of predicting the future, you can also use sci-fi to get a handle on some of the tech careers of the future – many of which already exist today! So dial-up these faves on your streaming service and set your tech imagination free. – *Charis Palmer*



## TECH: TABLET COMPUTERS

In the 1968 movie *2001: A Space Odyssey*, astronauts aboard the spaceship *Discovery One* use flat, touch-sensitive devices to read reports and watch videos. This was long before touch screens were even a thing!

**CAREERS CREATED: APP DEVELOPER, IT SUPPORT SPECIALIST, UX/UI DESIGNER**

## TECH: UNIVERSAL TRANSLATOR

First appearing in the 1960s, the universal translator in the *Star Trek* series allowed crew members to communicate effortlessly with alien species, breaking down language barriers. Fast forward to today and we have tools like Google Translate and real-time translation apps to help us.

**CAREERS CREATED: NATURAL LANGUAGE PROCESSING ENGINEER, MACHINE LEARNING ENGINEER, ALGORITHM ENGINEER**

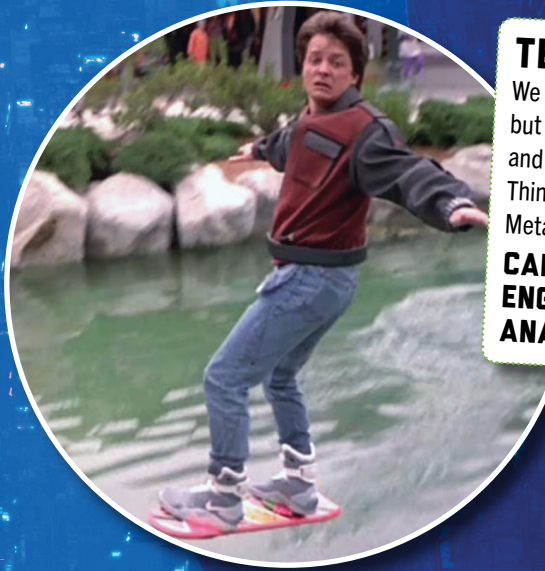




## TECH: WEARABLE TECHNOLOGY

We may not have got the hoverboard from *Back to the Future*, but wearables like the glasses that could display information and make phone calls in *Back to the Future II* are now here. Think: Microsoft's HoloLens for mixed reality or Ray-Ban's Meta Smart Glasses.

**CAREERS CREATED: WEARABLE DEVICE ENGINEER, UX/UI DESIGNER, DATA ANALYST, AR/VR EXPERIENCE DESIGNER**



## TECH: VIRTUAL REALITY

VR started appearing in movies in the early 90s, such as in the 1992 film *The Lawnmower Man*. Now VR headsets and devices like Apple Vision Pro are becoming part of our everyday lives, not only in gaming but also in medical training, architecture and counselling.

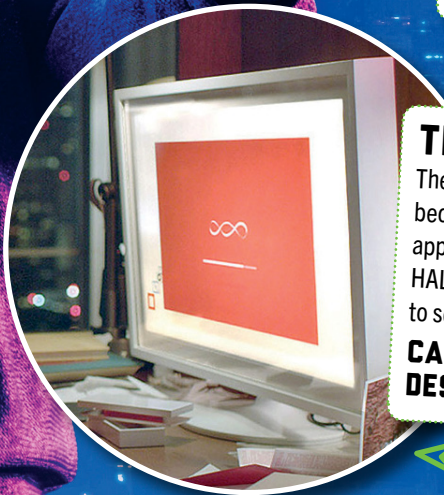
**CAREERS CREATED: VR DEVELOPER, VR TECHNICIAN, VR GAME DESIGNER**



## TECH: VOICE-ACTIVATED ASSISTANTS

The AI love interest in the 2013 film *Her* probably best captures how AI could become deeply embedded in our lives, but the first voice-activated assistant appeared all the way back in 1968, also in *2001: A Space Odyssey*. The computer HAL 9000 was a helpful assistant, until it went off the reservation (watch the film to see how). Now we're all dialling up Siri, Alexa and Google Assistant.

**CAREERS CREATED: VOICE USER INTERFACE (VUI) DESIGNER, AI ENGINEER, MACHINE LEARNING ENGINEER**



## WHAT'S NEXT?

Holographic technology is already here, so how long before we can all dial-up a holographic screen like Tony Stark in *Iron Man*? It's hard to say, but advances in light field technology or quantum dot and nano-material displays could see it get closer. Perhaps you'll be the one to make that breakthrough!



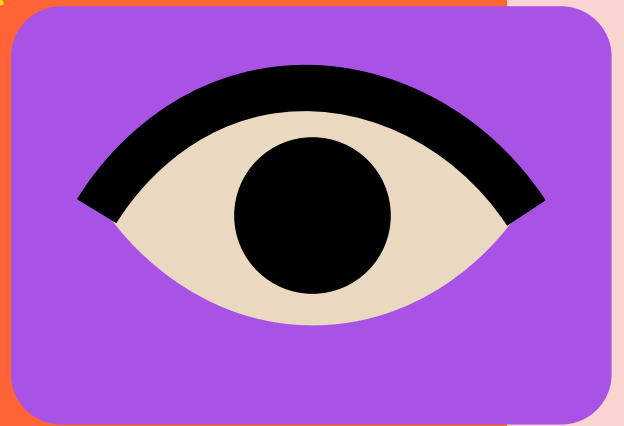


# MATCH YOUR HOBBY TO A TECH CAREER

**Fun fact:** doing this will ensure you wake up every day excited to go to work!

## ART

Always had a knack for drawing, painting or generally making things look good? You should consider becoming a user interface (UI) designer. When it comes to websites and apps, a UI designer thinks about things like accessibility (such as font size, colour contrast and spacing) and applies research and insights to create a product's design.



## CODING

If you've already taught yourself to code (or have plans to before the end of high school), then you're already on your way to becoming a software developer. This job involves making, testing and maintaining computer programs and phone apps for all kinds of industries. Think: finance, education, retail and more.

Scan here to get our free Software Developer Job Kit!



## GAMING

Played every *Super Mario* or *The Legend of Zelda* video game that's ever been released? A career as a game designer or game developer might be perfect for you. You could code and create the games you want to play, and be behind the next best-selling game series!

Is this the job for you? Download our free Game Designer + Developer Job Kit!





## HEALTH

Tech + health is an awesome and important combo, especially in an area like mental health. As a virtual reality (VR) therapist, you'll use VR technology to deliver immersive therapies that can help improve the lives of people with mental health challenges including phobias, PTSD and pain management.



## MUSIC

Get paid for your musical talents as a sound designer! In your day-to-day role, you'll use technology to create, edit and control sound in interactive media like video games, apps and VR projects. A sound designer can also work on movies, TV shows, in radio and in theatres.

## PHOTOGRAPHY

Did you know that being a photographer is actually a tech career? From using different devices to set up the perfect shot, to enhancing images with editing software, a photographer needs to be tech savvy to make sure they deliver the best images. Your clients could work in advertising, travel or publishing, or even be organising big events and weddings!



## PUZZLES AND BOARD GAMES

Completing puzzles and playing board games on the regular can build up some pretty impressive code cracking and problem-solving skills – tools you'll need for a career as a cyber security analyst. These tech legends protect people from identity, online and shopping fraud. Think of them as the cops of the virtual world!

Find out more about this tech career by getting a copy of our Cyber Security Analyst Job Kit.



# T

## READING

For anyone who feels like they've read every book in the library or who can't be without their e-reader, you'd make an incredible AI ethicist! They do stacks of reading and researching to identify ethical and moral issues that might arise from AI.

Read our AI Ethicist Job Kit to start planning your study and career path.



## SPORTS

Combine your passion for your favourite sport with tech to become a product developer specialising in wearable technology. You'd design devices that monitor important health statistics like heart rate and sleep patterns to help athletes and everyday people improve their performance and recovery.

## WRITING

Yep, the tech industry needs writers too! Put your wordsmith skills to good use as a technical writer – that's someone who writes and edits manuals and documents for technical products in a way the intended user will understand. – Louise Meers



# JOBS IN GREENER TECH

Our tech-centric culture isn't always kind on the planet, but you could be part of the solution

**T**echnology helps make our lives more efficient and convenient, but sometimes it comes at a cost to the environment. Whether it's improving the methods and materials we use to create technology, or reducing the emissions it produces, there is work to be done to make tech more sustainable. Here are some emerging STEM careers that are helping to make tech kinder on the planet. – *Reece Hooker*

#2

## GREEN PRODUCT DESIGNER

Many companies now design products that are more durable, and easier to repair and recycle. For example, some smartphones are now built with modular parts, allowing users to replace a broken screen or battery without buying a new device.

#3

## RENEWABLE ENERGY SPECIALIST

The rise of renewable energies like wind and solar will help power the tech of the future more sustainably. As a renewable energy specialist, you'll help engineering firms, government agencies and even utilities companies to understand emerging renewable energy tech, reduce their impact and plan for the future.

#1

## SUSTAINABLE TECH INVENTOR

Researchers and companies need people like you to help them make their tech products more sustainable. You could invent the next generation of green data storage or work on the electric cars of the future!

#4

## SUSTAINABILITY CONSULTANT

AI systems use a huge amount of energy – the average ChatGPT query requires 10 times more electricity than a Google search. With AI use growing every year, finding ways to improve the industry's energy efficiency will be vital.



## 10

## ways to get into cyber security without a degree

**CYBER SECURITY SKILLS ARE IN DEMAND AND YOU DON'T NECESSARILY NEED A DEGREE TO PUT THEM TO USE**

If you're interested in a career in cyber security, there are plenty of ways to get started that don't require going to uni. Check out some of these options and thank us later! – *Reece Hooker*

**1 TAFE**

Vocational education institutions like TAFE in Australia or ACMI in New Zealand offer practical and affordable cyber security courses.

**2 GOOGLE CAREER CERTIFICATES**

Google's online career certificates are designed to teach you job-ready skills through flexible and self-paced learning.

**3 SHORT COURSES**

Cyber security company Tesseract is one of many providers offering short-term training programs to improve your cyber security knowledge.

**4 BOOTCAMPS**

Part-time cyber security bootcamps are intensive, short-term training programs that focus on giving you the practical skills needed to jump straight into the workforce.

**5 APPRENTICESHIPS**

Apprenticeships like those offered by the CyberCX Academy and Health New Zealand Cyber Academy allow you to gain real-world experience while doing paid work.

**6 INDUSTRY CERTIFICATIONS**

Validate your skills and knowledge with certifications like Cisco's

CCNA and CompTIA's Security+, which are highly regarded in the cyber security field and can help you land a job.

**7 DEFENCE**

Get paid to train with the Australian Defence Force for a straight-out-of-school path into cyber security.

**8 NETWORKING**

The Australian Information Security Association (AISA) offers networking opportunities, resources and events for people interested in cyber security. And students can join for free!

**9 ONLINE TRAINING**

Coursera, Udemy and edX are just a few of the online platforms offering cyber security courses.

**10 INDUSTRY EXPERIENCE**

Learn fast and make contacts with a cyber security internship or work experience placement. Follow cyber security companies on LinkedIn to see what's on offer.

**NOT SURE IF CYBER SECURITY IS FOR YOU?**

**CHECK OUT CYBEREXP, AN ONLINE EXPERIENCE FROM THE AUSTRALIAN SIGNALS DIRECTORATE, TO GET A TASTE OF WHAT IT'S LIKE ON THE FRONTLINES OF CYBER SECURITY.**





# Are you ready for IT?

Thanks to an IT traineeship, **Charlotte Ross** found her perfect STEM career – one that combines tech and creativity!



**CHARLOTTE  
ROSS**  
IT PROJECTS  
ENGINEER

**A**s an IT projects engineer, Charlotte works with clients using different IT systems, creates virtual computers, designs and builds phone systems and upgrades network hardware. "It's a good mix of being on site, working independently from the office and having meetings with my team," she says.

Charlotte believes one of the coolest things about IT is how creative it is. "When people envision IT, I think they imagine something super technical, when in reality it's a really creative field," she says. "When I began working as an IT projects engineer, I gained a lot of freedom to work directly with clients to help design the computer systems they need."

She also puts her design skills to use on platforms like Exclaimer, creating email campaigns. And her office? It's awesome! "I work with a lot of amazing people. We host barbecues, go go-karting and do loads of other fun activities after work."

To get this gig, Charlotte completed a Certificate IV in Information Technology (Computer Networking) and a traineeship through her

employer, ONGC Systems. "My training provider [Australian College of Information Technology] was really flexible with my on-the-job traineeship and I was

truly able to work at my own pace when it came to studying," Charlotte says. "I was also onboard with other trainees in my workplace completing the same course, so it was great that we could all work together to complete our certificates!"

In 2023, Charlotte was named the Queensland Trainee of the Year and a finalist for Trainee of the Year at the Australian Training Awards.

Her advice for anyone wanting to study IT is to explore different pathways. "Vocational education especially, gives all kinds of people the opportunity to transition into different careers at any stage of their lives." – Louise Meers

**MY TRAINING PROVIDER  
WAS REALLY FLEXIBLE"**

MENTOR. BRAINSTEM  
IT PROJECTS ENGINEER. ONGC SYSTEMS  
2023 QLD TRAINEE OF THE YEAR + TRAINEE OF THE YEAR FINALIST AT THE AUSTRALIAN TRAINING AWARDS  
CERTIFICATE IV IN IT (COMPUTER NETWORKING)  
COMPUTER SYSTEMS ENGINEER. ONGC SYSTEMS  
TRAINEESHIP. ONGC SYSTEMS



# YOUR CAREER

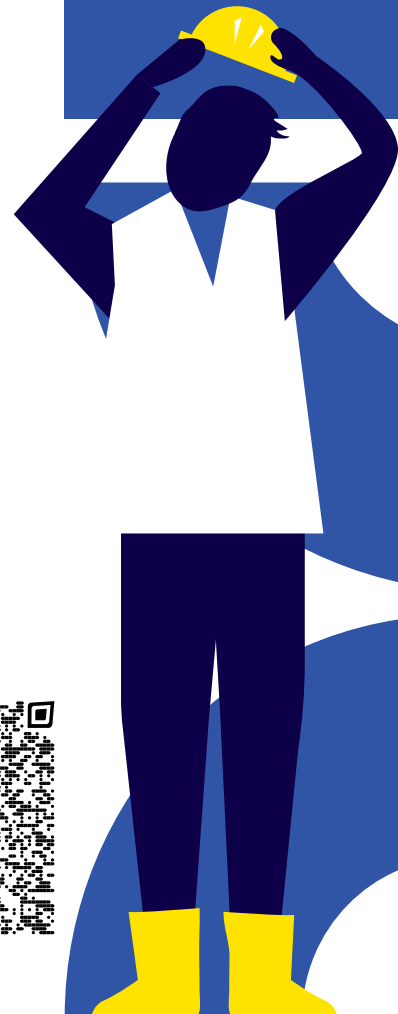
**Unsure of where to start? Looking for something new?  
Got skills but not sure what jobs are suited to them?**

Career information can be overwhelming, that's why we have made it simple for you.

Explore **yourcareer.gov.au** to:

- find occupations and career information based on your hobbies, skills and interests.
- complete a career quiz to start your career journey.
- search study and training options.
- read real life career journeys from Australian VET Alumni and case studies.

Visit **yourcareer.gov.au** today!



## Know what you want to do when you finish school?

**Got plans to do some study or training,  
start working, or take a gap year?**

Download the  
**School Leavers Information Kit**  
for information about:

- study or training options to upskill
- financial support for further study
- how to nail a job interview and more!



**[yourcareer.gov.au/schoolleaver](https://yourcareer.gov.au/schoolleaver)**



# TEXPERIENCE TO JUMP START YOUR CAREER!

HERE ARE 8 TOP TECH WORK EXPERIENCE PROGRAMS FOR YOU TO CONSIDER

**W**ant an elite tech job, like 3D animator, YouTube data scientist or Apple software engineer, but not sure where to start? If so, this list of companies offering tech-focused work experience programs is for you! – Saskia Horgan-Catchpole

## MORE TECH PROGRAMS!

- UTS STEM x Impact
- New Zealand Summer of Tech Internships
- Australian Signals Directorate Work Experience Program
- Datacom New Zealand virtual work experience

#2



### Grandshake

Not sure what career path you want to explore for work experience? Grandshake offers virtual work experience opportunities in everything from app development to eco-friendly design.

### Forage

#1

Forage offers job simulations that replicate a real employee's work day. Companies they offer imitations of include Red Bull, lululemon and even Electronic Arts (creator of *The Sims!*).

#3



### Defence

#5

The Defence STEM Work Experience program is open to Year 10 students in South Australia and Victoria. See what a Defence career might be like working with cutting-edge tech!

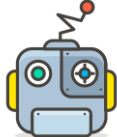
### Year 13

#4

Want to see what it's like to be a food scientist at a gelato factory, and a marine technician for the Navy? At Year 13 you can do both without setting foot in an actual workplace.

### CSIRO

Ever wondered what it's like to work at Australia's national science agency? CSIRO's work experience program allows you to experience this through online projects, developing workplace, tech and STEM skills.



#6

### Tech Council

As part of Tech Council of Australia's virtual work experience, you'll learn from cyber security specialists, data scientists and software engineers.

### PwC

#7

PwC is a tech-powered organisation focused on providing advisory and tax-related solutions to over 5000 clients across Australia. Their Virtual Case Experience simulates client projects with advice from actual PwC staff.



#8

### Women in ICT

If you're interested in information and communications technology, the Women in ICT work experience program will be right up your alley. It aims to connect you with an organisation tailored to your interests and career aspirations, giving you relevant and fun work experience.





# THE BEST OF BOTH WORLDS

**WORRIED ABOUT JUGGLING SPORT COMMITMENTS WITH STUDY? JAMES THOMPSON DID IT WITH HELP FROM MASSEY UNIVERSITY**

In his last year of high school, James was snowboarding A LOT – he even represented New Zealand in Europe. So, despite his love of learning, he wasn't sure whether he'd have time for uni.

In the end, Massey University's Academy of Sport tipped the balance in favour of study for James. Thanks to the uni's well-developed online learning environment, James was able to both compete and train while studying his Bachelor of Science, majoring in computer science. And, he says, the support system went well beyond what he expected.

"There are designated academic support workers who help with organising schedules and arranging special permissions for exam adjustments, especially when competitions clash."

Now with his degree and some experience under his belt, James is carving his own path as a freelance developer and data scientist. – *Charis Palmer*

**JAMES THOMPSON**  
SNOWBOARDER AND  
SOFTWARE DEVELOPER

BACHELOR OF SCIENCE (COMPUTER SCIENCE).  
MASSEY UNIVERSITY

SYSTEM ADMINISTRATOR AND  
DEVELOPER. TELEFUND NZ

FREELANCE DEVELOPER  
AND DATA SCIENTIST

# Programme the Future with a Bachelor of Information Sciences

World Class Teaching and Hands-On Learning.  
Study on campus, online or both.



Find out more: [massey.ac.nz/binfsci](https://massey.ac.nz/binfsci)



TE KUNENGA | MASSEY  
KI PŪREHUROA | UNIVERSITY  
UNIVERSITY OF NEW ZEALAND

APPLY TODAY



# TOP TECH SCHOOLS

Wondering how to choose a tech degree or course?  
Here's what to consider

**T**ech careers truly are diverse. For some, you can teach yourself – particularly if you're self-driven – but for others, you'll need specialist training or a university degree. So how do you choose from the hundreds of courses on offer in Australia? It all comes down to your individual circumstances and what you're hoping to do when you graduate.

While rankings are one thing to consider when choosing a uni, other factors to take into account include work experience options and connections to industry, the majors on offer and how they link to the career you're interested in, graduate employment outcomes, ATAR cut-off scores, cost

(including travel to the uni you choose), scholarship options and any student clubs you might be super keen to join.

Uni rankings take into account factors such as academic reputation, how many high-quality research papers it produces and how employers view its graduates. But they don't include other important considerations like how students rate their uni experience, nor do they cover other institutions like TAFEs or vocational education colleges.

So figure out what's important to you, make a checklist, do your research, and then when it comes time to make your choice you'll be fully prepared. – *Charis Palmer*

## TOP TECH UNIS\*

- 1 University of Melbourne
- 2 Monash University
- 3 University of Sydney
- 4 ANU
- 5 UNSW
- 6 UTS
- 7 University of Adelaide
- 8 Macquarie University

\*Rankings based on average of QS World University Rankings by Subject 2024: Computer Science and Information Systems and Times Higher Education: Best universities in Australia for computer science degrees 2024.



### Did you know?

Computing and information systems students at non-uni institutes rank their experience higher than those at universities, particularly for student support.

Source: QILT Student Experience Survey 2022



# ON THE FAST TRACK

**CHARLES STURT UNIVERSITY STUDENT MITCHELL DEDERER IS MAKING WAVES IN THE IT INDUSTRY THANKS TO A PAID INTERNSHIP WITH GLOBAL TECH FIRM IBM.**

Specialising in software development, Mitchell's Australian Computer Society-accredited Bachelor of Information Technology at Charles Sturt University has set him up for a successful career in IT.

"My internship helped me get my foot in the door, and it's been a fantastic introduction to a career in technology," Mitchell says. "It's given me opportunities to study a wide range of topics, and I've achieved several industry certifications, which have been a great boon to my résumé."

Mitchell credits his success to Charles Sturt's expert lecturers and his comprehensive IT education. "I've studied and worked directly with some very popular and prolific technologies, including React JavaScript library, TypeScript language and Salesforce. I've also gained lots of hands-on experience using AI systems," he says.

"IT is such a vast field with so many different types of roles. I'm lucky enough to be working in a development role in technology, which is where I want to grow my career." – Charis Palmer

**MITCHELL DEDERER**  
JUNIOR ASSOCIATE INTERN



**LEARN MORE ABOUT YOUR STUDY OPTIONS AT [CSU.EDU.AU/COMPUTING](https://csu.edu.au/computing)**

**DIPLOMA OF SOFTWARE DEVELOPMENT, COMPUTER SOFTWARE ENGINEERING, TAFE NSW**



**BACHELOR OF INFORMATION TECHNOLOGY, CHARLES STURT UNIVERSITY (ONGOING)**



**JUNIOR ASSOCIATE INTERN, IBM**



Charles Sturt  
University

## Power up an exciting IT career with our information technology and computer science degrees

Cyber security. Network engineering. Software and application development. Web development. Whatever sparks your interest, you can build the IT career of your dreams.

There has never been a better time to join the IT industry. So follow your passion with our flexible Bachelor of Information Technology or Bachelor of Computer Science.

- Build your employability through strong industry connections.
- Develop the real-world skills – foundational and technical – that employers need.
- Exclusive paid internships with global tech firm IBM.
- Flexible study options. Study online or on campus – or a combination of both.
- Design your degree – choose from unique majors and diverse electives.
- Accredited by the Australian Computer Society.



Learn more  
→ [csu.edu.au/computing](https://csu.edu.au/computing)



# THE ROAD TO SUCCESS

Put yourself in the driver's seat of a tech + transport career and you won't look back!

**F**rom GPS navigation and blind-spot monitoring to advanced traffic management systems, tech is everywhere in transport. So if you want a career that helps keep people safe while making the world more sustainable, look no further!

With the rise of electric vehicles (EVs) and automated vehicles (or self-driving cars), Australia and New Zealand need skilled people to research, develop and test new technologies related to road safety, incident management, infrastructure, trip planning and cyber security.

Having more EVs on our roads will help Australia get closer to its net zero goal – currently, the transport sector is the country's third largest emitter. Automated vehicles, as well as connected vehicle technology (that's where vehicles exchange information with each other), will also play a part.

It's an exciting time to work in tech + transport. Not only will you get to play with the latest tech, you'll be helping your community and planet too. – Louise Meers



## GET THE SKILLS

Here are some of the skills you'll need to score a tech + transport job:

### ATTENTION TO DETAIL

Whether it's squashing bugs in lines of code or making sure all your client's needs are being met, being detail-oriented is a key skill for tech success.

### COMMUNICATION

Given you'll be working with many different teams, you'll need to be able to explain your ideas clearly and to different audiences.

### CREATIVITY

Yep, there's a lot of logic in tech, but sometimes the best solutions come from creative minds.

### DATA ANALYSIS

The ability to analyse data and apply what you learn to your product, system or work is super important.

### PROBLEM-SOLVING

People will look to you for the very best tech solutions. Are you up for the challenge?

### Fun fact

In 2021, Honda was the first manufacturer to sell a car with level 3 self-driving technology.

Its system uses data from maps and a global navigation satellite system, as well as heaps of external sensors, for vehicle control.



## WHO'S HIRING?

If you want a job in tech + transport, you could work for:

- Applied EV
- Chargefox
- Google
- NEC
- Tesla
- Transmax
- Transurban
- State governments

Applied EV®





**TECHNOLOGY  
+ TRANSPORT  
+ STUDY**

Certificate IV  
in **Information  
Technology  
(Networking)**,  
TAFE NSW

Diploma of **Software  
Engineering**,  
Torrens University

Bachelor of  
**Information  
Technology (Data  
Analytics)**,  
Flinders University

Bachelor of  
**Information  
Technology (Data  
Engineering)**,  
TAFE NSW

Bachelor of **Science  
(Information  
and Technology  
Management)**,  
University of  
Auckland

**TECHNOLOGY  
+ TRANSPORT  
+ JOBS**

**Cyber security  
analyst**  
\$59K–\$122K /  
NZ\$55K–NZ\$133K

**Data architect**  
\$101K–\$186K /  
NZ\$100K–NZ\$262K

**Software engineer**  
\$61K–\$126K /  
NZ\$52K–NZ\$101K

**Network engineer**  
\$56K–\$128K /  
NZ\$51K–NZ\$109K

\*Salaries according to  
payscale.com

**NEC**



**AWESOME PROJECTS**

Unis across Australia and New Zealand are working on epic solar cars and pushing the boundaries of tech in transport!

**Sunswift  
UNSW**

This project is all about developing sustainable automotive technology. So far, the team has built seven solar vehicles, with the eighth currently in production. They've been part of (and won!) solar vehicle races, and even hold the Guinness World Record for completing 1000 km on a single charge in under 12 hours.

**Ascend  
DEAKIN UNIVERSITY**

**Investigator IV  
FLINDERS UNIVERSITY**

**Lumen II  
THE UNIVERSITY  
OF ADELAIDE**

**M024  
UNIVERSITY  
OF AUCKLAND**

**Solar Spirit  
AUSTRALIAN  
NATIONAL UNIVERSITY**

**UCM35  
UNIVERSITY  
OF CANTERBURY**

**Unlimited 5.0  
WESTERN SYDNEY  
UNIVERSITY**



**TOP TECHNOLOGIES**

These will be important when it comes to working with both public and private transport systems:

- AI
- Automation
- Cloud computing
- Data management
- Digital connectivity
- Drones and service robots
- Smart sensors

**Did you know?**

In NSW, smart motorways use real-time information, communication and traffic control systems to improve traffic flow and reduce crashes by up to 30%.

How's that for tech to the rescue!



# ON TRACK

Meet the team that's bringing Google Maps into the age of electric vehicles

**D**id you know that Google Maps was invented right here in Australia?! It's come a long way since then, and now it's even being tailored for electric vehicles (EVs)! Lots of tech + transport pros are involved in making sure it runs smoothly and works with the latest EV models. We found out what an average day looks like for five of them. — *Charis Palmer*

## HARRISON COOK SOFTWARE ENGINEER

Harrison works on the app-wide user interface for Google Maps for cars. When the colours were recently updated on Google Maps, Harrison helped adapt the new colours for an automotive context, taking into account factors like driver distraction. "Sounds simple, but things like this can often take a while as we have to ensure every part of the app still works and looks as expected," he says. Harrison loves seeing his work in action. "It's quite rewarding to see people liking (or occasionally not) the things I've worked on. Sometimes it's the real minor pieces of work people are most excited about!"

## HARRISON'S TOP CAREER TIP

Do what doesn't make you bored, where you can get into the flow.

## LIV NEMES-NEMETH SOFTWARE ENGINEER

Liv works on Google Maps features that help users plan longer trips in their EVs. When not talking through new features with her colleagues, she might be found coding or hunting for bugs in existing code.

"I love working on the EV team because I get to work at the forefront of a new and important technology, and help make that technology more manageable for everyone," Liv says.

Switching from a petrol car to an EV breaks established patterns for most people. "I love feeling not only like I'm helping our users, but also like in some small way I'm helping everyone by making the essential transition away from petrol cars that much easier."

## LIV'S TOP CAREER TIP

Never pass up an opportunity to do something that excites you because you don't feel like you're good enough for it.

## PAT HWANG USER EXPERIENCE DESIGNER

Pat works on the user experience (UX) of Google Maps' navigation, testing and taking on feedback from users. He also designs user flows to make sure the app is easy and enjoyable to drive with. After studying engineering and realising it wasn't for him, Pat came across UX design and hasn't looked back. "It was the perfect blend of both of my passions for creativity and technology," Pat says.

## PAT'S TOP CAREER TIP

Try out as many diverse opportunities as you can to broaden your perspectives.

BACHELOR OF DESIGN COMPUTING  
(MINOR IN IT), UNIVERSITY OF SYDNEY

PRODUCT DESIGNER,  
ATLASSIAN

EXPERIENCE DESIGN  
INTERN, DELOITTE DIGITAL

GUEST LECTURER + TUTOR,  
UNIVERSITY OF SYDNEY

USER EXPERIENCE  
ANALYST, TRINITY STUDIO

USER EXPERIENCE  
DESIGNER, GOOGLE



BACHELOR OF CREATIVE INDUSTRIES  
(TELEVISION AND SOUND DESIGN), QUT

LANGUAGE COORDINATOR,  
EUROPEAN CAPTIONING INSTITUTE, LONDON

PRODUCT MANAGER,  
JACARANDA

CHIEF PRODUCT  
OFFICER, COGNISS

PRODUCT MANAGER,  
GOOGLE

As a product manager on Google Maps Automotive, Anna helps ensure Google Maps in cars is awesome and that the company is investing in the right new features. This means collaborating with a lot of people, including software engineers, designers and researchers, and getting up close with the technology. "I try to spend as much time as possible driving in lots of different cars using Google Maps," Anna says. "I like to put myself in unfamiliar driving situations to see how Google Maps could help drivers better – it's a lot of fun and also helps me to understand the needs of drivers and the stress that driving can cause to inspire new ideas and improvements to our features."

### ANNA'S TOP CAREER TIP

Curiosity is your superpower! When you're curious you're much more likely to learn new things.

### ANNA GOLDFEDER PRODUCT MANAGER

### EMILY'S TOP CAREER TIP

You miss 100% of the shots you never take, so try absolutely everything!

### EMILY DUHNE SOFTWARE ENGINEER

Emily works on the ongoing performance of Google Maps in cars. On a typical day she might be learning how a part of code works or interacts with other components and then planning fixes. "The coolest part of my job is that any change I make will impact people all across the world," Emily says. "As an example, I made a substantial improvement to jank (which is where a screen is frozen) across Google Maps. This ended up also improving the number of turns missed during navigation. Now, any time I sit in a car and someone is using our product I can say that I helped improve that!"



**WATCH FIND OUT HOW  
THESE GOOGLE ENGINEERS  
GOT THEIR START IN TECH**

DIPLOMA OF PROFESSIONAL DANCE (ELITE PERFORMANCE),  
WESTERN AUSTRALIAN ACADEMY OF PERFORMING ARTS

BACHELOR OF MATHEMATICAL AND  
COMPUTER SCIENCES, UNIVERSITY OF ADELAIDE

BACHELOR OF ELECTRICAL AND ELECTRONIC  
ENGINEERING, UNIVERSITY OF ADELAIDE

RESEARCH SCIENTIST CADET,  
DEFENCE SCIENCE AND TECHNOLOGY GROUP

SOFTWARE ENGINEER,  
GOOGLE AUSTRALIA



**SOPHIE GARDNER**  
 USER EXPERIENCE DESIGNER

# IN TRANSIT

 UX designer **Sophie Gardner** loves seeing people using Google Maps features she has worked on

 UX DESIGNER  
 GOOGLE

 TEACHING ASSISTANT FOR  
 UX DESIGN, UNIVERSITY OF SYDNEY

 UX DESIGN INTERNSHIP,  
 PALANTIR TECHNOLOGIES

 UX DESIGN SUMMER  
 INTERNSHIP, GOOGLE

 BACHELOR OF DESIGN COMPUTING,  
 UNIVERSITY OF SYDNEY

LAUREN TROMPP

**W**ith an obsession for computers and a love of well-designed things, Sophie set her sights on computer design at the end of high school. She may not have realised it then, but designing user experiences (UX) with technology was the perfect career for her.

"I was worried that not having done art or coding in high school would hold me back but it didn't at all," Sophie says. "Turns out it's never too late to learn these skills and catching up is easier than you think!"

As a UX designer at Google, Sophie works with a team to understand the problems people are having and come up with ideas to help solve them.

"I then work with product managers and engineers to turn these ideas into code and real working features inside Google Maps for people all around the world to use," Sophie says.

Her team works on Google Maps for public transport, helping commuters connect all the different modes of transport to get around.

Sophie loves travelling overseas and seeing people walking around using Google Maps features she worked on. "Seeing that these features are helping

people everywhere get around is such an amazing feeling," Sophie says.

Her advice to students is to gain experience through internships and paid work, and to ask for feedback. "Don't spend the first few years of your degree trying to figure everything out on your own. Other people have helpful advice to give!"

And she says there are lots of exciting opportunities for aspiring UX designers.

"The breadth of industries that are now hiring UX designers means you can really combine any passion of yours with UX," Sophie says.

"UX design no longer means just making websites or apps; there are so many experiences that UX designers are being hired to make, from voice to experience design." — *Charis Palmer*

**YOU CAN REALLY  
 COMBINE ANY PASSION OF  
 YOURS WITH UX"**



# Train tech

**RENEE NGAN'S SOFTWARE HELPS YOU GET FROM A TO B. WHEREVER YOU ARE!**

Ever wondered how travel apps know exactly where your train is and when it will get to you? That's all thanks to people like Renee and her team at Transport for NSW.

Renee's team specialises in a system that receives input from trains all across Sydney and broadcasts it to apps like Google Maps, TripGo and TripView.

In primary school, Renee thought she'd become an accountant because she enjoyed working with numbers. But when she learnt more about engineering at high school, she decided that was the career for her. "Engineering caught my interest as a field which involves a lot of problem-solving, and also has work that feels very tangible," she says.

Renee studied engineering at uni with a concurrent Diploma of Engineering Practice. While studying she successfully applied for a three-year cadetship with RailCorp (later known as Sydney Trains).

When it came time to graduate, Renee faced what she says has been one of her biggest career challenges so far: finding the



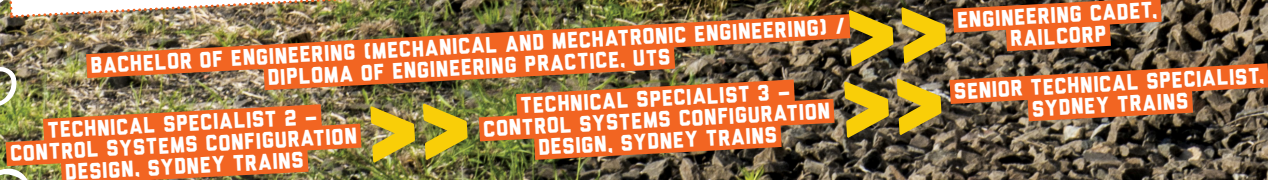
**RENEE NGAN**  
SENIOR TECHNICAL  
SPECIALIST

confidence to apply for her current position. She eventually submitted her application and got the job, securing a career that she loves.

"I'm constantly moving onto new projects and the next challenge," she says.

Not only does Renee create essential transport software, she also creates knitting projects that win ribbons at the Sydney Royal Easter Show!  
— Saskia Horgan-Catchpole

**ENGINEERING CAUGHT MY INTEREST AS A FIELD WHICH INVOLVES LOTS OF PROBLEM-SOLVING AND TANGIBLE WORK"**





# CAN YOU HACK IT?

Skill up for a career in this high-demand area

**W**ith so much of daily life relying on technology and wireless services, cyber security is becoming an increasingly important field.

Cyber security analysts are like the police of the virtual world: they protect people, businesses and governments from cyber crimes by anticipating threats, and responding to breaches when they do occur.

The problem is... Australia is experiencing a shortage of people in this professional field. – Amy Briggs

## MAKE IT PERSONAL

Cyber security attacks are not limited to just areas of big tech or companies with novel technologies. The three most targeted sectors are:

- Public sector
- Retail and wholesale trade
- Commercial and professional services

Many companies and organisations store personal data like addresses, names, birthdays and credit card details. One cyber-security attack could reveal some of those details. But with more attacks, a picture of you can be formed like a puzzle.



LEARN FROM JASMINE DONG ABOUT WHAT IT'S LIKE TO BE ON THE FRONTLINES OF CYBER SECURITY, AS SHE STRIVES TO INSPIRE MORE WOMEN INTO TECH!

THE LANDSCAPE IS CHANGING. AND MORE DIVERSE VOICES ARE JOINING THE CONVERSATION. STEM IS ALL ABOUT SOLVING PROBLEMS, AND IT'S INCREDIBLY REWARDING AND FUN"

READ HER PROFILE ON P32



## THE CAREER SKILLS IN HIGHEST DEMAND

### OFFENSIVE SECURITY

Use your skills to help make sure organisations are protected from hacking... by doing it yourself! You get to seek out vulnerabilities in their systems and report back on how you're able to get through.

### SECURITY OPERATIONS

Help maintain and organise the infrastructure in an organisation that keeps it secure. Keeping tabs on software updates, hardware updates and all IT infrastructure in an organisation is a big task... one you could be up for with this in-demand skill!

### ARTIFICIAL INTELLIGENCE

Many different sectors are integrating AI into their operations now, making this a useful skill to have on your resume! There are lots of ways to work with AI, from training models to looking into the ethics of this tech.

Experts say AI will present new risks in the future with digital fraud increasing... so AI experience is a serious plus!

### SOFT SKILLS

- Attention to detail
- Creative problem-solving
- Clear communication
- Adaptability

### HARD SKILLS

- Computer science fundamentals
- Knowledge of programming languages
- Up-to-date on attack tools and techniques

Research has shown **60%** of global IT and cyber security leaders are **struggling to hire qualified cyber security candidates**.



**CHECK OUT ANDRA CIMPEAN,  
WHO STUDIED CYBER SECURITY  
AT EDITH COWAN UNIVERSITY.**

**"I DESIGN STRONG AND  
SAFE SYSTEMS AND PUT SAFETY  
MEASURES IN PLACE TO STOP  
THE BAD GUYS FROM ACCESSING  
DATA AND INFORMATION"**

**READ HER PROFILE ON P33**



## TECHNOLOGY + CYBER SECURITY + STUDY

Bachelor of **Cyber Security**,  
UNSW Canberra

Bachelor of **Cyber Security**,  
Griffith University

Bachelor of **Cyber Security**, Macquarie  
University

Bachelor of **Cybersecurity**,  
Torrens University

Bachelor of **Cyber Security**, RMIT

**Turn to page 15  
to find pathways  
into cyber security  
that don't involve  
a degree.**

## TECHNOLOGY + CYBER SECURITY + JOBS

**Cyber security  
analyst**  
\$59K–\$122K /  
NZ\$56K–NZ\$134K

**Penetration tester**  
\$58K–\$148K /  
NZ\$71K–NZ\$89K

**Cyber security  
engineer**  
\$65K–\$151K /  
NZ\$70K–NZ\$146K

\*Salaries according to  
payscale.com



# Cyber boss

After a career in the NRL, **Jack Reis** switched tracks and founded a cyber security company

**JACK REIS**  
CYBER SECURITY  
SPECIALIST

**A**s a kid, I wanted to be a sports star – something I attribute to watching our First Nations sports stars. I was signed to the Sydney Roosters at 17 but two years later I got injured and couldn't play anymore. Luckily I was young and had a good support network around me. I went and studied banking and finance at university and started a career in banking.

I did some time in private equity and learnt the fundamentals of business. Then I went into government as an investment retail portfolio manager, looking

at investment opportunities for the government. All that time I knew I wanted to own my own company but I didn't know what in. Then an opportunity landed in my lap – that was cyber security.

Five years ago, when I started Baidam Solutions, I couldn't name any Aboriginal and Torres Strait Islander CEO or CIOs. I wanted to create 'the role model of cyber' and find the Johnathon Thurston – the JT – of IT. If you don't want to kick a footy like JT, you want to game and code, we can show you somebody who's done it.

## FINDING YOUR PATH

There are conventional and non-conventional pathways into cyber. I learnt cyber security by working in it. A lot of schools now are introducing IT into their classes but, to be frank, we look for kids who are curious. You know how to use an iPhone or play an Xbox? You're on your way.

Don't stress about not knowing exactly where you'll end up. You need drive, a good work ethic and resilience. It might not be easy but it gets better. My advice: trust the process, trust your heart and be patient. – *Danika Davis with Jack Reis*

**KNOW HOW TO USE AN  
IPHONE OR PLAY AN XBOX?  
YOU'RE ON YOUR WAY"**

FOUNDER,  
BAIDAM SOLUTIONS

INVESTMENT RETAIL PORTFOLIO MANAGER,  
INDIGENOUS BUSINESS AUSTRALIA

BRANCH MANAGER,  
COMMONWEALTH BANK

BANKING AND FINANCE  
AT QUT

PROFESSIONAL  
RUGBY LEAGUE PLAYER



# MOVE FAST AND BREAK THINGS

SECURITY ENGINEER **KABIR ACHARYA** LOVES SECURITY COMPS AND WORKING WITH OTHERS TO KEEP AHEAD IN HIS FIELD

**G**rowing up with a desire to “break technology”, Kabir was made for a career in cyber security. In years 11 and 12 his fave subject was software design and development. When he found out Macquarie University was introducing a Bachelor of Cyber Security, he was sold immediately.

“I knew that was exactly what I wanted to do,” Kabir says. “I wanted to work in offensive security, which is very hands on and all about breaking things.”

Kabir is now a security engineer at Australian software giant Atlassian, but he does a lot outside the office too.

“It’s important to constantly keep your knowledge base updated in the security industry,” Kabir says.

“I also participate in security competitions, called CTFs [Capture the Flags], on the world stage. I started doing

this in my first year of university and it significantly helped my career prospects by proving my passion and skills to employers.”

He says the coolest thing about his job at Atlassian is working collaboratively to find novel vulnerabilities in security systems.

“Being able to work with other software and security engineers to achieve similar goals, share knowledge and learn from others is very helpful and brings a social aspect into work,” Kabir says.

His advice to students considering cyber security is not to worry about your ATAR. “My ATAR did not contribute to me landing my job,” Kabir says. “I think this can be generalised to any field that isn’t hinged on a perfect ATAR. Don’t skimp on extracurricular research and work that aligns with your interests.” – Charis Palmer

**DOING SECURITY COMPS SIGNIFICANTLY HELPED MY CAREER PROSPECTS**

SUMMER CAMP,  
NATIONAL COMPUTER SCIENCE SCHOOL

BACHELOR OF CYBER SECURITY,  
MACQUARIE UNIVERSITY

CYBER SECURITY INTERN,  
MACQUARIE UNIVERSITY

SECURITY ENGINEERING INTERN,  
ATLASSIAN

SECURITY ENGINEER,  
ATLASSIAN

**KABIR  
ACHARYA**  
SECURITY  
ENGINEER



# INSPIRING LEADER

Jasmine Dong is using her problem-solving skills to inspire more NZ women into tech

**W**orking on the frontlines of cyber security in New Zealand, Jasmine monitors, detects and responds to cyber security threats on a daily basis. It's an exciting, rapidly changing environment that she says her STEM education prepared her for.

"During my studies, I worked on various assignments where I gained practical skills in digital forensics, incident response and pentesting, learning to analyse security incidents and identify vulnerabilities."

To help land her current job as a cyber security consultant, Jasmine undertook a range of cyber security internships alongside her uni course, which she accessed through the New Zealand Summer of Tech program.

A passion for problem-solving and a desire to bridge the underrepresentation of women in tech has driven Jasmine forward in her career.

"Seeing the lack of women in tech, I wanted to change that narrative and inspire more women to join the field," she says.

"Additionally, the challenge of continuously learning and adapting in cyber security's



**JASMINE DONG**  
CYBER SECURITY  
CONSULTANT

ever-changing environment keeps me engaged and excited about future possibilities in this field."

After being involved with the Women in Tech Committee at Victoria University, Jasmine has now turned her attention to developing an app designed to inspire teenage girls to pursue STEM careers. She says young people wanting to break into the industry shouldn't be put off if they feel underrepresented.

"The landscape is changing, and more diverse voices are joining the conversation. STEM is all about solving problems, and it's incredibly rewarding and fun." – Reece Hooker

**THE CHALLENGE OF CONTINUOUSLY LEARNING IN CYBER SECURITY KEEPS ME ENGAGED AND EXCITED"**

BACHELOR OF ENGINEERING  
(CYBER SECURITY) (HONOURS),  
VICTORIA UNIVERSITY OF WELLINGTON

SECURITY OPERATIONS  
INTERNSHIP,  
INPHYSEC SECURITY

INFORMATION  
SECURITY INTERNSHIP,  
Z ENERGY

GRADUATE  
CYBER SECURITY  
CONSULTANT, EY



# Safety first

**Andra Cimpean** works on the frontlines of cyber security to protect her friends and family

**A**s a cyber security analyst in the West Australian government, Andra helps protect the information of people online.

"I design strong and safe systems and put safety measures in place that stop the bad guys from accessing data and information they shouldn't be allowed to," she says.

"The coolest part of my job is getting to see how strong the defence is when faced with attacks."

Her pathway to this dream gig was taking up all the opportunities unlocked through her degree at Edith Cowan University, including networking events and internships. "I had lots of fun studying my degree because I got to work with so many people and learnt so much about their countries and life stories."

Andra says that problem-solving – a skill she honed as a professional chess player – is an



**ANDRA CIMPEAN**  
CYBER SECURITY ANALYST

essential part of her role. "If I were to describe my job I would say it's like a puzzle," she says.

Andra initially studied a Bachelor of Psychology, but then stumbled upon cyber security and was captivated.

Looking to the future of her field, Andra is excited about the challenges and opportunities that AI presents. "We must learn how to use AI responsibly as a tool rather than fearing it!" – Amy Briggs

**I HAD LOTS OF FUN  
STUDYING BECAUSE I GOT TO WORK  
WITH SO MANY PEOPLE"**

## Top tips

Andra's tips for keeping your data safe include choosing long passwords and not clicking on links unless you were expecting to receive one.

BACHELOR OF PSYCHOLOGY,  
WEST UNIVERSITY OF TIMISOARA

MASTER OF CYBER SECURITY,  
EDITH COWAN UNIVERSITY

CYBER SECURITY ANALYST, DEPARTMENT  
OF THE PREMIER AND CABINET OF WA



# GAME ON

Here's how to unlock an exciting and fun STEM career in gaming and animation

**O**ne of the best (and most surprising) things about STEM is how it can lead to a highly creative career. Another STEM perk? It mixes well with your hobbies, passions and other interests. If you're a gamer, artist or know everything about the latest movies and TV shows, there is a place for you in STEM – and a gig in gaming or animation could be the perfect fit.

You could work on mobile, PC and roleplaying games, virtual reality, platformers and more. And besides game studios, you'll be in demand with other employers too. Gamification is being used in industries like education, health, retail, finance and hospitality for marketing, engagement and training purposes.

Is animation more your lane? If you dream of working on an animated movie or making the next viral app or game, studying animation after school will help get you there. You could go on to use your tech + art skills to create visuals for games, TV and programs, and work everywhere from the entertainment industry to software publishing and advertising. – Louise Meers

## BOOST YOUR XP

You can start sharpening your gaming and animation skills while still at high school. Future game developers should check out Scratch, Google for Games, Game Builder Garage and even Super Mario Maker to start getting a feel for how games are put together and what elements you need. Animators might like to get a head start by teaching themselves how to use Adobe Animate, Adobe After Effects and Toon Boom Harmony.

## LEVEL UP

When it comes to getting a qualification, there are a range of amazing VET and uni options to choose from. To work out the best path for you, have a think about what you'd like to specialise in – that might be 3D animation, programming, design, mobile devices or user experience. Another way to narrow down the options is to think about whether or not you'd like to go to uni, or if TAFE or another vocational school or institute would be a better fit for you.

Progress



## LET'S-A-GO!

There are so many cool roles in gaming and animation. You could be a:

- ✓ **3D ARTIST OR MODELLER**
- ✓ **ANIMATOR**
- ✓ **AUDIO DESIGNER**
- ✓ **CHARACTER RIGGER**
- ✓ **ENVIRONMENTAL DESIGNER**
- ✓ **CONTENT DESIGNER**
- ✓ **GAME DESIGNER**
- ✓ **GAME DEVELOPER**

- ✓ **GAME LEVEL DESIGNER**
- ✓ **GRAPHIC ARTIST OR DESIGNER**
- ✓ **GRAPHICS PROGRAMMER**
- ✓ **QUALITY ASSURANCE OFFICER**
- ✓ **SIMULATION SPECIALIST**
- ✓ **SYSTEMS DESIGNER**
- ✓ **USER EXPERIENCE DESIGNER**
- ✓ **VISUAL EFFECTS ARTIST**

## TECHNOLOGY + GAMING + ANIMATION + STUDY

Bachelor of **Animation**, Griffith University

Bachelor of **Creative Technologies** – **Game Art**, Media Design School

Bachelor of **Game Development** (**Game Design**), AIE Institute

Diploma of **3D Design and Animation**, Torrens University

Diploma of **Information Technology (Game Programming)**, TAFE NSW

Diploma of **Screen and Media** (**Animation, Gaming and Visual Effects**), RMIT

## TECHNOLOGY + GAMING + ANIMATION + JOBS

**Animator**  
\$45K–\$85K /  
NZ\$43K–NZ\$144K

**Video game designer**  
\$48K–\$97K /  
NZ\$54K–NZ\$80K

**Software developer (games)**  
\$52K–\$116K /  
NZ\$52K–NZ\$101K

\*Salaries according to  
payscale.com

## Get paid to play games

QUT grads Rachel Hempenstall and Oliver Van Dyk landed roles as quality assurance testers at Gameloft in Brisbane after attending a uni networking event. As QA testers, it was their job to try to break games! Still at Gameloft years later, Rachel is now a 3D artist and Oliver is a software engineer. Read more about their study and career paths: [bit.ly/creativegamingcareers](https://bit.ly/creativegamingcareers)

**OLIVER VAN DYK**  
SOFTWARE ENGINEER



GAME DEVELOPER,  
SKILLSVRINTERN,  
STRETCHSENSESTRUCTURAL AND CIVIL DRAFTING CADET,  
QUOIN STRUCTURAL CONSULTANTSBACHELOR OF ENGINEERING  
(COMPUTER SOFTWARE ENGINEERING), MEDIA DESIGN SCHOOL

# STEM IN MOTION

Studying STEM has given **David Haverland** the tools to set high scores all day

**DAVID  
HAVERLAND**  
GAME DEVELOPER



**D**avid has always been passionate about making games, but his first job took him in a very different direction.

"I started as a structural drafting cadet to earn money and gain life experience before pursuing my dream of game development," he says.

After high school, David studied computer software engineering and landed an internship with a company that specialised in motion capture gloves.

"I did content creation for them, showing how their gloves can be used. I got to meet many professionals, including people who had worked on my favourite games."

This experience, plus his background in STEM, later helped him land his dream job in game development in New Zealand.

"Having a career in STEM has allowed me to pivot as much as I want since many skills are transferable," he says. "I am very passionate

about my job but being able to also come home at the end of the day and work on my own dream is what gets me out of bed every day."

One of his current projects began as a side project at home. "I brought it to my manager and we quickly merged it into another ongoing project. Because of this, I was able to help guide the project from an early stage."

David's dedication and passion for game development haven't gone unnoticed on the world stage. Two games he made while still at uni won a student prize at New Zealand's game awards, and another was a finalist in The Game Development World Championship.

David's advice to young STEM enthusiasts who want to follow a similar path? "Take every opportunity to learn and grow. The skills you develop can open doors to diverse and exciting career paths." – Reece Hooker

**HAVING A CAREER IN STEM HAS ALLOWED  
ME TO PIVOT AS MUCH AS I WANT**



# Start a new chapter

AFTER TRANSITIONING FROM THE ARTS TO STEM, **REBECCA JEFFRIES** NOW CREATES VIRTUAL REALITY GAMES FROM THE GROUND UP!

**REBECCA JEFFRIES**  
VIDEO GAMES AND  
ANIMATION STUDENT

**W**ith the average person changing careers several times in their life, it's important to keep an open mind about where you might end up. That's what Rebecca found when she realised life as a classroom teacher no longer suited her.

After high school, Rebecca studied music and teaching before working as a teacher and as a keyboardist for community theatre groups. While she loved the creative side of both jobs, she found herself wondering if this was a career she could see herself doing forever.

"I wanted my life to be more than just waiting for the weekends. At any moment, you can decide to become a different person – you're not obligated to make decisions based on how other people perceive you," Rebecca says.

Eventually, Rebecca took the leap and enrolled in a Bachelor of Games and Interactive Environments majoring in animation at QUT. Her new pathway allows her to combine her love of writing with programming, art and constructing new virtual worlds.

Now in her third year, Rebecca recently created a virtual reality (VR) game from scratch! During her final semester, she plans to program a character to respond in real-time to a virtual environment. She's excited to tackle the code needed to make the game work.

Rebecca says her QUT lecturers and tutors have been an important support network during her transition between careers.

Her advice to others starting out on a STEM pathway? "Stay curious and learn from a variety of sources. Stay earnest and tenacious. Ask the 'stupid' question – don't assume the answer won't be given to you, ask anyway. And write everything down!" – *Saskia Horgan-Catchpole*

**AT ANY MOMENT, YOU CAN  
DECIDE TO BECOME A DIFFERENT  
PERSON – YOU'RE NOT OBLIGATED  
TO MAKE DECISIONS BASED ON HOW  
OTHER PEOPLE PERCEIVE YOU"**

BACHELOR OF MUSIC (COMPOSITION),  
QUEENSLAND CONSERVATORIUM – GRIFFITH UNIVERSITY



GRADUATE DIPLOMA OF  
EDUCATION (SECONDARY), QUT



CLASSROOM  
TEACHER

PIANO  
TUTOR



BACHELOR OF GAMES AND INTERACTIVE  
ENVIRONMENTS (ANIMATION), QUT (ONGOING)





# Race for talent

AUSTRALIA AND NEW ZEALAND ARE IN HOT COMPETITION FOR GAMING AND ANIMATION SPECIALISTS

Supporting rivals since way back, Australia and New Zealand are also competitors when it comes to the gaming and animation sectors. Both countries use tax incentives to lure big game and film producers to their shores. And when they land, they need people with gaming and animation skills to deliver.

For example, the new *Lord of the Rings* movie, set to land on our screens in 2026, will involve plenty of animation work.

Meanwhile, the New Zealand Game Developers Association says skills shortages remain a constraint on the sector's growth. A recent survey found 35% of studios say it's challenging to recruit qualified programmers, especially those with experience. And 20% find it challenging to recruit 3D artists or animators.

In 2023, the number of people employed by Australia's game development studios grew by 17%. So whether you're based in New Zealand or Australia, gaming and animation is a serious STEM career to consider. – Charis Palmer

SHUTTERSTOCK



## Star power

Screen New Zealand says at least 150 visual effects jobs are expected to move from the US, as production of the *Avatar* sequels is consolidated in New Zealand in coming years.

## WHO'S HIRING

- Blind Squirrel Games (New Zealand and US)
- Gameloft (Global)
- Halfbrick Studios (Australia)
- Not Doppler (Australia)
- OuterDawn (New Zealand)
- PikPok (New Zealand)
- Riot Games (Global)
- Ubisoft (Australia)
- Weta FX (New Zealand)





# NOT A HOBBY

Ethan Uy's pathway is playing out like an action packed RPG: fast-paced and full of side quests



Ethan pressed play on his career in game design while he was still in high school. He became fascinated with the look and feel of PSP and PC games, deep-diving into advanced animation techniques and playing around with code – from his bedroom.

“One of my favourite games was *Team Fortress 2* and there was a program that was free to use called *Source Filmmaker*,” he says. “From there, I learnt how to code with my first language being *Lua* and made some of my first games in *Roblox Studio*.”

At school, Ethan took classes in Python and basic website design. When he learnt he could make a career out of game design? Game over!

“Finding out that it was a possibility, and that we have a great course offered here in New Zealand, changed everything,” he says. “I’ve never looked back!”

## LEVEL UP

Media Design School's Bachelor of Software Engineering set Ethan up for his dream career in NZ. On top of the awesome assignments and industry-led lectures, he also launched an indie

gaming startup with classmates and released the successful sim *Bronzebeard's Tavern*.

With a CV full of real-world experience, Ethan scored a game developer gig at BIGA straight out of his final year, and now spends gish to 5ish programming features and creating games from scratch.

And yep, button mashing is legit part of the role. “I’m always fiddling with a controller,” he admits. “Sometimes we have to play the same scenario over and over to squish a weird bug.”

## START EARLY

For anyone keen to pursue a career in game design, Ethan recommends developing a strong portfolio before you finish Year 12.

“There’s no better way to show off your personality and experience with basic games that you have designed/programmed yourself,” he stresses.

The best way to get skilled up? “Keep playing,” Ethan says. “Expose yourself to everything!” – Cassie Steel

**ETHAN UY**  
GAME DEVELOPER

**FINDING OUT WE HAVE  
A GREAT COURSE HERE IN NZ  
CHANGED EVERYTHING**

GAME DEVELOPER,  
BIGA

THE MERMAID MNZ, PROJECT MANAGER,  
BACK END + SYSTEM PROGRAMMER

BACHELOR OF SOFTWARE ENGINEERING  
(COMPUTER SOFTWARE ENGINEERING), MEDIA DESIGN SCHOOL



# GET PSYCHED

Can't choose between studying technology and psychology?  
Don't! There are plenty of ways to combine the two

**T**ech professionals who know a thing or two about psychology can dive into so many exciting and interesting jobs. Knowing how people think gives everyone from user experience (UX) designers to cyber security consultants an edge. They can predict behaviour and use it to their advantage, whether that be to create an intuitive and successful shopping app, or to stop online fraud before it happens. Psychology skills that transfer straight into the tech industry include communication, critical and analytical thinking, research and organisation. Explore your tech + psych options below. – Louise Meers

## FREE DOWNLOAD

Deep dive into psychology careers with our Psychologist Job Kit. It's an eight-page mini magazine that'll get you psyched for all the places this area of study could take you. Get your copy at [bit.ly/CwSTEMJK](https://bit.ly/CwSTEMJK)



## LAUREN FELL SPACE STARTUP FOUNDER



## 5 TECH + PSYCH CAREERS TO KNOW ABOUT

### 1 CYBER SECURITY ANALYST

Having an understanding of how the human mind works, and how people behave online, can be super beneficial in tracking down hackers and fraudsters.

### 2 GAME DEVELOPER OR DESIGNER

Psych skills help the gaming industry work out player motivation, build emotion in the story and gameplay, and create engaging and intuitive user experiences.

### 3 PRODUCT MANAGER

Knowing how people make decisions and interact with products helps product managers work out ways to drive and boost sales.

### 4 UX/UI DESIGNER

These creative tech legends research how people use a product, as well as their attitudes towards it, and incorporate that knowledge into a product's final design for ease-of-use.

### 5 WEB DESIGNER

By using design elements like colour, typography, spacing and layout, web designers help build websites that look good, are user friendly and can drive clicks and sales.

## Success story

**Lauren Fell** has had a super varied career, having worked in user experience consulting and on projects looking at the use of virtual reality for neurodiverse people. She's even taken part in (and won) NASA design challenges, founded a space startup and co-designed an app to help mental health professionals streamline their reporting. She now helps students understand the role of tech in society. Check out her CV and read her full story here: [bit.ly/laurenfell](https://bit.ly/laurenfell)



## UX/UI EXPLAINED

Psychology is a huge part of UX/UI design. And, according to SEEK, jobs in this space are set to grow by 21.7% over the next five years!

### WHAT IS UX?

UX (user experience) is all about designing intuitive, easy-to-use products such as websites and apps. A UX designer takes on the perspective of the end-user – mapping out, from start to finish, how they would use the product. They then come up with solutions for any ‘pain points’ (or problems) in the user’s journey. To do this, they conduct lots of research to find out more about their target users and what their needs are.

### OKAY THEN, SO WHAT IS UI?

UI (user interface) is concerned with the overall look of a product – think: icons, colours, typography and imagery. A UI designer considers accessibility (such as font size, colour contrast and spacing), and takes findings from a UX designer before creating designs that will be used in the product.

### THE DIFFERENCE BETWEEN UX AND UI IS ...

UX is about the overall experience the user has with a product (how it feels), while UI focuses on the visuals (how it looks).

### WHAT TO STUDY

You can learn more about both UX and UI by studying a Bachelor of Computer Science, a Bachelor of Computational Design or a Bachelor of Design Computing. Some universities also offer short courses on UX and UI, such as the University of Sydney’s Introduction to User Experience (UX) Design Course, and RMIT’s Future Skills Short Course in User Interface Design.

### WHERE YOU COULD WORK

UX and UI designers can be found in all kinds of industries. Think:

- Technology • Finance • Retail
- Government • Health
- Manufacturing • Travel

## TECHNOLOGY+ PSYCHOLOGY + STUDY

Bachelor of  
**Cybersecurity**  
/ Bachelor of  
**Psychological  
Science**, La Trobe  
University

Bachelor of **UX and  
Web Design**, Torrens  
University

Bachelor of  
**Information  
(Web Design and  
Development)**,  
University of  
Wollongong

## TECHNOLOGY+ PSYCHOLOGY + JOBS

**Cyber security  
analyst**  
\$59K–\$122K /  
NZ\$55K–NZ\$133K

**Product manager  
(software)**  
\$76K–\$154K /  
NZ\$67K–NZ\$146K

**UX designer**  
\$58K–\$119K /  
NZ\$52K–NZ\$105K

\*Salaries according to  
payscale.com





# DESIGNED FOR HUMANS

**Kate Nielsen** is using her psychology skills to help make software work better for people

**K**ate works for a new startup in New Zealand that makes AI-powered management support software. Her career path is proof that psychology skills are a real asset in the tech industry.

As a user experience (UX)/user interface (UI) designer, it's Kate's job to ensure that users of her company's software can navigate it intuitively.

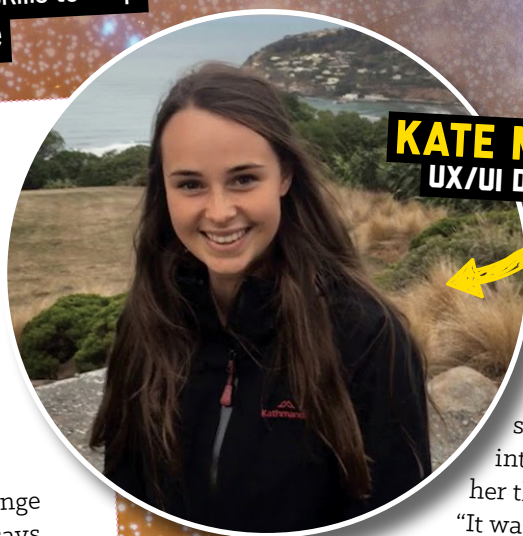
"With AI, there is a huge amount of human psychology and behaviour change that is already being considered," she says.

Using her skills in psychology and product design, Kate is able to think about what users of her software actually need.

"My interest area is kind of that gap between the product and the human," she says.

While studying at uni, Kate was interested in projects that would help her upskill in product design. This led her to become interested in tech and UX/UI design.

"I was really interested in problem-solving and innovating, but I was also just really interested in people."



**KATE NIELSEN**  
UX/UI DESIGNER

Kate's first real taste of UX design came when she scored a user experience internship at Atlassian during her third year of uni.

"It was really awesome learning there and it actually embedded so much of my science degree. It all started connecting massively with psychology especially."

Not coming from a tech background initially, Kate had a steep learning curve when it came to understanding how to translate her psychology skills into tech principles.

Overall, Kate has found her unique perspective a bonus for her work. "Having a bit of a deeper understand of human psychology... bringing that into my work as a designer has been really interesting." – Amy Briggs

BACHELOR OF PRODUCT DESIGN (INDUSTRIAL) / BACHELOR OF SCIENCE (PSYCHOLOGY), UNIVERSITY OF CANTERBURY

USER EXPERIENCE RESEARCH INTERNSHIP, ATLISSIAN

UX/UI DESIGNER, LATENT

PRODUCT DESIGN INTERNSHIP, ENZTEC

PRODUCT DESIGN AND SCIENCE TUTOR, UNIVERSITY OF CANTERBURY



# Creative technologist

Next-gen designer **Annie Tran** is using her creativity to carve out a career in tech



## CHOOSE YOUR PATH AT TORRENS

- Diploma of UX and Web Design
- Bachelor of UX and Web Design
- Graduate Certificate of UX Design

More at: [torrens.edu.au/courses/technology](https://torrens.edu.au/courses/technology)

### ANNIE TRAN UX/UI DESIGNER



**L**ike most creatives, Annie's pathway has been colourful and nonlinear. Stumped on what to study after high school, she initially studied commerce and worked as a consultant.

"I worked with a variety of clients on different projects, and people from various backgrounds," Annie says of her first corporate role. "But I soon realised two things: I loved problem-solving and I wanted to be designing things."

Before uprooting her career completely, Annie took a part-time course in UX design, which confirmed for her that creativity (not consulting) was her calling.

### Psyched up

For Annie, enrolling in a Graduate Certificate of UX and Web Design at Torrens University's Billy Blue College of Design seemed like the natural next step.

"My goal was to learn the fundamentals and address any skill or knowledge gaps," Annie says of her time at Billy Blue. "I really focused on creating case studies for my portfolio to showcase my skills and experience."

One of the most valuable skills Annie learnt was how to use psychological principles to inform design decisions. This has proven pivotal in her first UX/UI

role at Transport NSW, where a big part of her job involves understanding user needs, problems and behaviours.

"This knowledge helps me design digital products that are effective, intuitive and engaging," she says.

### Smart art

When she's not analysing her users by conducting surveys, collecting data and doing user-testing, Annie spends her week designing simple and engaging user interfaces for the Transport NSW website and Opal travel app.

Her advice to students keen to future-proof their pathways? "Pursue a degree in a related field, connect with professionals on LinkedIn and familiarise yourself with the design tools for your field," she says. "Also, attend design meet-ups to learn about the latest trends and build your network, before you even start studying!" – Cassie Steel

**I FOCUSED ON CREATING A PORTFOLIO TO SHOWCASE MY SKILLS AND EXPERIENCE"**

BACHELOR OF COMMERCE (ACCOUNTING AND MARKETING), UNIVERSITY OF SYDNEY

SENIOR CONSULTANT, EY

USER EXPERIENCE DESIGN, COURSE

SERVICE DESIGNER, TRANSPORT FOR NSW

GRADUATE CERTIFICATE IN UX AND WEB DESIGN, BILLY BLUE COLLEGE OF DESIGN AT TORRENS UNIVERSITY

UX/UI DESIGN LEAD, TRANSPORT FOR NSW



# RESPONSIBLE AI

In a world where AI is everywhere, why not be part of the move to ensure it's human-friendly?

A recent study from Microsoft found 84% of desk workers in Australia are already using AI in their jobs. And the United Nations Children's Fund says 70% of Australian students have used a generative AI chatbot in the last 12 months. One in five have used one to write an assignment or do their schoolwork for them!

Now that AI is in mainstream use, government and company leaders are talking a lot more about using it responsibly. Responsible AI means developing and using AI systems in a way that benefits people and society.

So if the idea of combining philosophy and ethics with the latest technology sounds appealing, there's a career path waiting for you in responsible AI. – Charis Palmer



## For teachers

Day of AI Australia is a free classroom program for Australian teachers and students in years 5-10. It includes a lesson designed to be taught by any teacher on 'Ethics and responsible use of AI'. Find out more at [dayofaiaustralia.com](https://dayofaiaustralia.com)

## TECH+RESPONSIBLE AI JOBS

### AI ETHICIST

The 100 Jobs of the Future report places 'robot ethicist' in the top tech jobs of the future. In this job you'll work on ethics across AI, robots and augmented or virtual reality.



### USER EXPERIENCE DESIGNER

UX designers are the behind-the-scenes heroes helping to ensure tech is as easy and enjoyable to use as possible. And to do so they need a handle on responsible AI.

### PRODUCT MANAGER

Tech product managers can play a crucial role in helping bake ethics into AI-reliant products right from the start.

## MEET AN AI ETHICIST

With serious credentials in philosophy and cognitive science, Inês is at the forefront of responsible AI. The Macquarie University lecturer also founded her own company called MissionAI to act as an AI ethicist, helping organisations prevent bias and protect privacy in their use of AI.

Check out Ines's CV: [bit.ly/ineshipolito](https://bit.ly/ineshipolito)



**DR INÊS HIPÓLITO**  
AI ETHICIST



## AUSTRALIA'S 8 AI ETHICS PRINCIPLES

### HUMAN, SOCIETAL AND ENVIRONMENTAL WELLBEING

AI systems should benefit individuals, society and the environment.

### HUMAN-CENTRED VALUES

AI systems should respect human rights, diversity and the autonomy of individuals.

### FAIRNESS

AI systems should be inclusive and accessible, and should not involve or result in unfair discrimination against individuals, communities or groups.

### PRIVACY PROTECTION AND SECURITY

AI systems should respect and uphold privacy rights and data protection, and ensure the security of data.

### RELIABILITY AND SAFETY

AI systems should reliably operate in accordance with their intended purpose.

### TRANSPARENCY AND EXPLAINABILITY

There should be transparency and responsible disclosure so people can understand when AI is impacting them and know when they're engaging with AI.

### CONTESTABILITY

When an AI system significantly impacts a person, community, group or environment, there should be a timely process to allow people to challenge the use or outcomes of the AI system.

### ACCOUNTABILITY

People responsible for AI systems should be identifiable and accountable for the outcomes of the systems, and human oversight of AI should be enabled.



## CAREERS WITH STEM JOB KIT

## AI ETHICIST

Discover this growing field helping ensure Artificial Intelligence is safe and beneficial to humanity

## FREE DOWNLOAD

This free Careers with STEM job kit download is your introduction to careers in ethical AI. Inside, you'll find stories about what AI ethicists do, plus salary insights and advice from those already working in this field.



## TECHNOLOGY + AI + ROBOTICS + STUDY

Bachelor of **Engineering (Honours)** / Master of **Robotics and Artificial Intelligence**, QUT

Bachelor of **Information Technology (AI & Philosophy)**, Macquarie University

Bachelor of **Artificial Intelligence**, UTS

**Responsible Artificial Intelligence** online course, TAFE NSW

## TECHNOLOGY + AI + ROBOTICS + JOBS

**AI specialist**  
\$61K–\$150K /  
NZ\$54K–NZ\$142K

**Product manager (software)**  
\$76K–\$154K /  
NZ\$67K–NZ\$146K

**UX designer**  
\$58K–\$119K /  
NZ\$52K–NZ\$105K

**Machine learning engineer**  
\$60K–\$148K /  
NZ\$58K–NZ\$128K

**Automation engineer**  
\$58K–\$125K /  
NZ\$75K–NZ\$87K

\*Salaries according to  
payscale.com



# ROBOTICS MEETS ART

**NEVE FOXCROFT** LOVES COMBINING ROBOTICS WITH ART, WHICH MAKES HER JOB OPERATING ONE OF THE NATIONAL GALLERY OF AUSTRALIA'S MOST EXPENSIVE EXHIBITS THE PERFECT FIT!

**NEVE FOXCROFT**  
ROBOTIC ART TECHNICIAN

**G**rowing up, Neve had a passion for both art and science, but when it came to choosing a degree, her creative side won out.

"I loved both, and I was like, 'which way do I go?'" she says.

Her love of science didn't disappear though – she eventually learnt to combine it with her artwork through robotics. "Even when I'm making art, it's all science-based," she says.

After graduating, Neve threw her hat into the ring for a role at the National Gallery of Australia (NGA), and despite missing a key prerequisite (a degree in robotics) listed in the job ad, she landed the gig!

Now, Neve is an operations and maintenance technician for *Body Sculpture*, a robotic artwork by Jordan Wolfson at the NGA. Her job involves ensuring the robot doesn't harm itself or audience members during its performance, which is important because the robot has a 93% success rate.

When things do go wrong, it's Neve's responsibility to turn everything off, make sure everyone is safe and clear the room before she starts to troubleshoot.

"Sometimes it's obvious what happened, and other times we'll have no idea."

**IT'D BE REALLY GOOD TO BE ABLE TO TELL MY PAST SELF TO JUST DO WHAT YOU LOVE"**

BACHELOR OF VISUAL ARTS,  
AUSTRALIAN NATIONAL UNIVERSITY

OPERATIONS AND MAINTENANCE TECHNICIAN,  
NATIONAL GALLERY OF AUSTRALIA



# HEALTHY AI

**AMY YANG FOUND A PASSION FOR AI AND MACHINE LEARNING WHILE COMPLETING HER MASTER'S AT UTS**

When Amy got involved in an award-winning project called ErgoAmigo for the 2024 UTS Tech Festival, it opened her eyes to a career path she hadn't previously considered.

As part of the project, Amy and her team built an AI-powered app to help give hybrid and remote workers more ergonomic office setups with real-time adjustment advice.

"Think of it as a virtual ergonomic professional," Amy says.

Her team was inspired by the increasingly common hybrid working and hot desking we see today. "It's a problem because sometimes we cannot properly set up our workstation, which can trigger back pain, neck pain," she says.

Now, as an associate machine learning analyst, Amy says she's still learning new things about AI and machine learning every day.

Her top tips for starting out in AI are to focus on projects you're interested in, and study with a friend to keep accountable! – Amy Briggs



**AMY YANG**  
MACHINE LEARNING ANALYST

## AI STUDY

Check out the industry-leading Bachelor of Artificial Intelligence at UTS!



ACCOUNTANT,  
BRIDGEPOINT  
GROUP

MASTER DATA  
SPECIALIST, ARROTEX  
PHARMACEUTICALS

DATA SCIENCE  
INTERM., ATlassian

MASTER OF  
DATA SCIENCE AND  
INNOVATION, UTS

ASSOCIATE MACHINE  
LEARNING ANALYST,  
LUXURY ESCAPES

# Be workforce ready for the jobs of tomorrow



UTS Engineering and IT graduates are next-generation leaders with innovation and entrepreneurship skills in new and emerging fields. Take your place at the forefront of technology with degrees that provide a hands-on approach to learning within our globally recognised teaching facilities.

**Learn more about where a degree at the UTS Faculty of Engineering and IT can take you.**



Engineering



IT



# TECHNICALLY TRENDING

Smart design is where it's at and this season's hottest fashion hires are fluent in IT

**G**one are the days when a job in fashion meant cutting a pattern by hand or navigating a needle and thread. In 2024, next-gen industry roles demand an advanced knowledge of complex tech including coding, AI, virtual reality, logistics tech, 3D printing and software design.

Eco-conscious brands are increasingly employing engineers to help them rethink materials and reimagine supply chains to be more sustainable, while others are engaging app developers and coders to supercharge their online capabilities.

And the benefit for consumers? Efficient, eco-friendly and streamlined purchasing and production processes. Oh, and then there are the cutting-edge clothes.

## Dressed to skill

If you're looking for proof that the industry is evolving fast, check out *The Business of*

Fashion's recent employment study. It found fashion recruiters are increasingly seeking out tech grads to fill elite fashion industry roles – a trend the OG tastemakers at *Vogue* are celebrating.

"Tech people really are taking all the fashion jobs," the magazine stressed in an article last year. "Silicon Valley's finest are moving into fashion."

Many unis now offer units such as digital design, fashion technologies and customer experience as part of their fashion degrees to help prepare students for this transitioning industry. Or, you could study computer science with a Bachelor of Information Technology or a Diploma of Software Engineering, which will give you the skills to up the industry's production and purchase game. – *Cassie Steel*

## FUTURE JOBS

**Fashion yourself one of these fancy tech jobs:**

### Data scientist

Create and employ algorithms to improve a fashion brand's product. Think: a website or app.

### 3D printing engineer

Those with 3D-printing skills are often tasked with creating complex garment patterns for big-name fashion houses.

### Fabric technologist

These fashion engineers understand the properties of different materials and how they can be used to create different effects.





TECHNOLOGY  
+ FASHION  
+ STUDY

Bachelor of **Fashion  
(Design)**, RMIT

Bachelor of  
**Branded Fashion  
Design**, Torrens  
University

Master of **Computer  
Science (AI)**,  
Monash University

TECHNOLOGY  
+ FASHION  
+ JOBS

**Product developer**  
\$53K–\$86K /  
NZ\$49K–NZ\$73K

**CRM specialist**  
\$64K–\$104K /  
NZ\$61K–NZ\$147K

**eCommerce  
manager**  
\$53K–\$122K /  
NZ\$56K–NZ\$112K

\*Salaries according to  
payscale.com

# STYLING SOFTWARE

GARMENT TECH **ALYSSA BORIC** USED HER  
ADVANCED SOFTWARE KNOWLEDGE TO  
DIVE INTO A NEXT-GEN FASHION CAREER

**ALYSSA BORIC**  
GARMENT TECH

You wouldn't know it from her supersized pathway, but Alyssa only finished uni two years ago. After school, the Melbourne-based creative enrolled in a Bachelor of Fashion (Design Technology) at RMIT. During her degree she picked up traditional fashion skills in pattern-making and fabric sourcing as well as an advanced knowledge of design-specific software like CLO 3D, Rhinoceros 3D, CAD programs and Adobe applications.

"I graduated with both creative and technical skills," Alyssa says. "My understanding of design software has allowed me to problem-solve while creating designs, illustrations and patterns."

With this killer combination – a major drawcard for employers – Alyssa had no problem scoring a job in the fashion industry after graduating. Her first role out of uni was a part-time production assistant gig at lingerie brand Kat the Label. This led to a garment tech job at Coco Fields Boutique and then a design position at apparel brand Steele.

And now? Alyssa is in her element designing swimwear at iconic local sister labels Infamous and Mini Swim. – *Cassie Steel*

MY UNDERSTANDING OF  
DESIGN SOFTWARE ALLOWS  
ME TO PROBLEM-SOLVE WHILE  
CREATING DESIGNS"

GARMENT TECH AND PRODUCT DEVELOPER,  
INFAMOUS AND MINI SWIM

DESIGN AND PRODUCTION  
ASSISTANT, STEELE

GARMENT TECH AND DESIGNER,  
COCO FIELDS BOUTIQUE

FASHION AND PRODUCTION  
ASSISTANT, KAT THE LABEL

BACHELOR OF FASHION  
(DESIGN TECHNOLOGY), RMIT



# 7 WAYS TO GET STARTED IN TECH

If you want a tech career, start planning now

## 1

### CHOOSE THE RIGHT ELECTIVES

Make sure you're choosing electives with your dream job in mind. Besides maths and science, you might also need:

- Digital technologies
- Engineering studies
- Information and processes technology
- Software design and development

Electives have different names in every state and territory, so ask your career advisor which tech options suit your chosen study and career path.



## 2

### TEACH YOURSELF TO CODE

Yep, we're giving you homework! Teach yourself the basics of programming languages like Swift, JavaScript, Python and CSS to set yourself up for success. Check out nine fun ways to do this at [CareerswithSTEM.com/9-fun-ways-to-learn-to-code](https://careerswithstem.com/9-fun-ways-to-learn-to-code)

## 3

### FILL YOUR TIKTOK FEED WITH TECH

**@shebuildsrobots** – Christina Ernst is a software engineer at Google and the founder of She Builds Robots, an organisation that has beginner courses in coding and introductory circuit projects for girls in high school.

**@misodope** – A software engineer who's into 'code, careers and cringe'. You'll love Jerry Chen's behind-the-scenes videos of fixing bugs and what life is like as a programmer.

**@careerswithstem** – Check us out on TikTok to keep up with all things STEM! You never know, we might be your next favourite STEM TikTokers.



## 4

### FIND YOUR X

Combining tech with your favourite hobby or interest is a winning move. Take a look at [CareerswithSTEM.com/STEM-plus-X](https://careerswithstem.com/STEM-plus-X) to find a tech career in an area you're passionate about.

## 5

### SUSS OUT TECH COURSES

In Australia, have a look at [gooduniversitiesguide.com.au](https://gooduniversitiesguide.com.au) for uni degrees and [yourcareer.gov.au](https://yourcareer.gov.au) for VET qualifications. In New Zealand, go to [studywithnewzealand.govt.nz](https://studywithnewzealand.govt.nz)

## 6

### GET ON LINKEDIN

Use it to track down career role models, work experience opportunities and tech employers you might like to work for one day. You can search by job title, university, company or name.

## 7

### ATTEND ONLINE EVENTS

Add these tech events to your calendar:

- **STEM + X – Tech webinar**, 6 November, [CareerswithSTEM.com/events](https://careerswithstem.com/events)
- **STEM 2024 'On Demand'**, now until 31 December, [stem2024.com.au](https://stem2024.com.au)
- **Hour of Code** (during Computer Science Education Week), 9-15 December, [csedweek.org](https://csedweek.org)

REFRACTION  
MEDIA

CAREERS  
WITHSTEM.COM

Google

*Careers with STEM: Technology 2024* is a publication and trademark of Refraction Media. Copyright © 2024 Refraction Media, all rights reserved. No part of this publication may be reproduced in any manner or form without written permission. If you would like to reproduce anything from this magazine, email: [info@refractionmedia.com.au](mailto:info@refractionmedia.com.au).

We acknowledge the Traditional Owners of country throughout Australia and recognise their continuing connection to land, waters and culture. We pay our respects to their Elders past, present and emerging.

This issue went to press on 7 October 2024.

Printed in Australia by IVE.

Cover image: Lauren Trompp

Produced and published by:  
Refraction Media

Co-founder, CEO & Publisher:  
Karen Taylor-Brown

Partnerships Manager: Rachel Jones

Managing Editor: Charis Palmer

Deputy Editor: Louise Meers

Editorial Coordinator: Amy Briggs

Sub Editor: Amelia Caddy

Art Director: Katherine Power

Writers: Amy Briggs, Reece Hooker, Saskia Horgan-Catchpole, Louise Meers, Charis Palmer, Cassie Steel

SUBSCRIBE AND ORDER COPIES:  
[CareerswithSTEM.com/subscribe](https://careerswithstem.com/subscribe)

EDITORIAL & ADVERTISING  
ENQUIRIES:  
Email: [info@refractionmedia.com.au](mailto:info@refractionmedia.com.au)

POSTAL ADDRESS: PO Box 154,  
Oyster Bay, NSW 2225, Australia

[CareerswithSTEM.com](https://careerswithstem.com)

ISSN 2209-1076





## Because in Computing & Security, you always need to be one step ahead.

### Study Computing & Security at ECU.

With our reliance on internet-based technology, there's never been a greater need to support and protect Australian businesses, government and the community.

ECU offers a range of Computing & Security courses in disciplines such as Computer Science, Cyber Security, Counter Terrorism Security & Intelligence, Data Science, Information Technology and Software Engineering. We offer the largest academic cyber security and research program in Australia. Students learn in state-of-the-art computer laboratories including a red/blue teaming room and two Security Operation Centre spaces.

ECU is the only Australian university recognised as an International Cybersecurity Center of Excellence, and also plays a key role in the \$140 million Cyber Security Cooperative Research Centre.

Our flexible courses and world-class teaching, combined with our Work Integrated Learning program and close industry links, will provide you with endless possibilities.

Find out more at  
**ECU.EDU.AU/SCIENCE**

Creative  
thinkers  
made here.





# One path. Two degrees.

## Fast forward to a Master of Data Science

Meet soaring industry demands and graduate with a bachelor and master in four years. Combine data science with a bachelor in:

- information technology
- mathematics
- science.

