

CAREERS WITH STEM™ JOB KIT



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ELECTRICAL AND TELECOMMUNICATIONS ENGINEER

Power the world and keep us connected

SUPPORTED BY



UNSW
SYDNEY

UNSW Engineering

School of Electrical Engineering and Telecommunications



UNSW
SYDNEY

WE POWER AND CONNECT THE WORLD

Electrical and telecommunications engineering is your launchpad to a smart future

FIND OUT MORE
HERE OR SCAN



JINHONG YUAN
HEAD OF SCHOOL, PROFESSOR
UNSW SCHOOL OF ELECTRICAL ENGINEERING
AND TELECOMMUNICATIONS

As electrical and telecommunications engineers, we design and build the systems that power and connect our world. The networks behind our digital lives and the global economy depend on us. Computers, microchips, and the internet need our expertise. So do robotics, sensors, and the smart devices all around us.

Choosing this degree opens doors to countless career pathways, from renewable energy and 6G networks to the Internet of Things and embedded AI. You could find yourself working in power systems, robotics, healthcare technologies, satellite communications, smart manufacturing or even space exploration.

As an electrical and telecommunications engineer, you'll be trained to solve some of society's most pressing challenges. How can we deliver stable, reliable power while integrating renewable energy into the grid? How do we ensure secure WiFi, satellite, and global communications? Every home, every business, every service relies on electricity and digital connectivity, and that makes your role essential to the future.

**WE CREATE THE TECH THAT
KEEPS THE PLANET MOVING."**

Future-ready

At UNSW School of Electrical Engineering and Telecommunications we deliver an innovative, world-class education for the next generation of electrical and telecommunication engineers.

Our programs equip you with cutting-edge knowledge, real-world problem-solving skills and the confidence to lead in a rapidly changing world. We're also committed to diversity, welcoming more women, regional students and those who may never have imagined themselves as engineers.

As the largest and top electrical engineering school in Australia, we offer access to more than 165 teaching and research labs, where you'll gain hands-on experience using the state-of-the-art facilities. You'll learn from world-renowned researchers and engineers: global leaders who bring their expertise straight into the classroom. Many of our academics have also launched successful spin-off companies, reflecting our strong culture of innovation, entrepreneurship and impact.

If you love technology and innovation and want a career that makes a real difference, electrical engineering could be the path for you. It's creative, challenging, in high demand and future-proof. The world needs more electrical and telecommunication engineers than ever.

Plug in and power up your dream career.

Jinhong Yuan
Head of School, Professor
UNSW School of Electrical Engineering and
Telecommunications

**Check out CareerswithSTEM.com for more insights,
information, inspiration and advice about electrical and
telecommunications engineering careers!**

HEAD OF SCHOOL, ELECTRICAL ENGINEERING
AND TELECOMMUNICATIONS, UNSW

PROFESSOR OF TELECOMMUNICATIONS, SCHOOL OF ELECTRICAL
ENGINEERING AND TELECOMMUNICATIONS, UNSW

PHD IN
ELECTRICAL ENGINEERING

BACHELOR OF ENGINEERING
(ELECTRICAL ENGINEERING)

GET ELECTRIC!

Connect with a career in electrical and telecommunications engineering

Welcome to the powerful world of electrical and telecommunications engineering. Electrical and telecommunication engineers work at all scales, from microchips to national power grids. That's because our digital world is powered by electricity: mobile networks, satellites, the internet, smart homes, electric vehicles and a renewable-friendly electricity network all depend on electrical engineering. Choose this career, and you'll be designing smarter ways to power our lives and keep us connected.

Jump on board

Demand for electrical engineering skills is growing fast, especially in energy/power grid, renewables, automation, embedded AI and telecoms.

SKILLS SPOTLIGHT

ELECTRICAL ENGINEERING AND TELECOMMUNICATIONS CAN FEEL LIKE TWO PARTS OF A PARALLEL CIRCUIT: WHEN IT COMES TO CHOOSING A CAREER PATH, IT'S EASY TO GO EITHER WAY.

Electrical engineer

Circuit design
Power systems
Electronics
Automated systems

Skills

Maths and physics
Attention to detail
Analytical thinking and problem solving
Teamwork and adaptability
AI

Tele communications engineer

Network design
Signal processing
Fibre optics / wireless
Radio frequency engineering

JOB ALERT

Switch on to careers in electrical engineering and telecommunications, like:

Electrical Design Engineer

design electrical systems for industrial processing and manufacturing plants

Power Systems Engineer

design and manage the energy grid as renewables surge

Telecommunications Network Engineer

develop mobile phone systems and internet infrastructure

Control Systems Engineer

automate factories and smart tech

Electronics Engineer

design smart tools, sensors, gadgets and robotics

Renewable Energy Engineer

work with sustainable solar, wind and battery systems

Satellite and Radar Engineer

build space and defence systems

Cyber Security Engineer

defend digital infrastructure from cyber crime

Embedded AI Engineer

integrate AI algorithms for real-time decision-making in devices like drones and autonomous vehicles

WHO'S HIRING?

- Microsoft • Cisco • Apple • BHP • Boeing
- Google • Optus • Telstra • Energy Australia
- NAB • Origin Energy • Cochlear • Ausgrid
- Canon • Nvidia

What to study at high school

Get a head start with these subjects:

- ✓ maths methods / extension 1
- ✓ physics
- ✓ digital technologies

Simply the best

UNSW's engineering faculty consistently ranks as the best in Australia. You'll get hands-on experience, access to global research, industry placements and flexible double degree options.

WHY ELECTRICAL?

Choose electrical and telecommunications engineering if you want to:

POWER THE WORLD
from smartphones to solar farms

SOLVE REAL PROBLEMS

in tech, energy, health, defence and more

WORK OVERSEAS

enjoy job security and international opportunities

MAKE A DIFFERENCE

build smarter, safer, more sustainable systems

BE FUTURE-READY

from AI and VR to 6G and clean energy, electricity is vital to our digital lives

BE PART OF NET ZERO

The world is racing to reach net zero carbon emissions – and electrical engineers are critical. Want a career that helps save the planet? You could:

- ✓ **Design** solar panels, wind farms and smart grids
- ✓ **Plan** the transmission and distribution of renewable power
- ✓ **Help** industries switch to electric systems
- ✓ **Build** the EV charging stations that power the future
- ✓ **Make** homes and cities more energy-efficient
- ✓ **Optimise** the use of renewable energy across our power grid
- ✓ **Work** in mining on underground power, autonomous vehicles and remote connectivity

DIVE INTO A DEGREE

To become an electrical or telecommunications engineer, check out UNSW's School of Electrical Engineering and Telecommunications.

Choose from **Electrical engineering** or **Telecommunications engineering**. Your degree will include working with:

- **Electrical circuits**
- **Coding and digital systems**
- **Audio/Video/Image signal processing**
- **Communications Technologies**
- **Control systems**
- **Renewable power**
- **Embedded systems**
- **AI and machine learning systems**
- **Biomedical signal processing and applications**
- **Smart grid tech, and more!**

In the bank

Let's talk salary:

Electrical engineer:
Average **\$120,000** a year.
Telecommunications engineer: Average **\$100,000** a year.

Source: Seek.com

SCHOLARSHIPS TO WATCH

- **UNSW WOMEN IN ENGINEERING SCHOLARSHIP**
- **UNSW ENGINEERING RURAL SCHOLARSHIP**

FIND OUT MORE AT [SCHOLARSHIPS.UNSW.EDU.AU](https://scholarships.unsw.edu.au) OR SCAN



GREENING THE GRID

ELECTRICAL ENGINEERING STUDENT LUKE DU PREEZ IS CONTRIBUTING TO MORE SUSTAINABLE POWER

When he graduates, Luke Du Preez wants to use his skills to contribute to Australia's shift toward a cleaner and smarter electricity network. "I'm hoping to work in the energy sector, focused on renewable energy and future power systems," says the final year electrical engineering student.

Luke says his degree – a Bachelor of Engineering (Honours) (Electrical Engineering) at UNSW in Sydney – has given him the skills and experience to shape a more sustainable future.

"UNSW has a strong engineering culture and a great learning environment," he says. "I've really enjoyed working with other students who are just as passionate about technology and problem solving. Being part of a team where you learn from each other has been one of the most valuable aspects of my experience."

LUKE DU PREEZ
ELECTRICAL ENGINEERING
STUDENT, UNSW

ELECTRICAL ENGINEERING FEELS LIKE A MEANINGFUL WAY TO APPLY MY SKILLS AND HELP SHAPE THE FUTURE!"

Other highlights of his studies so far include hands-on technical projects ("building a home automation system and developing an autonomous trailer") and internships. "I recently completed an internship with a company that engineers utility-scale solar farms," says Luke.

"It was fascinating seeing all the skills and people involved with large solar projects and made me even more excited to be a part of the industry."

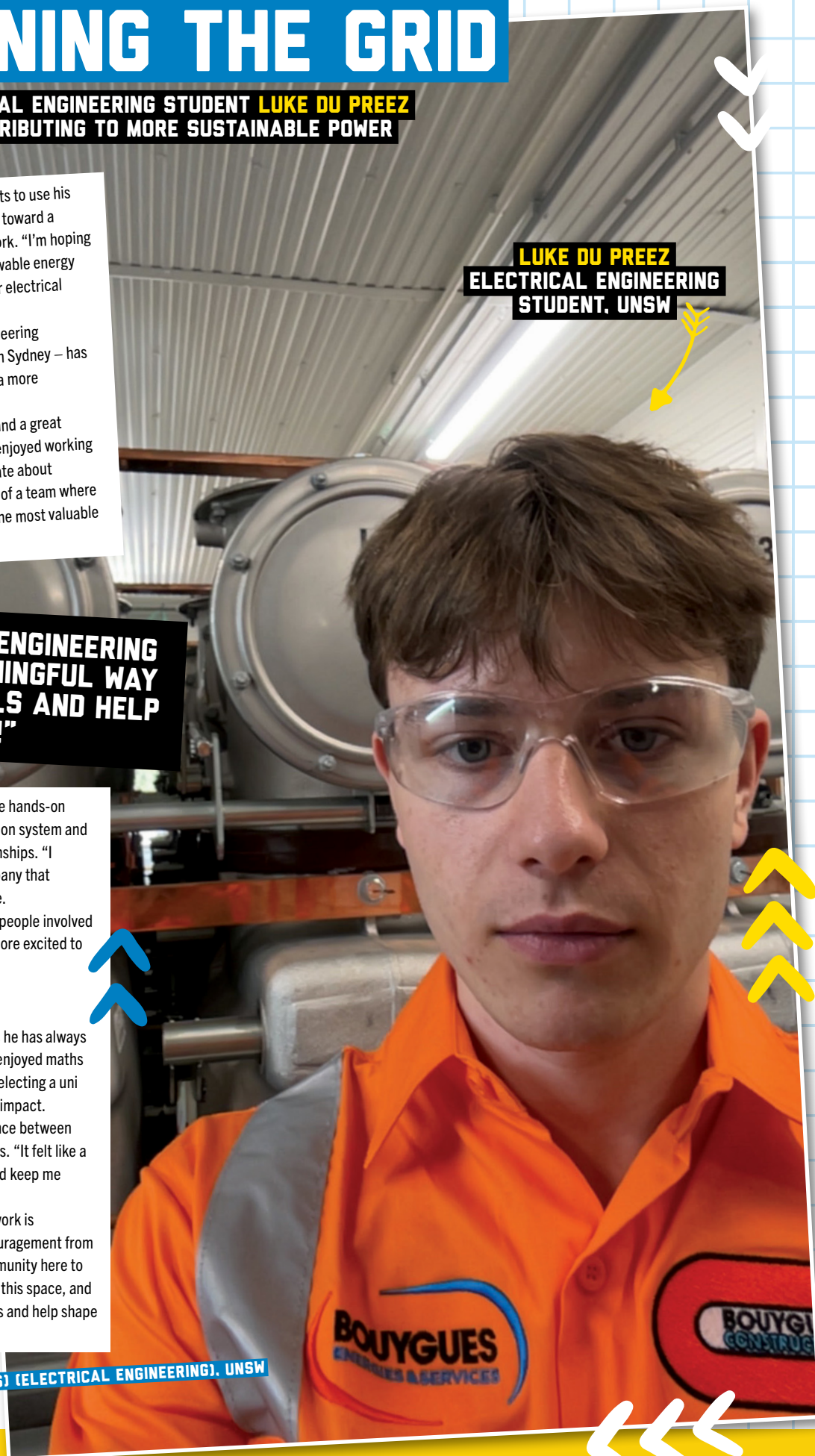
REAL-WORLD IMPACT

Why choose electrical engineering? Luke says he has always been curious about how things work, plus he enjoyed maths and physics at high school. When it came to selecting a uni course, he wanted something with real-world impact.

"Electrical engineering struck a good balance between theory and practical problem-solving," he says. "It felt like a field that could take me in many directions and keep me learning throughout my career."

And Luke's loving his choice. "The coursework is challenging, there's a lot of support and encouragement from both students and staff... I've found the community here to be very motivating. There's a lot happening in this space, and it feels like a meaningful way to apply my skills and help shape the future."

BACHELOR OF ENGINEERING (HONOURS) (ELECTRICAL ENGINEERING), UNSW



Wired for success

Electrical engineering graduate Mahnee Przibilla turned a chance internship into her dream audio job

When Mahnee enrolled in a Bachelor of Electrical Engineering at UNSW, she had no idea it would lead to one of the coolest audio companies in the world.

"The degree gave me a strong foundation in digital signal processing and coding," she says. "That ended up being very useful in my job."

Mahnee's time on campus at UNSW was about far more than just hitting up lectures. She got involved in engineering outreach projects that saw her travelling to regional areas and building her confidence along the way. "Any work experience or volunteering experience is valuable," she says. "It doesn't have to be technical!"

Up there with one of her most game-changing undergrad moves, was interning at Dolby Laboratories while in final year – a gig that would lead to a full-time role after graduation.

Eventually, Mahnee was promoted to the entertainment group's software engineer.

There, she really flexed her problem solving skills. "There was no typical day!" she says. "I'd go from prototyping new ideas, to testing code in the lab, to fine-tuning real-time audio systems."

And the biggest pinch-me moment? "Hearing your code come to life in a cinema or even on the couch at home!"

Now she's back where it all started at UNSW as a lab demonstrator, helping students get hands-on with the tech she started out with herself. And yep, she's big on encouraging undergraduates to put their hand up for as many real-world opportunities as possible.

"Try internships, side projects, anything that sparks your curiosity," she says. "Follow what genuinely excites you."

I REALLY ENJOYED THE PROBLEMS I GOT TO WORK ON, THEY WERE CHALLENGING AND COOL."

**BACHELOR OF ENGINEERING (HONOURS),
(ELECTRICAL ENGINEERING), UNSW**

**LAB DEMONSTRATOR,
UNSW**

**INTERN RESEARCHER,
DOLBY LABORATORIES**

**DIGITAL SIGNAL PROCESSING (DSP) ENGINEER,
DOLBY LABORATORIES**

Day in the life

7.30am

Get to work and check emails.
Research the algorithm problem I'm working on and start development.

10am

Meet with the mapping solutions research team

12pm

Lunchtime

1pm

Catch up with the quality assurance lead to brainstorm how to test my solution in the lab.



2pm

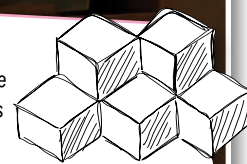
Write up code and unit tests

3pm

Chat with a senior engineer in the team to get their feedback.

3.30pm

Head home for the day.



MAHNEE PRZIBILLA
DIGITAL SIGNAL PROCESSING ENGINEER
DOLBY LABORATORIES

IMAGES: SUPPLIED / SHUTTERSTOCK | WORDS: CASSIE STEEL

Get the job!

Start those circuits



TO READ THIS
JOB KIT ONLINE.
SCAN HER

START WITH YOU

Match what you love
with your career to flex
your electrical and
telecommunications
engineering muscles:

- You're curious about
how things work -> Try
solving puzzles
- You love technology
and innovation -> Design
some new gadgets
- You enjoy maths,
physics, or computing ->
Check out arduino kits
- You think logically but
also creatively -> Get
started playing with
circuits



GET INVOLVED

Tour the labs (YouTube)

Check out what it looks like inside
UNSW's electrical and
telecommunication teaching labs.

Head to Antarctica (YouTube)

Find out where your degree can take
you with UNSW Electrical
Engineering grad Robert
Makepeace in Antarctica.

✓ CONNECTED:
Global projects need
us to work together.
Practise good teamwork,
reach out to possible
mentors, and keep ideas
and relationships flowing.

✓ ENERGETIC: You'll
be powering
everything from
smartphones to satellites.
Get involved in projects
and let your passion shine.

**✓ FULL OF
POTENTIAL:** The
applications of electrical
engineering are endless!
Turn your bold ideas into
real-world tech solutions
that spark change.

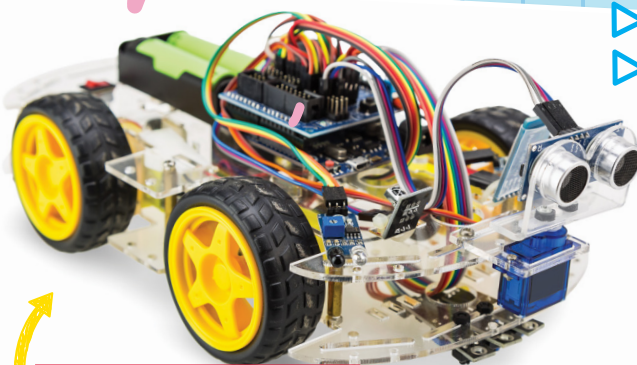
CHECK OUT A STUDENT SOCIETY

ELSOC: UNSW's Electrical Engineering and Telecommunications Society

Stay up to date with what's happening at this
student-led society on Facebook, Insta, Discord
and LinkedIn. Regular social events, free tutoring,
info on internships and scholarships, plus special
industry functions are all benefits of being one of
over 1000 ELSOC members.

UNSW TWEET: The Women In Electrical Engineering and Telecommunications

Meet and hang with other women in UNSW's
School of Electrical Engineering and
Telecommunications.



TRY YOUR HAND WITH ARDUINO

Arduino kits are awesome DIY electronics kits perfect
for hands-on learning. Check out [UNSW's guide to
what's inside an Arduino kit](#) and get started today!