Computer Science and Cyber Security Courses

Career Practitioner Seminar

Prof. Jun Zhang

14th February 2025

SWINBURNE UNIVERSITY OF TECHNOLOGY

Agenda

- About Department of Computing Technologies
- Course Highlights
- Bachelor of Computer Science, BA-CS
- Bachelor of Computer Science (Professional) , BA-CSPROF
- Bachelor of Cyber Security
- Career Outcomes
- Questions

Department of Computing Technologies

School of Science, Computing and Engineering Technologies

About Me

- Jun Zhang
- Course Director
  Bachelor of Cyber Security, BA-CYB

Other UG CS / IT courses in the Dept

- Bachelor of Information and Communication Technology, BA-ICT
- Bachelor of Computer Science, BA-CS
- Bachelor of Data Science, BA-DS

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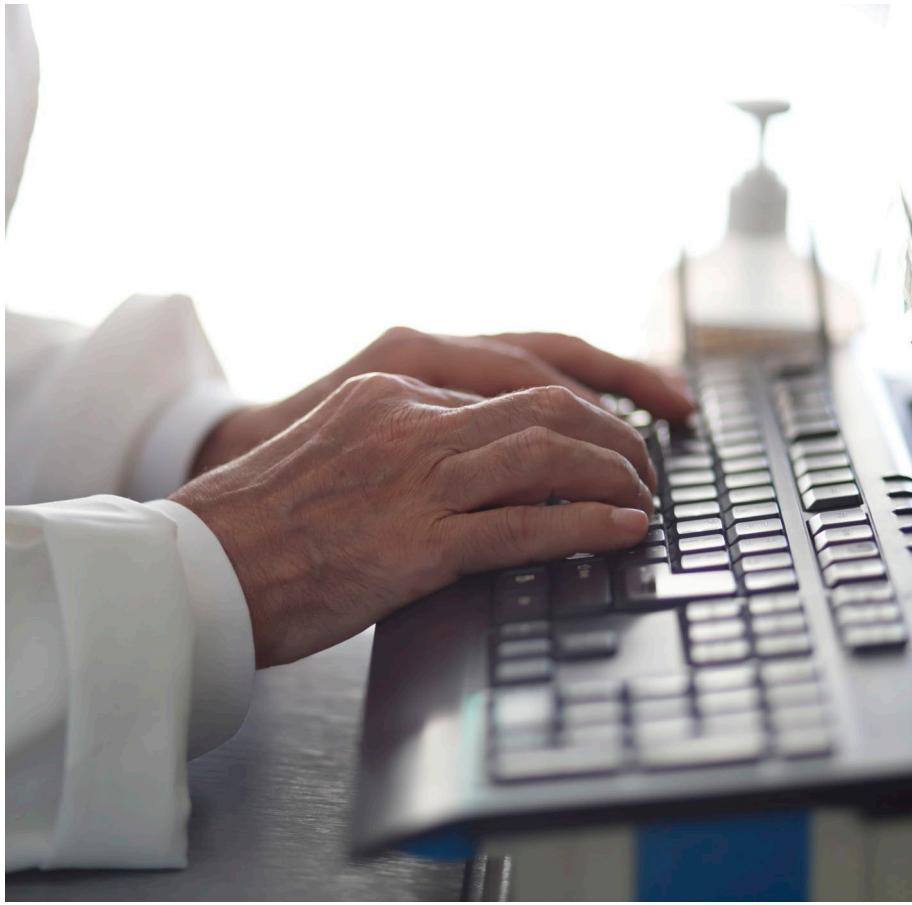
Why study Information Technology at Swinburne?

- Swinburne was ranked in the world's top 300 universities*
- Swinburne overall is above national average in overall student satisfaction**
    - [public uni.] 2nd in Vic. 80.2 (top in Vic is 81.0)
    - [public uni.] Top 4 in Australia (top in Australia is 81.8)
- Highly qualified staff with relevant industry experience
- Well-connected with IT industry
- Relevant curriculum influenced by industry



*QS World University Rankings 2024 (published June 2023, reviewed 25 Jan 2024) https://www.topuniversities.com/university-rankings/world-university-rankings

**QILT (2022 SES National Result) (pub. June 2023, review 25 Jan 2024), https://www.qilt.edu.au/surveys/student-experience-survey-(ses)#latest

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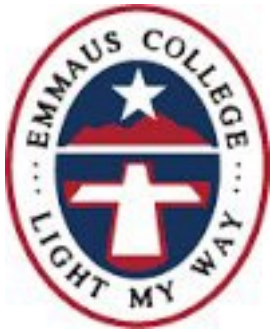
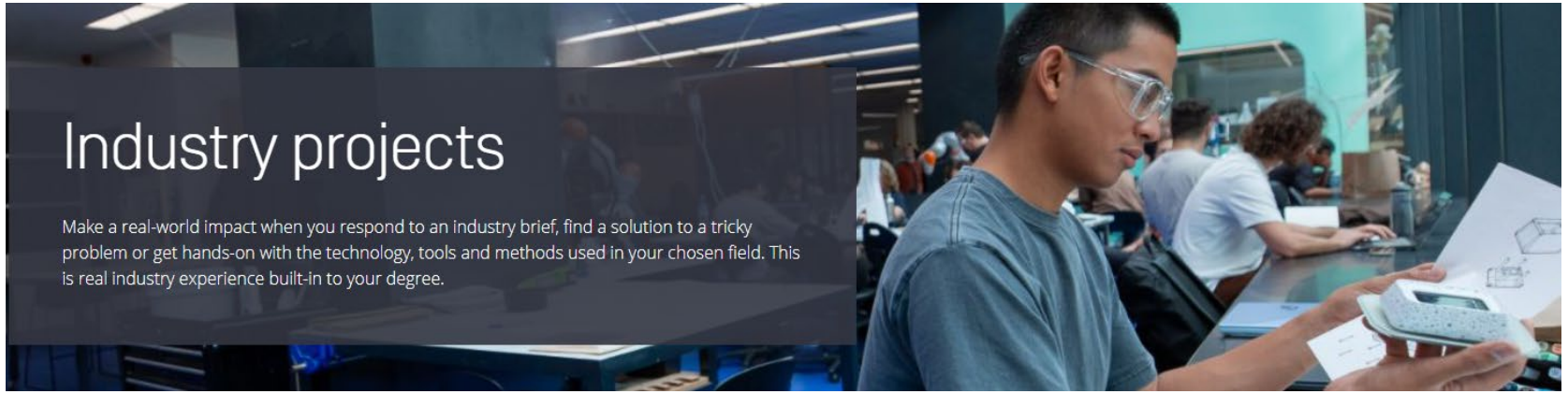
Our Industry Partners

Our Industry Partners



Why study Information Technology at Swinburne?

- Industry Project Guarantee
  - Students do a sequence of industry projects, one per semester
  - SPINE units
    - Vertical integration throughout all years in the degree



- Work Integrated Learning, WIL
  - Professional Placement
  - Industry Based Learning
  - “sandwich course” (in other universities)

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Benefits of a TAFE course entry

Hands-on learning with small groups.

No entry level requirements other than completion of VCE.

Pathway with credits to a degree (student completes studies in same amount of time and receives two qualifications).

Suits students who need to ‘transition’ into higher ed, e.g. low in confidence or require greater hands-on support.

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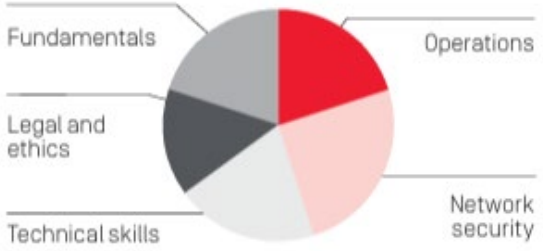
TAFE IT courses

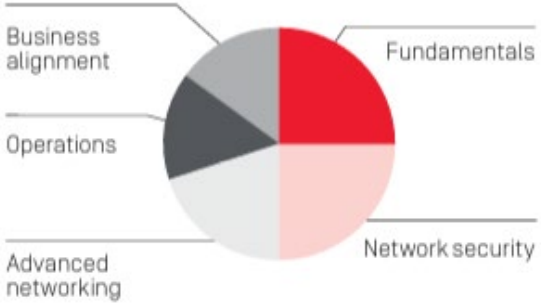
Pathways to Higher Education degrees.

Exit points into the world of work.

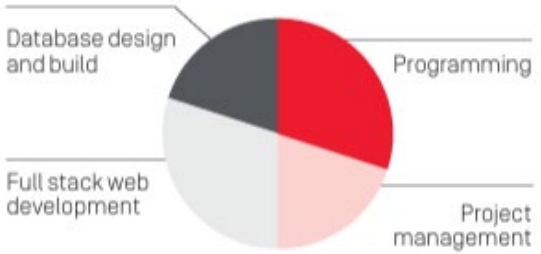
Cert IV Cyber Security



Diploma of IT (Advanced Networking and Cyber Security)



Diploma of Information Technology (Programming)



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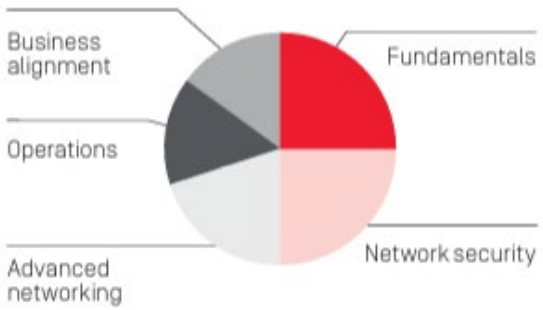
TAFE IT courses

Pathways to Higher Education degrees.

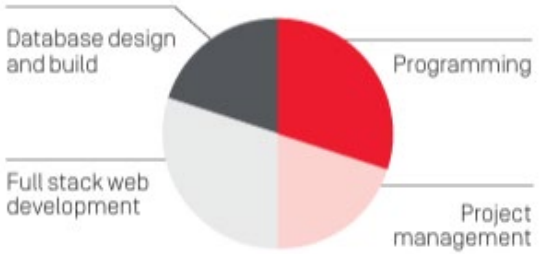
Exit points into the world of work.

Diploma of IT (Advanced Networking and Cyber Security)



Cert IV + Diploma = 2 years full-time
Up to 8 units of credit

Diploma of Information Technology (Programming)



Diploma = 1 year full-time
Up to 8 units of credit

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Course Highlights

BA-CS, BA-CSPROF, BA-CYB

Accredited Program

ACS AUSTRALIAN COMPUTER SOCIETY

Professional Recognition by Australian Computer Society

Industry project units, one per every semester (Year 1 to Year 3)

- A set of 6 project-based units, SPINE units
- Students form teams to do an industry project related to their major in these SPINE units
- A total of at least 6 different projects in the course

Work Integrated Learning, WIL

- Work for an industry partner for a year and get salary from the company
- Optional for BA-CS and BA-CYB
- Mandatory for BA-CSPROF

SWINBURNE UNIVERSITY OF TECHNOLOGY

Bachelor of Computer Science

BA-CS

- 3-year degree
- 300 credit points (cp)
  - 8 core units (100cp)
  - 8 major units (100cp)
  - 8 other study units (100cp)

Accredited Program

ACS AUSTRALIAN COMPUTER SOCIETY

6 Majors in BA-CS

- Artificial Intelligence
- Cyber Security
- Data Science
- Games Development
- Internet of Things
- Software Development

SWINBURNE UNIVERSITY OF TECHNOLOGY

Bachelor of Computer Science (Professional)

BA-CSPROF

- 4-year degree
- 375 credit points (cp)
  - 8 core units (100cp)
  - 8 major units (100cp)
  - 4 WIL units (100cp)
  - 6 other units (75cp)
- Core units and Major units are the same as BA-CS
- WIL, Work Integrated Learning
  - Industry-based Learning, IBL
  - Professional Placement
  - Sandwich Programme (in other universities)
  - Work with the industry partner and get paid salary from the company

Accredited Program

acs AUSTRALIAN COMPUTER SOCIETY

SWINBURNE UNIVERSITY OF TECHNOLOGY

Bachelor of Cyber Security

BA-CYB

- 3-year degree
- 300 credit points (cp)
  - 8 core units (100cp)
  - 8 major units (100cp)
  - 8 other study units (100cp)

Accredited Program

ACS AUSTRALIAN COMPUTER SOCIETY

Majors in BA-CYB

- Cyber Security

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Careers in IT

Possible Jobs

- Software engineer
- Software developer
- Games developer
- Application developer
- Web developer
- User-interface analyst
- Data Scientist
- Network security specialist
- IoT developer
- Embedded device developer

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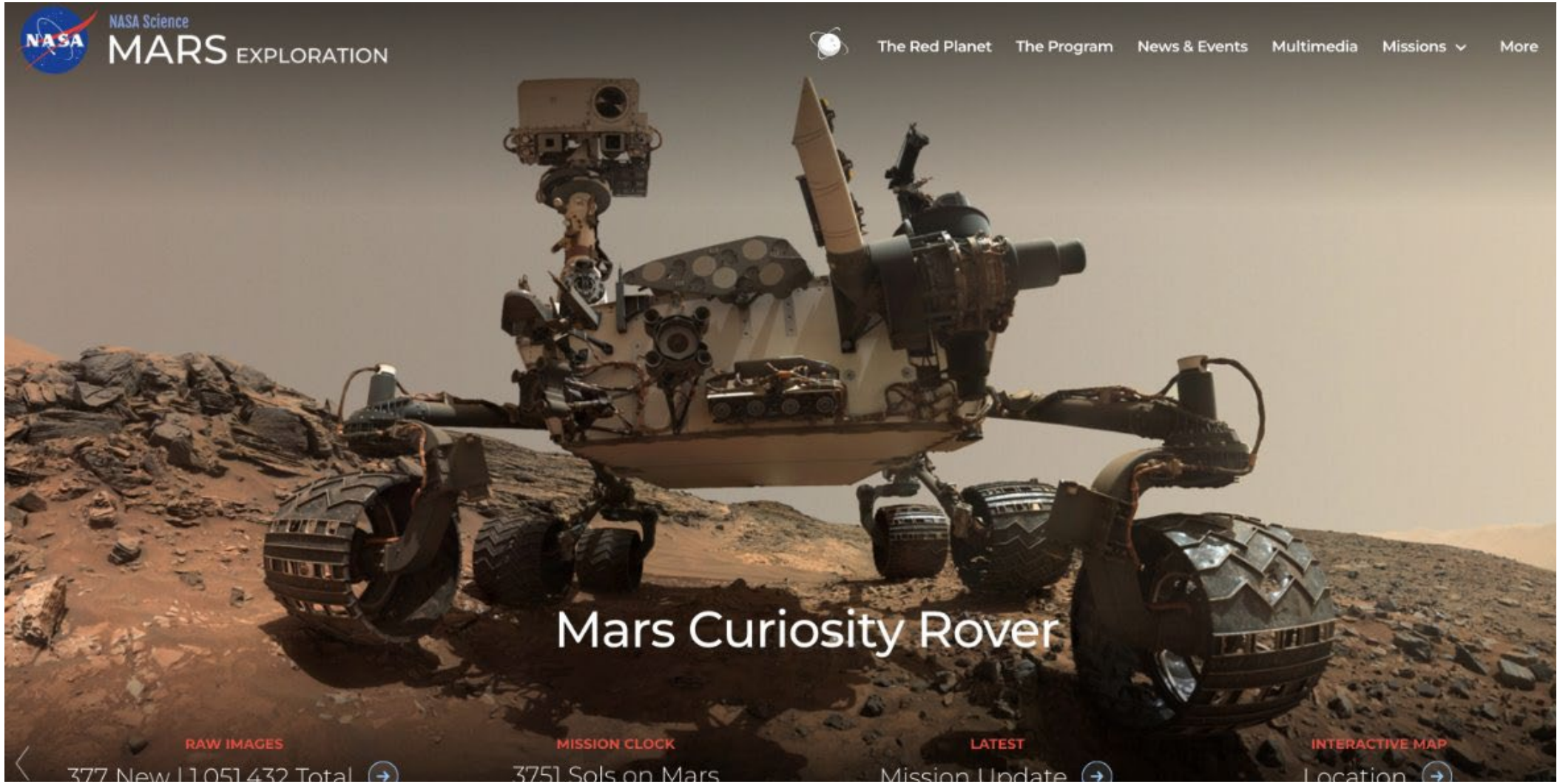

From https://mars.nasa.gov/msl/home

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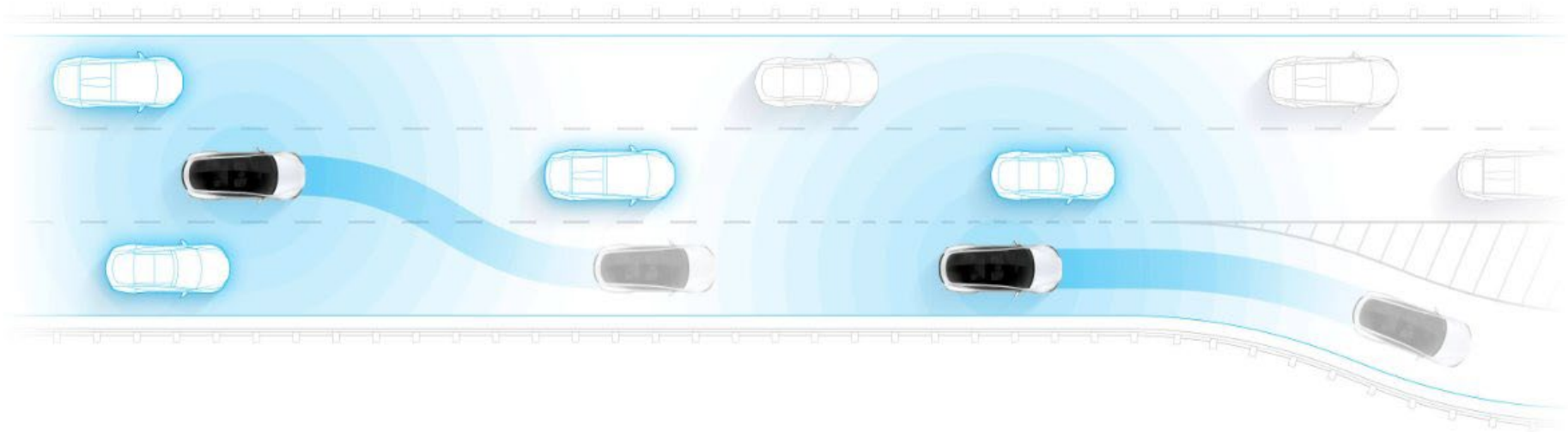
Tesla Autopilot

Autopilot

Autopilot advanced safety and convenience features are designed to assist you with the most burdensome parts of driving. Autopilot introduces new features and improves existing functionality to make your Tesla safer and more capable over time.

Autopilot enables your car to steer, accelerate and brake automatically within its lane.

Current Autopilot features require active driver supervision and do not make the vehicle autonomous.



From https://www.tesla.com/en_AU/autopilot

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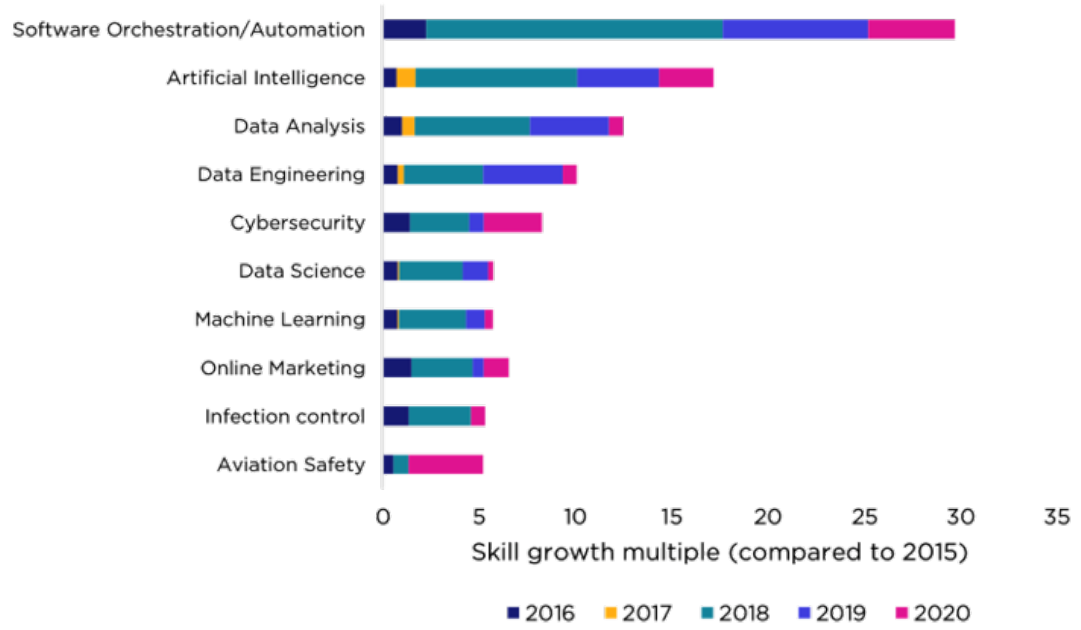
Skills Shortage

ABS Paper – Digital Skills March 2022, p.13

Figure 2: Cumulative growth multiple of the share of all skills, past five years compared with 2015



Sources: Burning Glass Technologies data, 2015-20, NSC analysis

https://www.nationalskillscommission.gov.au/reports/digital-skills-australian-and-international-economies

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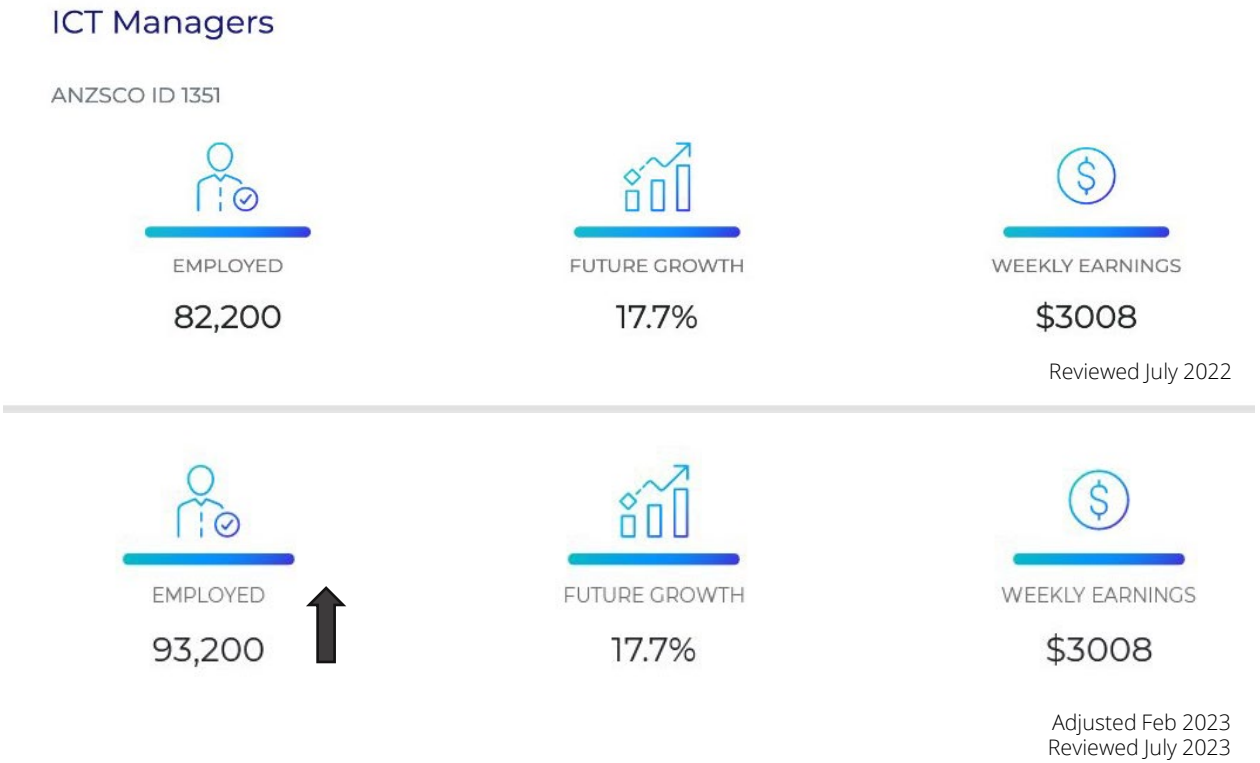
Job Outlook

labourmarketinsights.gov.au

Figures in 2021, expected numbers in 2026 (5 years later)



https://labourmarketinsights.gov.au/occupation-profile/ict-managers?occupationCode=1351

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Job Outlook

labourmarketinsights.gov.au

Figures in 2021, expected numbers in 2026 (5 years later)

https://labourmarketinsights.gov.au/occupation-profile/ict-business-and-systems-analysts?occupationCode=2611

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Job Outlook

labourmarketinsights.gov.au

Figures in 2021, expected numbers in 2026 (5 years later)

Software and Applications Programmers

ANZSCO ID 2613

EMPLOYED	FUTURE GROWTH	WEEKLY EARNINGS
150,600	27%	$2208

Reviewed July 2022

EMPLOYED	FUTURE GROWTH	WEEKLY EARNINGS
177,700	27%	$2208

Adjusted Feb 2023
Reviewed July 2023

https://labourmarketinsights.gov.au/occupation-profile/software-and-applications-programmers?occupationCode=2613

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Job Outlook

labourmarketinsights.gov.au

Figures in 2021, expected numbers in 2026 (5 years later)

https://labourmarketinsights.gov.au/occupation-profile/multimedia-specialists-and-web-developers?occupationCode=2612

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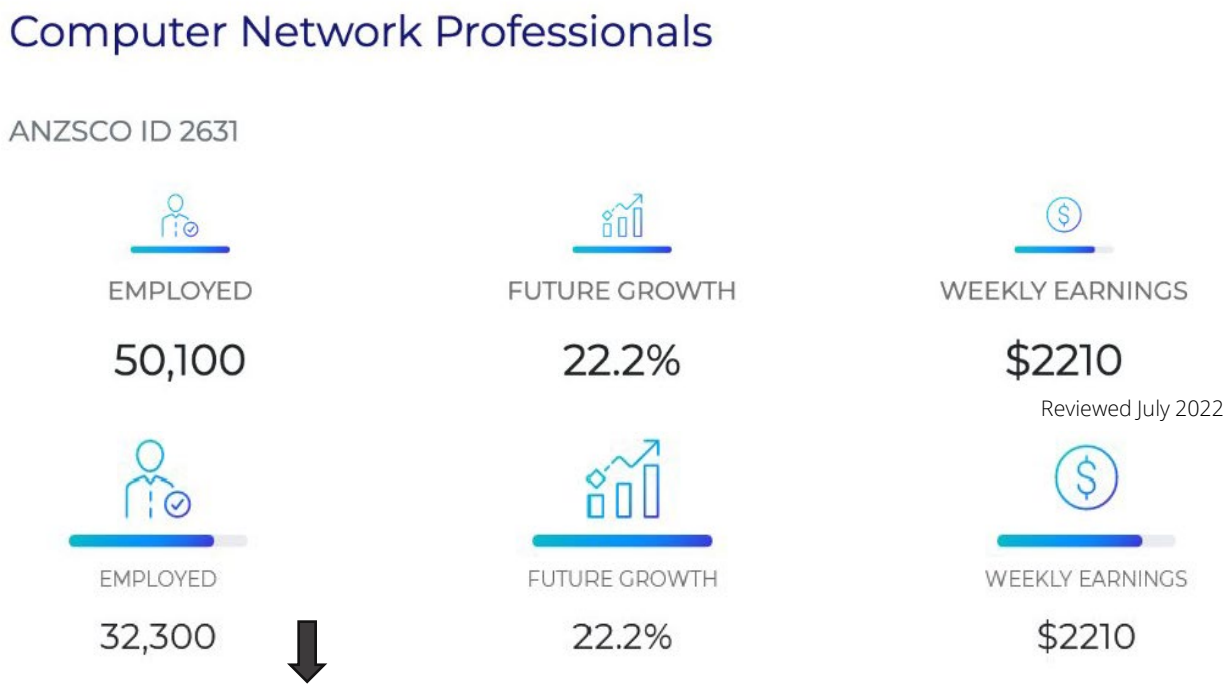
Job Outlook

labourmarketinsights.gov.au

Figures in 2021, expected numbers in 2026 (5 years later)



https://labourmarketinsights.gov.au/occupation-profile/computer-network-professionals?occupationCode=2631

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Student Panel

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