What can I do with a degree in
Computer Science?

UC UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Computer Science.

Career planning: what do I need to know?

Knowledge of yourself is important for career decision making. Start by looking at your personal goals, abilities, values and interests to explore study and career options that are relevant to you. Some of these may change over time, so it is important to self-reflect and evaluate your career on an ongoing basis.

What do employers look for?

Many employers look for generic skills such as communication, customer-focus, bicultural competence, cultural awareness and teamwork. With technology and globalisation changing the nature of society, skills such as resilience, problem solving and adaptability are valuable at work as well as in life.

How can I develop these skills?

- Some skills are developed through your degree
- Extra-curricular activities can help, for example getting involved in clubs, mentoring, cultural groups, part-time work or volunteering
- Be open to professional and personal development opportunities. Whether it is undertaking an internship, overseas exchange, skills seminar, or joining an industry group — these activities will enhance your employability.

What else should I know?

The career options in this brochure are examples only and the list is not exhaustive. Some careers may require further study beyond a first degree or additional work experience. Some pathways and degrees have a recommended school background. Find more subject details at
💻 www.canterbury.ac.nz/subjects/cosc

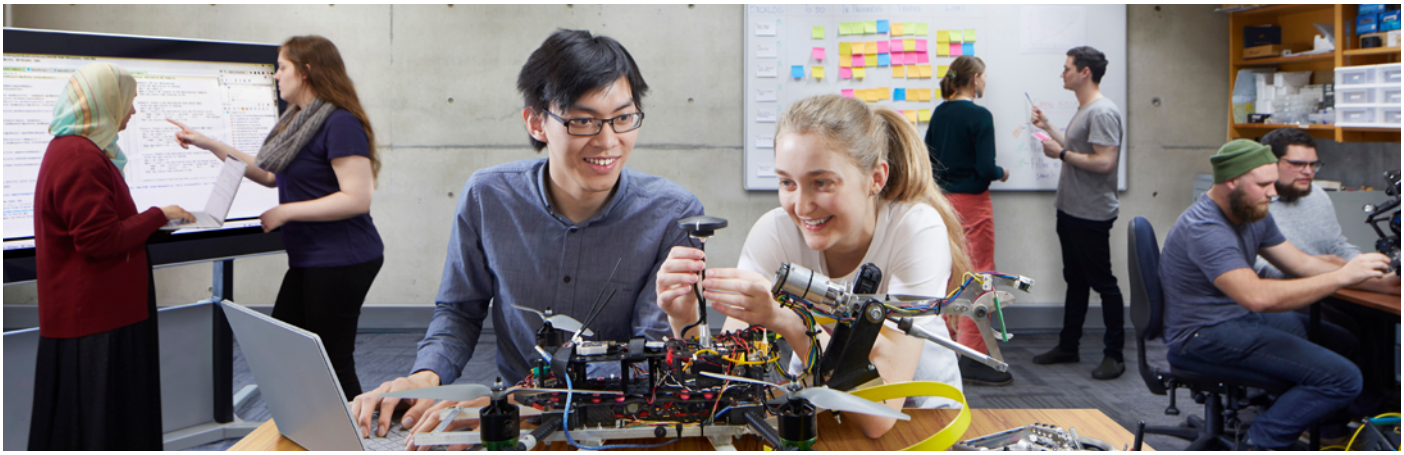
If this brochure does not answer your questions, talking to an expert such as a career consultant can help you to identify the next steps in your career decision making journey.
💻 www.canterbury.ac.nz/careers

What is Computer Science?

Computer Science is about using computers to solve everyday problems. Computer Science uses the skill of programming, which is the ability to write reusable recipes in a special language understood by a computer.

On top of programming, computer scientists also do work like, designing innovative ways to interact with all sorts of devices (computers, phones, cars, factory machines), creating secure and reliable communication networks, and making sense of lots of data involving machines and artificial intelligence.

The field of computer science is wider than this even and computer scientists may also work in medical imaging, autonomous vehicles and "intelligent" learning environments. All of these areas are experiencing rapid growth in Aotearoa New Zealand and internationally.



AT A GLANCE

$95.5k is the median yearly income for the workforce in the IT industry, including jobs like software developers (web, game, mobile), network engineers or security analysts*

31%+ was the growth in software and ICT service sales from 2017 and 2019, reaching $9.8b in 2019**

* *Source: AbsoluteIT, "Tech Remuneration Report", 2020*
** *Source Tatauranga Aotearoa Stats NZ*

Software Engineering or Computer Science?

Software Engineering and Computer Science are related disciplines. Software engineering looks after the bigger picture of software development including teamwork and human aspect while computer science focuses on the technical and theoretical aspects of the overall discipline.

What skills have UC graduates gained?

Computer science graduates have gained technical and transferable skills, such as:

- Problem analysis and solving
- Computational thinking
- Programming and design
- Creativity and innovation
- Adaptation to technological changes
- Deep technical knowledge in their specialist area (e.g., security, artificial intelligence, human-computer interaction)

Applied knowledge is gained through practical lab work and projects that mimic the industry, making UC graduates highly skilled technically, great team players, and employable.

Where have UC graduates been employed?

There has been an ongoing demand in Aotearoa New Zealand for IT related professionals. UC graduates have found employment with:

- Internet giants, e.g., Amazon, Apple, Atlassian, Facebook, Google, Microsoft, Mozilla
- Software development and services, e.g., Assurity, Cortexo, Databasics, Digital Fusion, Intergen, Jade Software, Link Technologies, MYOB, Orion Health, Seequent, SLI systems, Tourplan, Trineo Ltd, Xero
- Telecommunications, networking and geolocation, e.g., Allied Telesis, Cisco, Tait Communications, Telogis/Verizon
- Automation, autonomous and embedded devices, and heavy industries, e.g., Caliber Design, PiP IoT, Street Automation, South Pacific Sera, Trimble
- Mobile app and game development, e.g., Carnival Labs, CerebralFix, Grinding Gear Games, Smudge Apps
- Financial and legal services, e.g., Aderant, ANZ, FIS, Kiwibank, Macquarie Group, Optiver, Westpac
- Web and cloud solutions e.g., Activate Design, Iceberg Web Development, SunGard, Wynyard Group
- Electronics manufacturers, e.g., Dynamic Controls, Harvest Electronics, Hewlett Packard, IBM
- Energy companies, e.g., Meridian Energy, Powershop NZ, Solid Energy NZ
- Grocery, e-commerce or retail sector, e.g., eStar, Foodstuffs, Trade Me Ltd, Warehouse
- Media, entertainment and marketing, e.g., E2 Digital, Vistar Media, Weta Digital
- Government or state-owned enterprises, e.g., Inland Revenue, Metservice
- Agri-tech, e.g., CropLogic, Indigo Systems
- Education, e.g., Navitas, Unitec Institute of Technology, University of Canterbury

We also have former students starting their own companies, e.g., Komodo Monitr, Lab3 or Vxt.

What jobs and activities do graduates do?

Computer Science graduates are employed in a wide variety of jobs — see some examples below.

Note: Some of the jobs listed may require postgraduate study. See the 'Further study' section.

Back-end developer (or software engineer)

- focus on the business-side of (web-based) software solutions
- transform customer expectations to high-quality programs
- build prototypes to demonstrate the feasibility or economic viability of a software
- test and maintain existing software

Web developer (or front-end developer)

- design both pleasant and usable screens to capture or present information
- work on accessibility problems (i.e. how to make software systems usable by visually impaired or elderly persons)

Game developer

- develop (successive versions of) a game from story boards
- work on various aspects of game development such as the graphics or engine (environment)
- apply cutting edge technologies and methods to develop, test and roll out games

Mobile developer

- design engaging mobile applications
- can be a specialisation of web or game developer

Infrastructure and security engineer

- look after the infrastructure aspects of IT systems
- design, deploy and maintain the computing machines, network devices and security procedures
- monitor in real time the state of a network

Business intelligence and analyst

- apply mathematical and analysis skills to make sense of lots of data
- help the business take informed decisions regarding infrastructure or marketing aspects of software systems.

IT consultant

- solve complex or highly specialised problems on a fixed-time basis in other companies
- estimate the cost of implementing a particular technical or business solution

Entrepreneur & self-employment

Entrepreneurship and innovation are an increasing part of the working landscape. Through generating a business idea, or getting involved in a start-up/business venture, you have the potential to create a work opportunity that aligns with your knowledge, skills, values and risk profile. To get started on how to establish, run and grow a new business, go to Te Pokapū Rakahinonga, Centre for Entrepreneurship at the University of Canterbury
💻 www.canterbury.ac.nz/uce

What professional organisations can I engage with?

Connecting with professional bodies and organisations can help you to establish professional networks and learn more about different career options in your area of interest. Gaining valuable insight into a profession can assist in making informed career decisions.

- IT Professionals New Zealand
  💻 www.itp.nz
- New Zealand Information and Communication Technologies Group
  💻 www.ict.govt.nz
- Software Innovation New Zealand
  💻 www.softwareinnovation.nz
- Association for Computing Machinery
  💻 www.acm.org

Having a professional presence on social media networks such as 💻 www.linkedin.com and Facebook can help you to keep up to date with important industry developments and trends, networking opportunities, events and job vacancies. Following relevant professional bodies, organisations, companies and thought leaders is a great way to gain a deeper awareness of the industries that interest you. Social media presents an opportunity to build and enhance networks as well as to display your involvement in projects and any academic successes.

Why do further study and what are my options?

Postgraduate study can facilitate many career benefits such as entry into a specific occupation, higher starting salary, and advanced research capability. Advanced study can lead to a career in tertiary teaching or research. It is important to determine which, if any, further study will help you in your future career.

Computer Science graduates are able to progress their studies from honours through to PhD level. UC also offers a Master of Human Interface Technology
💻 www.canterbury.ac.nz/courses

Useful links

Te Rōpū Rapuara UC Careers
💻 www.canterbury.ac.nz/careers

Careers New Zealand
💻 www.careers.govt.nz

Canterbury Tech Cluster
💻 www.canterburytech.nz

Rachel

Bachelor of Arts in Spanish with a minor in English and Mathematics, and a Bachelor of Science in Computer Science
Software Engineer, Google Australia

Can you describe your job at Google?

I get to work with incredibly talented people every day, in an industry that is constantly changing and evolving. That means I never stop learning new things, and there are always new challenges to solve.

What are you career goals?

For now I want to learn as much as I can and to try different areas of software development. I moved fairly recently to Android development from a team that worked much more server-side, so I have a huge amount to learn at the moment.

What would you say to IT enthusiasts?

Software development is a fun, creative area to work in, and changes quite significantly depending on the scale of the project and people that you work with. Getting exposure to different teams and projects will help you decide if it is a path you are interested in. At school, join programming competitions, join robotics clubs – program and problem solve with other people.

Why did you choose to do Computer Science?

When I reached UC and tried a variety of Engineering courses in first year I came to realise that it was the programming challenges that really interested me rather than the hardware. A couple of course corrections later and I found software development.

What did the STAR programme bring to you?

It was an excellent head start at Uni that allowed me to take more interesting electives such as Spanish in my first year. I also did the Aurora Astronomy School through UC that was excellent fun, I met great people and learned cool things.

Read more online

Read more stories about our students' university experiences online. UC alumni make a difference in varied ways around the globe. To find out where graduates are now visit 💻 www.canterbury.ac.nz/getstarted/whyuc/student-profiles

The information in this brochure was correct at the time of print but is subject to change.

More information

UC students seeking study advice.

Te Tari Pūhanga Pūmanawa Rorohiko
Department of Computer Science and Software Engineering

The Department has a strong global reputation and courses that are benchmarked against international standards. Staff are active researchers, with collectively one of the best records of research publications in the Pacific region.

Our graduates are in strong demand. Come and see us about your study goals and future plans.

T: +64 3 369 2777
E: enquiries@cosc.canterbury.ac.nz

💻 www.canterbury.ac.nz/engineering/schools/csse

Anyone seeking careers advice.

Te Rōpū Rapuara | UC Careers

UC offers intending and current students and recent graduates a wide range of services, including individual career guidance, seminars, career resources and student and graduate employment opportunities.

T: +64 3 369 0303
E: careers@canterbury.ac.nz

💻 www.canterbury.ac.nz/careers

Prospective students seeking study advice.

Te Rōpū Takawaenga | Student Liaison

The liaison team provide advice to future students who are starting their degree for the first time. They can assist with information on degrees, scholarships, accommodation, and other aspects of university life. We have offices in Christchurch, Auckland and Wellington.

Ōtautahi | Christchurch
T: 0800 VARSITY (0800 827 748)
E: liaison@canterbury.ac.nz

Tāmaki Makaurau | Auckland
T: 0800 UCAUCK
E: auckland@canterbury.ac.nz

Te Whanganui-a-Tara | Wellington
T: 0800 VARSITY (0800 827 748)
E: wellington@canterbury.ac.nz

💻 www.canterbury.ac.nz/liaison

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