

What can I do with a degree in Computer Science?

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, 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?

As well as programming, there are many aspects to Computer Science including interaction design, communications and networks, software design, computer security, information systems, big data, machine learning, graphics, operating systems, educational systems, artificial intelligence and embedded systems (processors that are embedded in everything from mobile phones to cars). All of these areas are experiencing rapid growth in Aotearoa New Zealand and internationally.

Computer Science is about helping people by analysing their needs and coming up with appropriate solutions. It is about knowing how to design systems that are fast, usable, reliable, secure, scalable and make a positive impact. Computer scientists tackle a wide range of applications, such as monitoring patients in hospitals or designing educational apps.



AT A GLANCE

MORE

software engineers, software testers, and web developers are needed in Aotearoa New Zealand*

5.2%

growth in employment of business and systems analysts, and programmers expected by 2020+

What skills have UC graduates gained?

There is an overlap between software engineering and computer science, particularly in skills like programming. Software engineers tend to work in teams to produce very large products, whereas computer scientists work in more technical areas such as algorithms, graphics and networks.

Through their Computer Science degree graduates develop valuable transferable skills such as:

- Technical skills and systems knowledge
- Analytical and problem solving skills
- Logical and quantitative thinking
- Programming and design
- Creativity and innovation
- Commercial awareness
- Coping with rapid technological changes.

Applied learning is an integral part of your degree through lab work, course projects, and project courses. These experiences can deepen your skillset, awareness of others, and employability.

Where have UC graduates been employed?

There is demand for Computer Science graduates, particularly those who combine technical skills with communication skills and teamwork ability.

Some students even start up their own software company and become an employer.

Recent UC graduates have found roles in:

- Internet and technology giants eg, Google, Microsoft, Mozilla Corporation
- Software companies eg, SLI systems, Aderant, Concept Engineering Ltd, Orion Health, Wynyard Group, SunGard, Tourplan, Land Technologies, Vault GRC, Telogis, Interger, Cortexo, Databasics, Digital Fusion, Trineo Ltd
- Telecommunications and networking eg, Tait Communications, Allied Telesis
- Electronics manufacturers eg, Hewlett Packard, IBM, Harvest Electronics, Dynamic Controls
- Energy companies eg, Meridian Energy, Powershop NZ, Solid Energy NZ
- App developers eg, Smudge Apps, Carnival Labs
- E-commerce eg, eStar, Trade Me Ltd, Amazon
- Financial services eg, ANZ, Kiwibank, Westpac
- Agri-tech eg, CropLogic, Indigo Systems
- Web design/development eg, Activate Design, Iceberg Web Development
- Digital marketing eg, E2 Digital
- Game developers eg, Grinding Gear Games, CerebralFix
- Grocery sector eg, Foodstuffs
- Media and Entertainment eg, Weta Digital
- IT services eg, Link Technologies
- Consultancies eg, Assurity
- Automation companies eg, Street Automation
- Government or state-owned enterprises eg, Inland Revenue, Metservice

* Immigration New Zealand's 2017 long-term skill shortage list www.skillshortages.immigration.govt.nz
 * 2017 MBIE Occupational Outlook

- Global Positioning Systems eg, Trimble Navigation
- Cyber security eg, Cisco
- Education eg, University of Canterbury, Unitec Institute of Technology, Navitas.

For more examples of employers go to www.canterbury.ac.nz/recruitingemployers

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.

Programmer, software developer

- Determines specifications and writes code
- Builds prototypes of software programs
- Tests and fixes computer programs and systems
- Maintains and upgrades programs and systems
- May develop and integrate technical aspects of websites/mobile apps along with other workers

Web developer

- Develops website functionality and security
- Designs back-end web structure such as servers
- Maintains and updates the website as required

Game developer / programmer

- Researches the user market, to meet their needs
- Writes computer code, sources graphics/sounds
- Tests games and fixes any issues
- Creates new and improved version releases

Computer / systems consultant

- Maintains and monitors an organisation's computer functions and ICT systems
- Recommends the programs and systems that an organisation should use
- Designs computer networks

Software engineer

- Analyses customer needs, evaluates computer software and researches new technologies
- Develops software programs for new products
- Manages software development projects

Software tester, test analyst, quality assurance

- Designs and creates testing tools
- Carries out software compatibility testing with hardware and operating systems
- Sets quality standards for release-ready products

Mobile developer, application developer

- Researches a client's brief, an organisational need, or a gap in the market
- Codes, designs, produces and tests prototypes
- Creates new and improved version releases

Data analyst / engineer, intelligence analyst

- Understands industry domains and processes
- Analyses large datasets
- Solves complex data problems

Telecommunications / infrastructure engineer

- Designs and maintains telecommunications equipment and systems
- Monitors the installation and use of equipment
- Provides training to staff after installation

Business analyst / developer

- Utilises data and analytical models for organisational information purposes
- Provides insight to assist with decision making
- Liaises with different business functions

Communications / computer / support technician

- Identifies and solves computer software, hardware and website issues
- Installs and tests software, networks, servers
- Updates and repairs equipment

Entrepreneur, Director, CEO

- Leads and manages an organisation
- Sets values, objectives and policies
- Ensures plans are in place, laws complied with and risks managed
- Monitors financial performance and profitability
- Communicates with staff and external groups

Entrepreneurship and innovation are an increasing part of the working landscape. Get started at www.canterbury.ac.nz/careers/Entrepreneurship/getting_started.shtml



What professional bodies can people link to?

As they progress, students and graduates often join professional bodies relevant to their area of interest. These organisations can provide regular communications and offer the chance to network.

- IT Professionals New Zealand www.itp.nz
- New Zealand Information and Communication Technologies Group www.ict.govt.nz
- New Zealand Game Developers Association www.nzgda.com
- Association for Computing Machinery www.acm.org

Social media networks such as LinkedIn, Facebook and Twitter can provide avenues to keep up-to-date with industry knowledge, networking opportunities, events and job vacancies.

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

UC Careerhub

UC students and alumni can find details of internships, job vacancies and employability tips at www.careerhub.canterbury.ac.nz

Useful links

UC Careers, Internships & Employment
www.canterbury.ac.nz/careers

Computer Science and Software Engineering
www.canterbury.ac.nz/engineering/schools/csse

Careers New Zealand
www.careers.govt.nz

Future in Tech
www.futureintech.org.nz

IT Jobs in Christchurch
www.cdc.org.nz/christchurch/it-jobs

Aaron Stockdill



Bachelor of Science in Mathematics and Computer Science
Bachelor of Science with Honours in Computer Science
Co-Founder, Web Designer and Programmer, Potato Softworks

Why did you choose to study Computer Science?

When I left high school, I knew I hadn't finished with my education and that it had to involve computers. In my first year I took a range of subjects and quickly found that I didn't want to give up Maths either!

What is interesting about it?

Everything is new and exciting! Computer Science is so young, there is so much left to create and discover. We haven't even begun to dream of what is possible — look how far we've come in 50 years, think what another 50 will reveal. Combine this with Maths and you discover a beautiful harmony between the two subjects.

How does it tie in with your goal of helping others?

I chose Computer Science initially because it was just plain fun, but I realised I had another motive: it enables me to make people's lives better.

How have you put your studies into practice?

I founded Potato Softworks with Kaleb McCall, a fellow Computer Science student. Already we have clients from multiple cities in the South Island, and we hope to continue helping other small businesses get an online presence: we want to make technology accessible to everyone.

What are your career goals?

Research in Computer Science is the big dream, either at a university or at a dedicated research lab, specifically in the fields of artificial intelligence and machine learning. The chance to push the world forward and make something truly new is just too exciting to pass up!

Any words of encouragement for new students?

Technology and maths have no limits on who can do them, and where they can go. Never programmed before? Give it a go! This is a growing industry, and any mathematically inclined programmers really are in huge demand. You can't go wrong with Computer Science!

Read more online

Read Aaron's full story about his university experience on our profiles site. UC alumni like Aaron make a difference in varied ways around the globe. Find out where Computer Science graduates are now at www.canterbury.ac.nz/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.

Department of Computer Science and Software Engineering

Te Rāngai Pūkaha | College of 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: engdegreeadvice@canterbury.ac.nz

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

Anyone seeking careers advice.

Careers, Internships & Employment
Te Rōpū Rapuara

CIE 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 3 364 3310

E: careers@canterbury.ac.nz

www.canterbury.ac.nz/careers

[UCCareersEmployment](#)

Prospective students seeking study advice.

Student Liaison

Te Rōpū Takawaenga

Student Liaison provides intending students with information about the university system in general and the courses, qualifications, support and facilities available at UC.

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) ext 93231

E: wellington@canterbury.ac.nz

www.canterbury.ac.nz/liaison