

# MAP YOUR CAREER

## Surveying & Mapping Industry Council of NSW



[www.smicnsw.org.au](http://www.smicnsw.org.au)

## A Career with Options

Surveying and mapping are careers suited to people with a passion for modern technology and computers, geography, maps, science, geometry and a sustainable environment. If you enjoy working both indoors and outdoors as part of a professional team and gaining satisfaction from seeing the results of your work, choose the Career with Options.

The expertise of surveyors and map-makers has been around since history began. Today, surveyors and spatial professionals focus on the measurement, management, presentation and analysis of spatial data. They use advanced electronic instruments, computers, global positioning, satellite images and high powered computational and visualisation software. Their skills are applied to land, sea, space, mining, construction, forensics and medicine.

With rapid advances in technology, new career opportunities are constantly emerging. Surveyors and spatial information specialists completing their tertiary studies have one of the highest employment rates of any discipline, with attractive salary ranges.

Be the envy of your friends: this career gives you options to travel or stay at home; work outdoors or in an office; work for yourself or as a member of a team: the choice is yours! Whatever option you choose, you can guarantee a career that will take you into the future with exciting opportunities challenging you to develop new skills.



For more information go to [www.smicnsw.org.au](http://www.smicnsw.org.au)



## Navigate your future

# with SMIC

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Image courtesy RTA

## Land Surveying

Australians own an estimated \$1000 billion in real estate. Land Surveyors turn wasteland into sustainable and attractive residential and rural estates. They ensure the integrity of our property boundaries and legally define the dimensions of new and existing land and strata titles. Land surveyors provide professional consulting services to a range of clients and provide advice on council requirements and state planning legislation. They design and project-manage sustainable subdivisions featuring water sensitive urban design. Without the Land Surveyor, the street directory would be full of blank pages!



Image courtesy SingTel Optus Pty Ltd.

## Earth Observation

In a world faced with adaptation to climate change, large scale monitoring of the environment using satellite imagery is of increasing importance to measure water resources, salination, land clearing as well as hazard management. New high resolution remote sensing satellites provide optical and radar imagery to monitor movements of volcanoes, earthquakes and mud slides. Geodetic Surveyors monitor sea level rise to incredible accuracy using satellite observations linked with precise tide gauges. Google Earth and Microsoft Virtual Earth are examples of the tools used and developed by spatial professionals every day.



Image courtesy Rio Tinto

## Mining Surveying

Mine Surveyors were the unsung heroes of the Beaconsfield mine rescue – using their professional skills to locate the exact position of the trapped miners. Mining is one of our most valuable export industries. All aspects of mining operations require mining surveyors working in dynamic and diverse environments to locate ore bodies in three dimensions and compute excavation stockpiles. They produce mine plans using the latest in global navigation satellite systems (GPS), automated surveying technology and computer aided drafting. This highly paid option of the surveying profession may be just right for you!

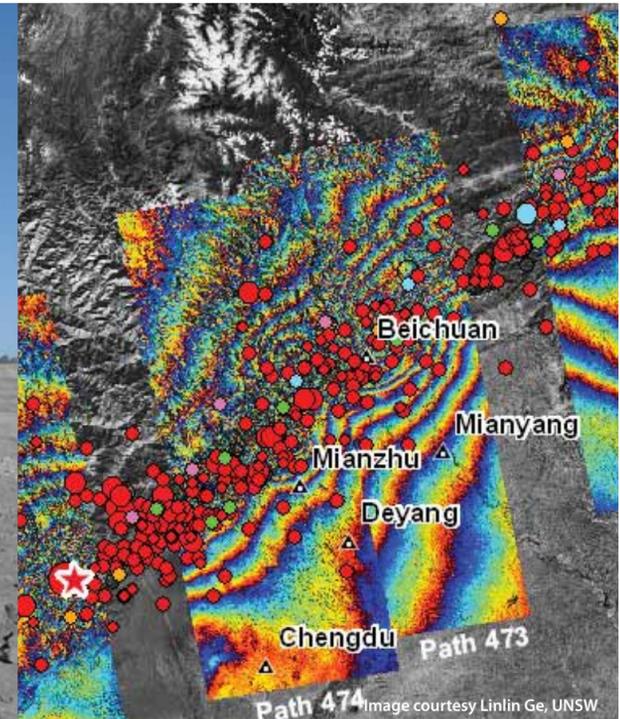


Image courtesy Linlin Ge, UNSW

## Mapping & Visualisation

In this digital age, the development of new high-tech devices has opened the world to exciting new methods of mapping. Traditionally aerial photography was the only way to produce topographic maps. Today, with digital cameras, laser scanners (either on the ground or in a plane), satellite imagery and high powered visualisation software, virtual 3D cities are being developed to assist planning and management of natural and built environments. Precise photographic mapping is used in a diverse range of applications including reconstructive surgery, forensic criminal investigations and serious car accidents.

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Image courtesy Sydney Ports Corporation

## Hydrographic Surveying

This is a great career option for those who love the water. Hydrographic surveying involves the measurement and mapping of marine areas – the harbour is your office! Remember the Pasha Bulker beached off Newcastle? Hydrographic Surveyors helped salvage operations by mapping an exit route, avoiding submerged rocks. They use GPS technology linked with sonars, tide gauges and underwater laser scanners to monitor the silting of river beds and dredging of a river mouth to provide safe passage for shipping. Off shore Hydrographic Surveyors use their skills for gas, oil and mineral exploration, pipe laying and environmental research.

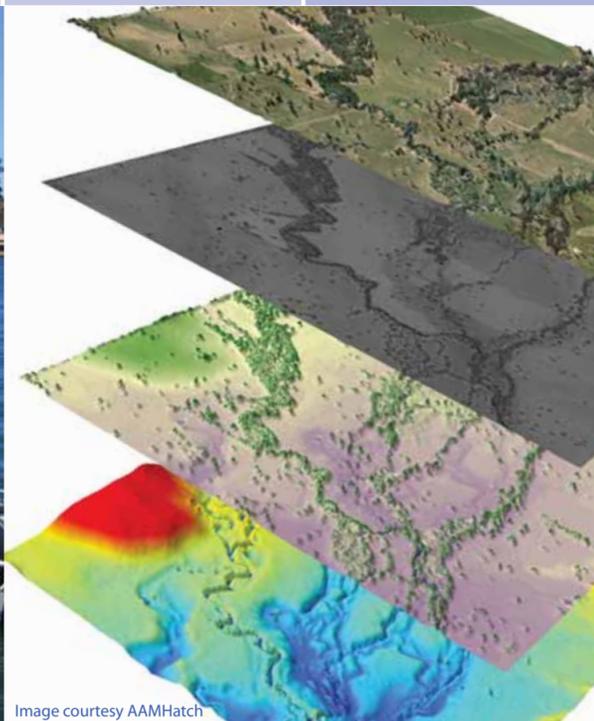


Image courtesy AAMHatch

## Spatial Systems

Developments in digital technology continue to enhance the ways that information can be used. Geographic Information Systems (GIS) are computerised layers of spatially interrelated maps which may include roads, underground services, vegetation, retail outlets, population distribution: anything really! Integrating these databases in real time with GPS positions or other devices opens a new world of location based services. GIS Specialists ensure that these layers inter-link for analysis and planning to meet the needs of the community and our changing natural and built environments.



Image courtesy iStockphoto

## Wireless Location

Surveyors use satellite positioning technology at its most precise and accurate level: surveyors are the experts. Surveyors and spatial professionals use modern wireless positioning infrastructure for all surveying applications and also provide mapping services for flood plain studies, coastal monitoring, natural resource management and marking land for tree planting to provide carbon offsets. Wireless positioning is being used for a range of new mobile phone applications and in-car navigation systems. This is an exciting area of emerging technologies, and you can be part of it!



Image courtesy Craig Roberts, UNSW

## Engineering Surveying

The infrastructure boom requires more Engineering Surveyors than ever before. From the Olympic stadium, the Pacific Highway, the Lane Cove tunnel or the M7 orbital road and all new major high rise developments in the CBD, Engineering Surveyors are there from project launch to completion. The Engineering Surveyor is responsible for pre-design detail surveys, construction, ongoing monitoring of structures and final check surveys to ensure everything is where it should be. There is a lot of personal satisfaction in the work of an Engineering Surveyor.