Using GIS Beyond Your Degree
**Introduction**

There are many new uses of GIS beyond geography and biology. Your GIS skills are in hot demand by a range of industries such as insurance and telecoms. GIS is now part of everyday business.

Many industries using GIS apps, however, are not using the technology to its fullest potential. Often the people employed are not geographers and they don’t understand the geographic principles underlying the technology. Industry has little understanding of what a skilled GIS technologist actually has to offer.

For an overview of the role of GIS read [prospects.ac.uk/job-profiles/geographical-information-systems-officer](prospects.ac.uk/job-profiles/geographical-information-systems-officer).

**In depth**

With the rise of Big Data, many companies are analysing data using off-the-shelf GIS apps (cheaper than developing their own system) and this is a potential employment goldmine for any geographers who are able to change mind set and adapt their GIS skills to a new commercial environment.

To give this some context, take the example of getting a quote for house insurance. There are around 100 data points used to make a decision - flood risk, mine shafts etc. Accurate mapping is essential, but producing a map based on postcodes is not easy as there are many different ways to enter a postcode. Someone with a GIS background would understand this and would make the mapping process accurate.

Understanding the spectrum of GIS technology, choosing the right tool to use at the right time and having the ability to change the script and adapt an app for the task in hand is key. For this, you require some low-level programming ability and excellent communication skills. Sitting with the customer, listening to their needs and having the business acumen to understand the company and the questions they are hoping to answer is key. Then, of course, you need to be able to look into the core of the app and adapt the GIS technology to meet their need is the skill of a GIS developer.

**Some example of sectors using GIS**

- **Water companies** - converting original paper maps to GIS datasets, in order to record the location of water pipelines.
- **Local Authorities** - estimating the number of people potentially affected by flooding. Capturing the location of 'assets' such as bridges and streetlights.
- **Education Authorise** - using population growth figures and planning information to estimate increasing/decreasing demand for school capacity.
- **Retail** (e.g. Tesco) - calculating the number of potential customers for a new supermarket. Predict the buying patterns based on socio-economic factors.
Construction Industry - relating physical information (e.g. the location of properties, quality of land, and placement of utility cables)

Health Sector - anticipating healthcare needs of the population.

Utility Companies (e.g. Shell) - planning the location of pipelines.

Insurance (e.g. AA) - Calculation of risk.

Think of GIS in its broadest sense, think how useful it could be to market research and advertising agencies, to the Defence sector or Humanitarian aid and even Leisure services; all could benefit from your GIS skills. You can target a sector by highlighting your GIS skills on your CV. For an overview of each sector go to Prospects website [prospects.ac.uk/job-profiles/browse-sector](http://prospects.ac.uk/job-profiles/browse-sector)

**Emphasising your GIS skills**

If you have any of the following skills, then make sure you make the most of them in your applications and CV:

- **Team work** - you could be working in multidisciplinary teams
- **Presentation** of geographical information
- **Spatial analysis** - cartography and graphs - help people to understand the data
- **Numeracy** - able to analyse data and statistics
- **Computer skills** including Excel and specific software such as ArcGIS
- **Any coding ability** – Python scripting. This needs only to be at a low level but demonstrates that you understand raw data and how it is formulated
- **Ability to convert** GIS information from one format to another

**Examples of jobs advertised on My Career Hub in 2017**

**AmTrust at Lloyd’s** (finance company)
Looking for geography graduates for two roles - Systems Admin Analyst and Data Risk Analyst, both with a salary of £25,000 per year.

**Position Overview:** To manage workflow, transfer data and import into modelling systems for all classes of business.

**XL Graduate Placement Ltd** (graduate recruitment company) based in Warrington. They wanted to recruit a Geography Graduate as a Property Location Assistant offering a salary £20,000 per year.

**Position Overview:** Understanding and interpreting data which will be used to make informed strategic decisions about location store planning and the viability of stores in the UK

**Green Energy International** (renewable energy company). They offered a paid 9-month placement as an Assistant Planner and GIS Analyst. Having created an in-house GIS system they were looking for someone with GIS experience to help improve the process off site.

**Position Overview:** Experience with GIS (Ideally Arc GIS or QGIS). Excellent report writing skills (EIA screening requests and Environmental Reports). Fantastic communication skills. Self-organisation and the ability to work under pressure.
Markel (insurance company) advertised a graduate role for a Catastrophe Analyst to focus on the energy sector. The skills they were after were modelling tools like RMS (training was given if an unfamiliar tool) plus Excel and working with stats.

Teaching Changes to both GCSE and A ‘level geography curriculums have been made and GIS, (both technical and analytical) is now a large part. If applying for Geography PGCE highlight GIS skills. Note Geography remains a shortage subject and so attracts a generous bursary (currently £25,000). Check bursaries information for current details.

Tips for job hunting
- Try and keep abreast of what is happening outside your subject area.
- Rather than looking for a specific GIS role, look instead for roles that require GIS skills. The job could develop around you.
- Help the industry to find you – highlight your GIS on your LinkedIn profile
- Demonstrate business acumen by researching industry sectors on Prospects. You need to understand the company and the questions they are hoping to answer from GIS.
- Get some relevant work experience
- Target your dissertation topic to an organisation and make it relevant. Highlight this on your CV.
- Demonstrate your communication skills so that you can clarify the nature and purpose of the information a client requires.

Work Experience
An internship or other relevant work experience can improve your chances of securing a graduate role. Apply for advertised placements on My Career Hub but also make some speculative approaches to organisations by sending your CV and a targeted cover letter. Both work experience and work shadowing are an opportunity to link a university project to a live industry project. These look great in any job applications as it demonstrates you are able to connect theory with the practical application of GIS.

Here are some ideas for work experience
ESRI - esriuk.com Global company who offer internships and graduate training programme
HEXAGON - hexagonsafetyinfrastructure.com - Support emergency services to assess hazards and enable clear and unambiguous communication across a pool of services. Have graduate opportunities
Royal Geographical Society - rgs.org/joinus (Student membership available). Run short unpaid London based intern programmes. Don’t need to be a member to apply. With 16,000 members, this is a great resource for finding work experience and ideas and help for dissertation topics.
Geography ambassadors - Go into schools (training given). This looks great on a PGCE application
GIS consultancies - these tend to specialise in one or more specific areas, such as natural resources and the environment, military, utilities, oil and gas, or property.
Key job vacancy sites:
GIS Jobs - gis-jobs.co.uk
Earth Works - earthworks-jobs.com
Geo Connexion - geoconnexion.com
Local Government Jobs - lgjobs.com
Techno Jobs - techonjobs.co.uk
Recruitment Agencies - look for ones that specialise in IT, surveying and scientific jobs

Professional Bodies
Association for Geographic Information (AGI) - agi.org.uk - Run a Continual Professional Development (CPD) scheme. This is free for members to join.
Royal Geographic Society - rgs.org
The British Cartography Society - cartography.org.uk
Royal Institution of Chartered Surveyors - rics.org/uk
The Survey Association - becomeasurveyor.com

Careers & Employability Support
The Careers & Employability Service offers a range of support to Manchester Met students and graduates:

- **Find Opportunities**: We advertise hundreds of part time, graduate and internship roles through My Career Hub.
- **Careers Consultant Appointments**: Book a 30 minute appointment and get expert advice from our specialist Careers Consultants.
- **Careers Events**: Meet employers and enhance your employability by attending our workshops, employer events and careers fairs.

For more information visit: mmu.ac.uk/careers