University Career Showcase: Spatial Analytics

Spatial Analytics

"The Spatial Analytics department manages, analyses, and curates an inventory of university building and spatial data with the help of software, databases, visualisation and analytical methods. Assigns and classifies space according to applicable standards and procedures. Benchmarks analytics with the Go8 and Tertiary Education Facilities Management Association (TEFMA). Provides space use statistics, dashboard analytics, floor plans to stakeholders."[a] Spatial Analytics is one of three divisions of Space Management, and falls under University Infrastructure Services.

[a] https://spaceinfo.staff.unimelb.edu.au/SISfm-Enquiry/UMELDefault/home/about

Introduction

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(WORD COUNT: 1528 NOT INCLUDING REFERENCES)

Due to the recent trend of "Making Everything Digital" in several Australian companies, The University of Melbourne has recently opened its doors to students for career opportunities in quantitative or computer science fields. The University of Melbourne is interested in tackling its "Big Data problems" before they become problems, moving away from the outdated approaches to new and innovating solutions.
Today, in this exclusive Employability Week edition of the newsletter, we will showcase the Spatial Analytics division, covering all the relevant information, industry experience and benefits it has to offer for you.

The Industry Experience

The aim of the Spatial Analyst position at The University of Melbourne is to translate spatial data into words and visualizations. This means you can expect both the *qualitative aspects* of analytics, alongside the *interactions* and communicative aspects with clients.

As such, you will be regularly required to attend face-to-face meetings, expected to maintain open lines of communication with clients, and keep in touch with your colleagues from other divisions. These will then be complimented by qualitative skills such as working and managing confidential data, learning how organisations utilise Business Intelligence tools (such as Tableau, PowerBI, Azure, etc) to efficiently manage their projects, querying / maintaining an Archibus SQL Server, visualising spatial data, and ensuring you meet client expectations / requests.

The workplace itself also grants a *unique industry workplace experience*, offering you first hand industry experience in an *Agile methodology* working environment, compared to the more conventional Waterfall methodology or Office working environment you may find at other places.

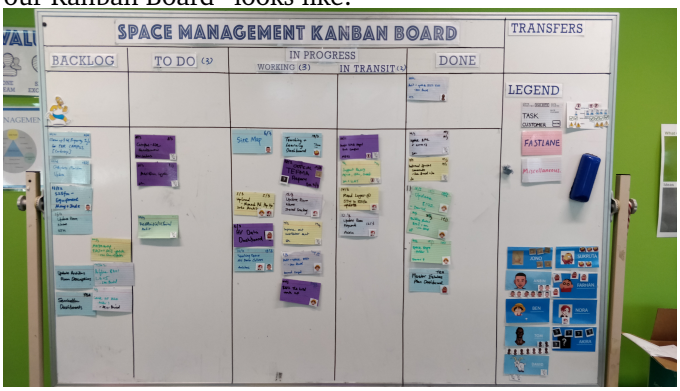
The Agile Working Environment

The Agile methodology is based off a project management framework, used by teams to *accomplish projects* in a "Divide and Conquer"[1] like manner. This allows teams to *incrementally* complete smaller sub-projects over time, before merging them into a completed project.

When compared to the more traditional work ethics, such as the Waterfall methodology, an Agile working environment allows for greater flexibility, communication, and checking due to the nature of its "Divide and Conquer" strategy. Essentially, the Agile methodology allows for smaller rewards (sub-project completions) more often whilst the Waterfall methodology offers a big reward (project completion) at the end.

The primary reason why the Agile work ethic is used at Space Management is due to the nature of the projects. *Confidential data* combined with niche and specific queries means that there are *no* room for errors or failures in the project. The Agile method suggests that the sub-project should be checked off and via communication with the client, before moving onto the next sub-project. This ensures that the *quality and progress* of a project goes smoothly.

The team at Space Management utilise Agile methodology using a *Kanban Board*, based off the Japanese word for *billboard*. The Kanban board features team projects that are: in backlog, currently in progress, in transit[2], completed, or of high priority[3]. Here's what our Kanban Board[4] looks like:



A Typical Office Day

At your first day in the office, you can expect to receive your *very own fancy staff card* - granting you access to *free printing*, microwaves and fridges, after hours access to your building (perfect for students who are also pursuing studies), and numerous brunch places close by.

For a normal working day, it is divided into three major sessions. The first morning session begins at 9:15am with a division stand-off meeting[5], followed by team meetings with your supervisor to discuss the plans for the day. After the completion of morning meetings, you will work on your assigned tasks in a morning "work" session before a one hour lunch break at a time that is convenient for you. After break, you will have an afternoon "work" session where the day ends between 4pm - 5pm, depending on your tasks. The work is also very flexible, meaning you can work *remotely* from home to make up the hours that you do not turn up.

Your role as a Spatial Analyst means you have a basic understanding of pre-processing data and creating visualisations. This usually means you end up with ETL[6] for the *whole* morning session, and visualisations in the afternoon session of work. For the bigger projects such as TEFMA, you can expect *days of ETL* before you can move onto reporting.

Compared to the other divisions in Space Management, the Spatial Analytics division is much more knowledgeable with technology. Hence, you can expect to participate and attend in decision-making meetings. These meetings will compromise of talks based on new budget allocations (for database services, software, etc),

[1] To break a large problem into smaller sub-problems.
[2] Cards in the "In Transit" section are usually sub projects awaiting approval or for some information
[3] Cards in the "Fast Lane" section are sub projects of High Priority, and take precedence over any other outstanding sub project
[4] The photo was taken by myself on 13/03/2019.
[5] An Agile work ethic used to catch team members up to date who were absent the day before
[6] Extract, Transform and Load data. For people in analytics, this is the biggest "downside" or "con" to the position.

as well as briefings on the *upcoming* big projects.

Your Role in the Transition

The main goal for the Spatial Analytics division is to *eliminate the majority of ETL* required for projects. Most, if not *all* companies aim to automate the ETL process, and The University of Melbourne is *no exception*.

Since your role will lie at the forefront of this transition, you can initially expect plenty of ETL and first-hand-experience with badly formatted excel sheets, in order to get joins[7] working. However, this means that *future* projects working with the same data, or *annual projects* such as TEFMA will be able to depreciate[8] the use of excel and pivot tables.

The transition from excel based sheets to live databases has already begun - each project working with excel sheets will be *reformatted* so that it can be joined to the database, with an in-depth documentation to accompany the steps undertaken to do so. These will be synced with GitHub[9] in case the methodologies need to be traced back to the source[10].

By *depreciating* the use of pivot tables and excel sheets, projects can become live[11] with a database and *updated with minimal effort*. Furthermore, the projects can then be created using Tableau - an interactive Business Intelligence tool. This allows for interactive visualizations and analysis, which are *completely up to you* on how you approach the client requests. Thus, you will need to be able to *effectively communicate* your data analysis and be able to present your analysis visually in a manner that clients (who come from different backgrounds) will be able to understand it.

The Experiences You Gain

This role isn't all just working with spatial data and software! As part of the transition between outdated static software to interactive Business Intelligence powered solutions, you'll be able to create, apply, and adapt your own knowledge to several projects in a way *you see fits best* with the client specifications.

Being apart of an Agile working environment is not only a unique experience, but an experience which many other places do not offer. Knowing how to operate in an Agile working environment is *great for your CV*, since several places look for people with experience in them!

Undoubtedly it is not just about the industry experience! After work drinks at the pub with your colleagues and superiors mean that you'll be able to build your social and networking skills. Combined with the flexible working hours, you'll find it *hard to leave* once you're working!

Is this for you?

To be eligible to apply, you'll need to be pursuing or have completed a Quantitative or Computer Science degree, as well as having a *basic understanding* of data processing, data visualisations, and database systems. Since The University of Melbourne is open to training and building staff up, you'll find that as long as you are a keen learner, you'll be able to learn the job as you go.

Some *key communication skills* that are sought for are: being able to explain your ideas in a precise yet simple way, be able to express your ideas and findings in a Q&A style presentation, and identify your team strengths / weaknesses and address them when necessary.

If this sounds right for you, apply through the UniMelb Careers Online, or send your CV and Academic Transcript to PERSON at example@example.com.

Alternative Programs and Pathways

If you find that you are interested in the *more analytical side*, but unsure if the Spatial Analyst position is for you, you can try other departments under The University of Melbourne Services. These include divisions such as Campus Services, Research Platform Services, Infrastructure Services, and consist of several Data Analysts and Data Scientists.

You also won't have to be *stuck* in the same position forever! After serving as a Spatial Analyst, you have the option to move around other divisions within the university so your work never gets old or boring. If you ever decide to progress with your career in a different pathway, you'll find that the Spatial Analyst role *opens doors* in sectors including Spatial Systems, Project Management, Data Analyst, and Engineering.

[7] Joins are a type of Database query.
[8] Programming jargon synonymous to "make redundant".
[9] A programming platform that manages code and code related projects similar to Dropbox or Google Drive
[10] The source is the "original" version of the project.
[11] If a project is "live", it means that all data is synced with an online database.