Expectations & First experiences

Dear Professor, I am Yuzhou Chen, a post-graduate student taking part in the Sandwich Program to study for the MSc AGI program. At my undergraduate stage, I majoring in GIS and was lucky to choose one of the classes, The Basic Principles of GIS, lectured by my supervisor. Since then, I have gradually learned about GIS, DEM, and get to know that we can do a lot of research related to GIS, also trying to get access to some resources and issues about Digital Terrain Analysis(DTA), which is exactly what our lab mainly works with now. Soon I was recommended to further my study in my senior year of bachelor, so that I was able to carried out and continue some research works under in the research group.

* **What was your original expectation before starting the MSc AGI?**

Before receiving the letter of admission concerned with the MSc AGI program from Z\_GIS, University of Salzburg, my expectation on my studies at the MSc AGI program fell into several categories. As is mentioned in my motivation letter, I am a person who is passionate about expanding my knowledge. So to learn something new is of the top priority for me while studying in Applied Geoinformatics. My undergraduate GIS program is divided into several directions, and what I majored in is *GIS Theory and Methods*, which mainly introduces the basic theories, analytical methods and application examples of GIS, and I have a relatively shallow understanding of the GIS-related technologies in the Web domain and mobile application development projects. According to my personal development requirements, I have learned C, python and other programming languages, and through self-study to improve, so that I have a certain programming foundation. But this is not enough for my future development. Therefore, before participating in the MSc AGI program, I had already planned my course selection preferences, and I wanted to supplement my shortcomings through my study in Salzburg by mastering GIS services in web scenarios, GIS application development and visualization methods, and by learning related programming languages to enhance my skills. Secondly, I would like to be exposed to more scientific information through the platform of the University of Salzburg, including original books, more complete English literature, and the most relevant and cutting-edge ideas in the research field of our group. Thirdly, I would like to participate in the paper writing courses, especially in the field of GIS, so that I can improve my English paper writing skills through the coursework and the reading of English literature. In my opinion, English paper writing is very different from the papers written in our own language in terms of thinking, language expression and mapping methods. For me who lacks experience in English paper writing, I need to accumulate and learn from my writing experience and seek guidance from scholars with similar research interests. Last but not least, through studying in Salzburg, I was able to relieve some of my pressure and take advantage of the freshness to rejoin my study and work efficiently in the new environment. At the same time, I also realize that English expression is definitely a problem, so I hope to train my English listening and speaking skills through continuous English communication with others during the MSc AGI program, so that I can overcome my anxiety and regulate my daily life. I will also try to understand the requirements for employment in the GIS field abroad to provide new possibilities for career development.

* **Has this expectation become true or is the reality in Salzburg different and, if so, how?**

During the first month of studying and living in Salzburg, I think that almost all my expectations were able to be fulfilled. However, it may still take me some time to learn and understand more deeply about the city of Salzburg and the MSc AGI program. First of all, Z\_GIS provides us with a comprehensive and reasonable course structure, which includes some courses involving GIS development and application, such as basics of software development, spatial simulation, IP: Application Development, etc. Selecting these courses is in line with my original intention to improve my GIS-related programming skills. Of course, other specialized courses are also full of challenges, which lies in the stage of English presentation or introduction. When it comes to the accessibility of research resources, Z\_GIS provides us with a multi-channel platform for accessing resources. One of the most direct ways is that I got to know many knowledgeable lecturers, and reading their published articles became an important part of my daily work, which enabled me to gain a deeper understanding of their research fields instead of just acquiring knowledge from the coursework. Through reading, I also realize that some scholars are working on machine learning, deep learning, and related topics, which arouses my interests. At the same time, our school also provides us with many quality research aids, such as online/offline libraries, 1-year access to office 365 and a license to use ArcGIS Online. After using office 365, I think that it is beneficial for time planning, task execution and planning, faculty/student communication, and synchronization of information on course platforms. However, I was still confused at times when I was first introduced to this work pattern, because I am not familiar with alternating between outlook, MS teams and blackboard platforms, and sometimes I will be a bit overwhelmed when I am faced with a large number of emails, which does need some time to get familiar with. Thanks to Z\_GIS for providing us with a license for the ArcGIS Online platform, which has a full range of map services and access to online resources such as study groups, maps, training courses, living atlas, etc. When it comes to the improvement of my English When it comes to the improvement of my English paper writing, I enrolled in the course called *Scientific Methods & Writing*, I believe that after the guidance of lectures and corresponding homework training, my English paper writing can be improved. Apart from the studies, in my social and living life, I feel that Salzburg has helped me a lot. Salzburg is a really beautiful city with a quiet and refreshing atmosphere, which relieves me from the accumulated stress, and allows me to settle down and keep my mind active without too much distraction, since most of the work plans are organized and can be carried out in an orderly manner. I was also fortunate enough to meet classmates from all over the world, such as Austria, Bulgaria, Germany, Armenia, etc. They are happy to shared their attitudes and ideas toward life and studies with us, which is always surprising and eye-opening. I am also glad to be able to participate in many parties or hiking activities organized not only by PLUS, but also by student dormitories and student unions, which provide us with opportunities to learn about the local culture. In contrast, my past research and life was slightly stressful, which sometimes prevents me from generating new research ideas. Despite the pressures of studying at MSc AGI, I believe that I will be able to strengthen my self-discipline during this valuable period of time, leaving more time for study and self-improvement, and adjusting my irregular routine in life.  
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After a month in Salzburg, I think most of my expectations have been met, yet a deeper understanding of the city and the MSc AGI program will take time. Z\_GIS offers a structured curriculum covering GIS development, software basics, spatial simulation, and IP application development, aligning with my goal of enhancing GIS-related programming skills. While specialized courses present challenges, particularly in English presentations, engaging with professors' published work has deepened my understanding beyond coursework. Discovering scholars delving into machine learning and related topics has piqued my interest. Access to research resources through Z\_GIS's multi-channel platform, including knowledgeable lecturers and extensive articles, has been instrumental in my daily work. The provision of research aids like online/offline libraries, 1-year access to Office 365, and an ArcGIS Online license has proven beneficial. However, transitioning between Outlook, MS Teams, and Blackboard platforms was initially daunting, and managing a flood of emails demanded adaptation. Utilizing Office 365 has facilitated time management, task execution, communication, and information synchronization, yet adapting to this work pattern took time. The ArcGIS Online license provided by Z\_GIS is a valuable resource with comprehensive map services, study groups, training courses, and access to online resources. Enrolling in the Scientific Methods & Writing course to enhance my English paper writing skills, I anticipate marked improvement under the guidance of lectures and corresponding homework training. Beyond academia, Salzburg's serene atmosphere has alleviated stress, enabling focused work while enjoying the city's beauty. Interacting with classmates from diverse backgrounds—Austria, Bulgaria, Germany, Armenia—has broadened my perspectives on life and studies. Participating in social events and hiking activities organized by PLUS, student dormitories, and unions has offered insights into local culture. While past experiences were somewhat stressful, Salzburg's environment encourages a more settled and focused mindset. Despite the pressures of MSc AGI, this period offers an opportunity to enhance self-discipline, allowing for increased study and personal growth while adjusting to a more structured routine.

* **What was the focus in your previous study and how is this related to the MSc AGI?**

My previous work focused on the study of DEM data and DTA methods. One of the fields of my research is soil erosion on the Loess Plateau. Some regions in our country are suffering from severe soil erosion in the past few years. In order to reduce the intensity of soil erosion, we have tried many ways to solve this problem. Some people found that, terrace farming has become a good way to conserve soil and water. I am trying to quantitatively evaluate the impact of these terracing projects on soil conservation, based on RUSLE model and high-resolution DEM. I want to publish a paper on this research, but I know that just calculate the changes on soil erosion is not enough. By reading some paper related to my study, I noticed that the morphology of terraced fields and the type of vegetation may influence the result, so I should take more factors into account and further my research in the future. Another study I am working on is based on the DTA methodology. As is shown in the motivation letter. This research idea was originated from the geomorphic classification research in the DDE project. And the experimental area are located in the west Australia land, which contains thousands of linear dunes differ significantly from common sand dune landforms elsewhere. Unlike relatively flat depositional substrates commonly seen domestically, regions like the Great Sandy Desert (GSD) in Australia exhibit gentle hills and low mountain-like forms as the terrain base. Therefore, I am attempting to design a model called VoSG-SDA to solve this problem. Both studies are based on terrain analysis methods and are closely related to the *Methods in Spatial Analysis* in the MSc AGI program. In addition, during my undergraduate studies, I was exposed to the Lisflood-FP model, a simulation model for large-scale watershed floodplains developed at the University of Bristol, UK. In collaboration with other fellow students, I selected the Huaihe River Basin in China as the study area and proposed to study the population's exposure to floods of simulated intensity in this basin based on the Lisflood model, using the DEM and the population distribution raster as the base data. I am mainly responsible for the operation part of the model. This research is closely linked to the GIS programming and visualization methods in the MSc AGI program and has some relevance to the spatial simulation course. In the spare time of conducting the above research, I also spent 1 month to learn the basic theory of deep learning, the process of mathematical formula derivation and the python deep learning implementation scheme based on package named Pytorch. Through self-learning, I used a general understanding of deep learning principles and applications and began to focus on the available areas of deep learning methods. Considering my mentor's suggested research direction is geomorphology + cities, I would like to integrate the above with deep learning methods to explore new applications. The above learning content is related to the digital earth citizens project in the MSc AGI program, and some researchers in Z\_GIS are also exploring the cutting-edge applications of deep learning, I am hoping to gain the opportunity to communicate with related researchers through my study in Salzburg, so as to open up my research ideas in related fields.

* **Which parts of the MSc AGI are new for you?**

Although many of my expectations for the MSc AGI program turned become true, there were still some parts that were new to me:

1. Master softwares like outlook. In our country, communication between lectures and students is usually done through social media, which makes communication timely but exposes us to potential stress. Outlook, a fusion of an email platform and a calendaring system, allows for a more formalized notification of classes. But sometimes I get a little overwhelmed by the sheer volume of emails.
2. Opportunities to communicate with others peers from all around the world.
3. The teaching methods, learning and discussion atmosphere in class, where we can come up with some requests considering our own situation.
4. Some course patterns, like what in *Orientation and Introduction*. These courses are similar to lectures, yet interactive and challenging for us.
5. Course framework. Many courses may start straightly into the core point, not dwelling too much on theoretical explanations.
6. Access to the online platforms and maps without additional efforts.

However, at the same time, there is one thing similar to my previous study, which is pressure. In the MSc AGI program, the pressure comes from the requirements to master new knowledge and cope with the deadline of coursework. While the pressure in China mainly falls into the research tasks from research group. There is no much difference between these two kinds of stress, which only lies in the forms.

* **Finally, what do you have in mind to do after the MSc graduation and how will this MSc qualify you for the job market ?**

In fact, in our country, some internet companies and the GIS industry and mapping industry, are experiencing some degree of downsizing, that’s why we need to be attentive to our studies. I have set a few options for myself for future work. First, to work as a web platform GIS application development engineer in an organization, I personally tend to be a back-end JAVA developer. As a current post-graduate student, I have wrapped up 4 years of learning GIS techniques and computer skills, thus having a good understanding of development work and can learn new knowledge on my own. Through courses’ guidance and self-study, I will focus on improving my back-end development skills, understanding the general requirements of full-stack development, strengthening my GIS development skills, and improving my competitive edge during my MSc AGI studies. But if I can well complete my current research and publish new papers, I will apply for a PhD and apply for the CSC study abroad program in our country to get another opportunity to go abroad. This is a choice based on the availability of academic resources, the atmosphere of academic exchanges, and the competitiveness of employment, which requires me to improve my determination and build a deep research foundation for myself. Additionally, I am sometimes considering becoming a high school teacher because I actually have the initial ability to teach high school geography subjects, which is in line with my personality because imparting knowledge is an enjoyable process for me.

So, how will this MSc qualify me for the job market? I think the most important thing is that, through this MSc program, I will supplement my basic knowledge in the field of GIS, which will enable me to have a professional knowledge system, and understand how to get access and use online map resources, and also enable me to master the secondary development of GIS applications on the web or mobile devices. At the same time, regular weekly coursework and assignments will develop my ability to acquire and process information, thus improving my stress tolerance. Nowadays, the job market not only requires competence on professional knowledge, but also relies on the information gap to differentiate the overall competence of the prospective job seekers, so the relatively heavy coursework and requirements during the MSc program will enhance my ability to analyze the instant information when I participate in the recruitment of the industry in the future. Finally, I believe that the continuous presentation training and daily academic seminars in the MSc program will help me overcome my timidity and improve my communication skills in English, so that I can have more opportunities to present myself in my future career.

Yuzhou Chen