

Please briefly describe why you feel you are equipped to undertake this role and how your prior experience, skills, knowledge or qualifications have helped you to develop the competencies outlined in the advert (SE):

I believe I am equipped to undertake this role as I have gained suitable knowledge and skills during my time at university and from work experience. Almost all courseworks and projects undertaken at university have utilised object oriented techniques such as inheritance, encapsulation, and polymorphism. Whenever I plan a new piece of software I always aim to use OOP as I believe it is a powerful tool to create dynamic, well structured, and logical pieces of software. Multiple projects and modules which I have completed used C++ or Java as their main language and utilised their OO capabilities.

I have completed multiple modules which have covered UML including the various diagrams and documents it can produce. In planning my own courseworks and projects I have turned to UML as an aid, particularly state diagrams as they help me visualise how the software will operate. When writing code I always strive for it to be as robust and readable as possible, I find this saves time and effort in later stages of development.

From working as a bicycle mechanic and completing projects within a group at university I have learnt to communicate my ideas effectively, apply my time suitably to tasks, and produce efficient solutions to problems when they arise. Working as a mechanic had a large part in developing my current work ethic which I have applied to university study and had it prove successful.

TEST:

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I have used the software management tool Perforce during my summer internship. The tool was used to track code changes and provide code review functionality. I also went through the process of adding a new utility into the main software and managing this utility for the remainder of the internship. I have used various code analysis tools and profilers, mainly to improve the performance of Python code.

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Please explain why you would like to work for Leonardo MW Ltd, the reasons for your career choice and how your skills/abilities make you particularly suitable for the role that you are applying for.

I decided to pursue my career as a software developer as an alternative to the bicycle industry. With my work being so closely related to my main hobby of mountain biking, it

was causing me to view my hobby as work and no longer enjoy it. I have been interested in computers for a long time and in machines or technology for even longer so producing software to control real time systems appealed to me greatly.

I enjoy the problem solving aspect of software. Creating a system which has a physical effect on an object to complete a task or solve an issue and utilising up to date tools and technology to do this interests me. As such I have been experimenting and creating with the Arduino platform for a few years now. I have mostly produced devices relating to my hobbies and interests with a view to improve performance in those areas.

I would like to work for Leonardo as I am extremely interested in the aerospace industry and as leaders in that field they would be a perfect starting point for my career. I believe the future of humanity lies in space travel and to gain the possibility of being a part of this and related projects brings out a childlike excitement in me.

Please give details of your final year project

Titled "Calculation of Mountain Bike Suspension Setup through Mobile Image Analysis" my project is an investigation into the ability of smartphone cameras and their suitability to produce accurate measurements from images. Applying this to mountain bike suspension potentially gives us the ability to remove some of the "dark art" which surrounds suspension setup and allow beginner or intermediate riders to tune and improve their suspension by using a mobile application.

If suspension setup is incorrect it can damage expensive componentry and in some cases cause the rider to crash and sustain injury. From my time as a mechanic I have seen many bikes with the suspension setup wrongly and yet the rider being oblivious to this. Providing an easy method of adjusting and monitoring their bike will remove unnecessary risk and improve enjoyment of the sport.

The deliverable for the project will be a mobile application built for the Android platform which asks the user to take images of either their full bike or individual suspension units while also providing attributes about themselves to produce suggestions for preload, compression, and rebound settings. As the project is in its early stages, the exact method is unknown. So far I have been investigating methods of image analysis and refining the project context including discussions with the Mountain Bike Research Centre of Scotland.

Competency - Collaboration and Teamwork and Innovation. Considering your current / recent studies, previous work experience or group activities please outline a change or solution you came up with and implemented as part of a team. Please explain the objectives and why you felt this change / solution was appropriate and beneficial

During my first year at university I was involved in a project to create a small web game based on a brief using JavaScript, HTML, and CSS. The project had to be designed, implemented, tested and presented in a week by a group of 6 people. Initially I chose to do some of the coding and design tasks with other members in similar roles and one team member assigned as team leader. The leader's role was to assign tasks, manage the project, and report to the module leader each day with what the team had done and had left to do.

On the second day of the project, our team leader made it known that he was not up to the

role and would be more suited working with HTML. The team decided that I would be best suited to take up the job as team leader as I had the most experience with leadership and project management, particularly using Microsoft Project software. This was beneficial because each team member was working to their strengths, making the team as efficient as possible.

Competency - Achieving Excellence in Performance. What role were you asked or did you choose to play within the team? How did you involve others to ensure success?

My role in the team was team leader. In this role my tasks were to identify tasks which needed to be carried out to complete the project and assign these tasks to appropriate team members based on their strengths. As we were made up of a mix of computing and design students each member had skills which they excelled. I managed the project using Microsoft Project, this let me keep track of where each team member was up to and what they would be required to do next. I arranged team meetings for times when every member was available and chaired these meetings. Finally I reported to the module leader with everything the team had done that day and the tasks which would be carried out in the next. I involved others by ensuring they were working to their strengths and facilitating clear communication between the team members.

How did you evaluate and measure the success?

We evaluated success of the project by using the original brief that we had been working to and the features we had planned for the product to include. Once the project was finished we compared the finished product against these two things. We looked to see if the product met all the requirements in the brief, which it had, and did it have all the features we had planned including any additional enhancements which were not requirements from the brief. Further evaluation was to assess if the product was usable, were there any bugs remaining in the code and could you play the game successfully. We also evaluated the success of the team as a whole. All the tasks had been carried out by each member correctly with minimal delays and there had been no conflicts within the team.

As this was a graded project, the measure of success was was the mark we received at the end of the presentation. The team was awarded 75% for the project which was above average.

Competency - Developing Self and Others. Looking back, what did your approach to the above reveal about your strengths and development needs? What would you do differently if faced with the same situation again?

From my approach it was revealed that I was strong in a role involving leadership and organisation. I was able to easily identify the tasks required, appropriate team members to carry them out and communicate what each task involved to the member which it had been assigned. I could also cope well when put under pressure, as the project was to be completed within a week.

If I was faced with the same situation again I would ensure the team gained more practice with the presentation. This was possibly the main downfall of the project, due to a member being absent from the practice session and with there only being 1 hour assigned to the session. If the team had more time for this, it could have gone more smoothly. I would also stress the importance of the regular meetings to the team. Some members missed quite a few meetings meaning they would have to be brought up to speed with where the project was at and what tasks they had been assigned.