3 minutes: 400 words

Introduction (20% - 80 words): Summary of the activity and who you will be working for. Tell us a litter about yourself.

Hello, I am Bao, a third-year computer science student and this is my video presentation for the Internship course. Current I am working as an Engineer Intern at ElectraNet.

So, what is ElectraNet? We are a private company that operate South Australia’s high-voltage electricity transmission network. At ElectraNet, we focus on power people’s lives, connect people, and create a better future with energy and infrastructure solutions.

My main project is to investigate imputation strategies for ElectraNet to employ when weather data is missing.

Things you’ll be doing (40% - 160 words): What has been planned for you to do, what do you think might happen with your tasks.

The project can be divided into 3 major tasks:

* Develop a sound understanding of the causes of data missingness in ElectraNet’s weather data
* Investigate, and propose suitable data imputation techniques to appropriately recreate data that is missing or corrupted.
* Propose data quality checks that can run on the weather data server to identify and raise an alarm in real-time where a given weather station is failing

In this project, I will use SQL to queries weather data from server, Python to visualize and explore the data as well as implement and validate imputation methods.

At the end of the project, I will draft and finalize a report on my work. This will be the base for my presentation of the result.

What you hope to get out of it (40% - 160 words): What would be the best outcome from this? Which skills or knowledge do you want to develop?

This internship is an amazing opportunity for me to develop my technical skills, grow my soft skills, and gain valuable experience working in the professional environment if I can make the most out of it.

My focus would be to achieve the desired outcomes for the project, or even better, I could extend the scope of this project to address some potential problems with weather data at ElectraNet. In addition, I can practice what I have learned from the university courses as well as broaden my knowledge in data science.

Aside from that, this is a good chance to expand my professional network. Furthermore, I can grow my communication and teamwork skills while working with my supervisors and colleagues. I can also learn from some career tips and mindset from some of the very best in the industry.

And that is the end of my video presentation. Thank you for listening!

The project will investigate imputation strategies for ElectraNet to employ when weather data is missing from a line. These imputation strategies will be demonstrated and validated on ElectraNet data

The intern will prepare and visualise weather data provided by ElectraNet over time and space, and identify patterns in the missingness (spatially or otherwise) prior to analysis. The intern will then identify a subset of the weather data that is complete or mostly complete for testing interpolation methods on by intentionally deleting some values . The intern will perform a literature review to identify potential data interpolation techniques. The intern will apply two interpolation techniques to the testing set and compare their performance.

It is recognised that flexibility will be needed in addressing the project after exploration of the data the direction and methods may change and a core requirement will be the ability and agility to adapt if this is the case.

Outputs:

* Working and documented code to detect missingness in a data set and impute data.
* A user guide for the code
* A written report providing both a high-level summary and a more detailed analysis discussing the methodology and statistical techniques for interpolation, and any recommended next steps
* A presentation of result near the end of the project, possibility in a seminar

Anticipated outcomes:

* Recommendations on suitability of interpolation techniques
* Recommendations on future research priorities