University of Essex Online

MSc Artificial Intelligence

Research Methods and Professional Practice

End of Module Assessment: Individual Reflection

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Reflection of Module

Introduction

This reflection is based on my learning and development throughout the Research Methods and Professional Practice module. The module required me to engage not only with technical research skills, but also with ethical reasoning, methodological integrity, and professional responsibility within computing and AI-related contexts.

For this reflection I am going to look at the **What?**, **So what?** and **Now what?** reflective framework. This reflection evaluates the knowledge and skills gained, their significance for my academic and professional development, and how they will inform my future practice, particularly in relation to my MSc Computing Project and my professional role in the technology domain.

What?

During this module, I engaged with a broad range of research-related activities, including ethical case analyses, academic discussions, literature review development, statistical analysis exercises, business-oriented data visualization, and the preparation of a formal research proposal.

Early discussions focused on professional ethics, particularly through case studies such as inaccessible software design, biased machine learning systems, and data misuse. By analyzing these cases using the ACM and BCS Codes of Conduct, I explored how ethical failures often arise not from technical incompetence, but from organizational pressure, poor governance, and misaligned incentives. The discussions I had with my peers highlighted that compliance with formal rules alone is insufficient if professional judgement and accountability are lacking.

As the module progressed, I did a short literature review on the gender pay gap in the Swiss technology sector and also an outline for a possible MSc Computing Project Thesis. This process strengthened my ability to define research scope, evaluate competing explanations in the literature, and synthesize quantitative and qualitative findings within appropriate theoretical frameworks.

In parallel, I worked on statistical analysis tasks and data visualization exercises, including the use of Power BI, which reinforced the importance of clarity, transparency, and audience awareness when communicating analytical results.

The final stages of the module involved preparing a research proposal and reflective assessment. This required integrating methodological choices, ethical considerations, and feasibility constraints into a coherent research design.

So what?

The significance of this module lies in how it reshaped my understanding of research integrity and professional responsibility in computing. Previously, I tended to view ethics as an external constraint and thus as something addressed through compliance or post-hoc review. This module made it clear to me that ethical considerations must be embedded throughout the whole research lifecycle, from question formulation to data analysis and the final reporting.

One of the most impactful insights was the concept of analytical flexibility and its ethical implications. Through discussions on selective reporting and the “garden of forking paths,” I recognized how easily technically valid analyses can become ethically problematic when transparency is lacking. This is a topic I want to focus more on as it reframed my understanding of research misconduct. To summarize it, ethical failure does not require data fabrication, but it can emerge through omission, framing, or strategic ambiguity.

The module also strengthened my critical research skills. Developing a literature review required me to move beyond simply summarizing sources and instead start to think more about contradictions, limitations, and gaps in existing research. Especially as the topics I chose for the literature review but also the research proposal both showed me that literature availability is very limited depending on your topic.

From a professional perspective, the emphasis on governance, accountability, and stakeholder impact resonated strongly with my experience in industry. The module

highlighted parallels between academic research integrity and real-world technology development, particularly in AI-driven systems where outcomes can have significant social consequences.

Now what?

Going forward, the insights from this module will directly help me for both my MSc Computing Project and my professional practice. Methodologically, I will adopt a more explicit and transparent approach to research design, including clearer distinctions between exploratory and confirmatory analysis, thorough documentation of assumptions, and explicit discussion of limitations and contradictions.

Ethically, I intend to treat responsibility as an active practice. This means anticipating how results may be misused, communicating uncertainty clearly, and resisting pressures to selectively present findings. These principles will be particularly important as I move into more advanced AI-related research, where the consequences of poor governance or misleading analysis can be immense.

Professionally, this module has reinforced the importance of ethical leadership within technical roles. Whether in research, architecture, or system design, I aim to contribute to environments where transparency, accountability, and critical reflection are valued alongside innovation and efficiency.

In summary, Research Methods and Professional Practice has provided a foundation that extends beyond academic assessment and prepared me for my MSc Computing Project.