Self-Introduction

- **Briefly introduce yourself, the department and school that you are in.**

I am **Dr. Melvin Chen**, a member of both the NTU Philosophy Programme **(School of Humanities)** and the **NTU University Scholars Programme**.

Elaboration

- **Share with us what is your research project.**

My research project involves an interdisciplinary collaboration with a physicist-colleague, Assoc. Prof. Chew Lock Yue (School of Physical & Mathematical Sciences). Our project, entitled 'A Tale of Two Deficits: Causality & Care in Medical AI', is generously funded by the intramural ACE grant and our aim is to address both the causality deficit and (in the longer term) the care deficit in the design of medical AI systems.

- **What inspired you to embark on this research project?**

Given certain demographic trends (viz. ageing population, declining birth rates) and the growing pressure on the healthcare industry, it is anticipated that medical AI will play an increasingly prominent role in healthcare. However, the optimism of AI researchers must be balanced against certain humanistic ideals about healthcare and certain deficits in state-of-the-art AI systems. While Lock Yue and I anticipate that our work will end in heroic failure, we were inspired by the desire to find this balance and determine how far we could go in addressing the causality and care deficits.

- **What is/are the most interesting finding(s) of this project?**

While this project is still ongoing, we have been pleasantly surprised by the amount of ground that we have covered and the level of mutual understanding that can be reached between a philosopher and a physicist. We realize that the interdisciplinary bent of our project, established from the outset, has facilitated the swift development of our computational methods from sound theoretical foundations in philosophy. Aspects of our research have appeared or are due to appear in *Philosophy & Technology*, the *Live with AI White Paper*, the *AI + X Workshop* (NTU), the *Transform MedEd Conference* (NTU), and the *AI & Society Conference* (Cambridge).

- **How do you think your research can impact society?**

It is Lock Yue's and my hope that our research can (i) shed more light on how medical AI technologies might be appropriately implemented in the Singaporean context and (ii) function as a salutary example of how interdisciplinary research might be conducted. More generally, we hope to raise awareness of the possibilities and limitations attending the design and implementation of medical AI as an alternative mode of healthcare.

Future Plans

- **Tell us about your future research plans and if you are looking for any research collaborators!**

We have a pseudo-code schema and are in the process of securing a health dataset for the purposes and algorithmic coding and testing. Once we have tested and refined our algorithm in data-poor settings, we hope to progress to a more data-rich setting and work with more representative datasets. We are currently looking for research collaborators with an M.D. background who might be able to provide more information about webs of causation in the medical domain and offer critical evaluation during the testing phase of our algorithm. We are also looking to hire a Research Fellow with a background in Python programming to assist us on the algorithmic front when our project reaches its mature and more data-rich phase.

In the longer term, we hope to enlist the support and assistance of robotics researchers when we eventually turn our attention to the care deficit in medical AI systems.