Thesis Project Portfolio

Leveraging Technology for Tax Solutions: A PwC Internship Experience

(Technical Report)

Integrating Ethics and Innovation: Navigating the Future of Artificial Intelligence in Healthcare

(STS Report)

An Undergraduate Thesis

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Executive Summary

My position with PricewaterhouseCoopers (PwC) in tax technology solutions and my academic research on ethical AI in healthcare together highlight the profoundly transformative potential and ethical aspects of AI applications in the dynamic intersection of modern technology and healthcare. While the two projects deal with different domains—the theoretical analysis of AI's ethical implications in healthcare and the practical development of tax technology tools in a professional setting—together they highlight how crucial it is to balance technological innovation with ethical and societal concerns.

During my time at PwC, I made a focused effort to tackle the challenges that come with tax data analysis, with the goal of greatly increasing the accuracy and efficiency of PwC's and its clients' tax-related duties. In order to help clients make better informed and efficient decisions, I created and implemented five complex web application widgets to help sort through the many nuances of tax data. In addition to technical execution, this project aimed to provide solutions that would satisfy the complex needs of tax professionals and their clients, resulting in a tax analysis process that is more effective and efficient. The process of developing these widgets involved a great deal of cross-disciplinary cooperation, which guaranteed a thorough comprehension of the business requirements that shaped our clients' demands. This knowledge was essential for customizing the widgets to solve certain problems and cut down on the time and effort needed to process tax data. The purpose of the widgets is to revolutionize the tax consulting and compliance industry by giving clients quick and precise insights into their tax obligations and prospects. In the future, the emphasis will be on improving these tools even further, progressively improving their usability and functionality in response to user input and the changing tax technology landscape.

The STS Research Paper looks into the essential conversation around the ethical use of AI in the healthcare industry. It asks how AI may be used to improve patient care and diagnostic accuracy while also protecting data privacy and maintaining algorithmic fairness. Based on the Social Construction of Technology (SCOT) concept, this investigation presents AI technologies as products of the interaction between technological capabilities and social influences. It highlights how crucial human actors have been in influencing how AI is integrated into healthcare systems, from patients and healthcare professionals to legislators and tech developers. This research paper delves into the ethical complexities that come with artificial intelligence's growing role in healthcare, arguing for a well-rounded strategy that takes advantage of AI's promise for innovation while carefully navigating the ethical dilemmas it raises. The research offers significant insights for promoting AI applications that are not just theoretically sound but also ethically grounded and in line with broader social values by critically analyzing the interaction between technological progress and cultural norms.

Developing tax technology tools in practice at PwC and researching ethical AI in healthcare theoretically provided a rare dual viewpoint on the relationship between technology and society effects. The Capstone Project gave students actual experience developing technology-based solutions and emphasized the value of client-centered design and usefulness. On the other hand, the STS Research Paper provided a more comprehensive and thoughtful analysis of the moral implications of technology, especially artificial intelligence (AI), in the delicate field of healthcare. This concurrent interaction brought to light the critical significance that ethical issues play in the development of technology. It demonstrated how ethical principles may be applied to real-world technological development difficulties, promoting an innovation-driven development ethos that puts societal well-being first. I developed a thorough

grasp of the significance of incorporating ethical foresight into technical innovation by navigating the complexities of adopting technology in the Capstone Project and exploring ethical analyses in the STS Research Paper.

This integration of theoretical research with real-world application highlights the importance of a multidisciplinary approach in the creation and implementation of technology. It encourages the development of solutions that are not only technologically sophisticated but also morally and socially beneficial, making sure that the advancement of technology coexists with the values of justice, privacy, and equity.