Machine Learning – Introduction to Machine Learning (Unit 1)

Overview of the Module Unit

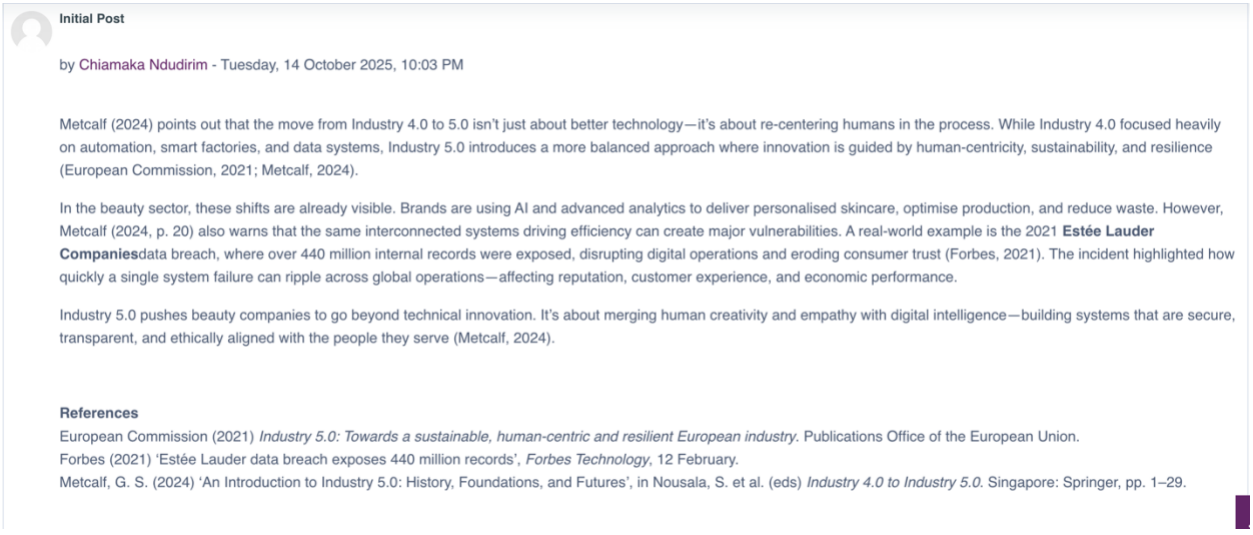
This module introduced the foundations and relevance of machine learning, its link to big data and AI, and the evolution of algorithms. Through teamwork, e-portfolio tasks, and weekly discussions, we applied these ideas in context. The Industry 4.0 session (Schwab, 2016) helped frame how digital transformation is already reshaping industries.

What I Have Learned

I've come away with a clearer understanding of the main categories of machine learning and how it's used in different industries. I now know more about the skill sets needed to get into this field, and I'm more aware of what can influence how machine learning models perform. The lectures and collaborative activities helped me see the bigger picture—how data, algorithms, and industry needs all connect. Working through the team project and setting up the e-portfolio also helped me stay organised and apply what we're learning in a more hands-on way.

Collaborative Discussion: The 4th Industrial Revolution

My post responds to Metcalf's (2024) article on Industry 5.0, which shifts the focus from pure automation to more human-centred, ethical, and resilient systems. I looked at how this is emerging in the beauty industry through AI-driven personalised skincare and sustainability. I also discussed the 2021 Estée Lauder data breach as an example of how poor information system management can damage trust and reputation. Metcalf (2024) stresses that advanced tech must serve people—not just efficiency. Below is a screenshot of my full post.



Initial Post

by Chiamaka Ndudirim - Tuesday, 14 October 2025, 10:03 PM

Metcalf (2024) points out that the move from Industry 4.0 to 5.0 isn't just about better technology—it's about re-centering humans in the process. While Industry 4.0 focused heavily on automation, smart factories, and data systems, Industry 5.0 introduces a more balanced approach where innovation is guided by human-centricity, sustainability, and resilience (European Commission, 2021; Metcalf, 2024).

In the beauty sector, these shifts are already visible. Brands are using AI and advanced analytics to deliver personalised skincare, optimise production, and reduce waste. However, Metcalf (2024, p. 20) also warns that the same interconnected systems driving efficiency can create major vulnerabilities. A real-world example is the 2021 **Estée Lauder Companies**data breach, where over 440 million internal records were exposed, disrupting digital operations and eroding consumer trust (Forbes, 2021). The incident highlighted how quickly a single system failure can ripple across global operations—affecting reputation, customer experience, and economic performance.

Industry 5.0 pushes beauty companies to go beyond technical innovation. It's about merging human creativity and empathy with digital intelligence—building systems that are secure, transparent, and ethically aligned with the people they serve (Metcalf, 2024).

References

European Commission (2021) *Industry 5.0: Towards a sustainable, human-centric and resilient European industry*. Publications Office of the European Union.
Forbes (2021) 'Estée Lauder data breach exposes 440 million records', *Forbes Technology*, 12 February.
Metcalf, G. S. (2024) 'An Introduction to Industry 5.0: History, Foundations, and Futures', in Nousala, S. et al. (eds) *Industry 4.0 to Industry 5.0*. Singapore: Springer, pp. 1–29.

Reference

Metcalf, G.S. (2024) in Nousala, S. et al. (eds) *Industry 4.0 to Industry 5.0*. Springer.