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 now better understand the main types of machine learning, the skills needed, and the factors that affect model performance. The lectures and activities showed how data, algorithms, and industry needs connect. The team project and e-portfolio helped me apply this knowledge practically and stay organised.

Collaborative Discussion: The 4th Industrial Revolution

My post responds to Metcalf's (2024) article on Industry 5.0, highlighting its shift toward ethical, human-centred systems. I explored its impact in the beauty industry through AI-driven skincare and discussed the 2021 Estée Lauder data breach as a cautionary example. A screenshot of my full post is below.

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.