Unit 8 seminar preparation - Emerging Research in ANN

Business applications of Artificial Neural Networks

Task: "Read the article by Mach (2021) and pick one area that interests you or have experience with. Note down your views on the use and impact of ANN on the selected area."(Pruciak, 2021)

Healthcare:

- Deep learning algorithms employed by IBM Watson and other similar super computers to digest medical literature and propose diagnosis/treatments

- Similar approaches tested recently with LLMs

- Generally able to replicate results of human clinicians in constrained scenarios, particularly imaging; but for broader clinical scenarios (namely decision making), many questions/concerns as to whether they are in fact capable of processing information in a way one could consider as "knowledge" or whether they just repeat word patterns found in the literature

Concerns about the use of AI in personal insurance

Task: "Read the snapshot paper by the Centre for Data Ethics and Innovation on AI and Personal Insurance. As a customer, note down your concerns about use of AI in personal insurance."
(Independent report: Snapshot Paper - AI and Personal Insurance, 2019)

Privacy:

- Cost influenced by amount of data collected on each person, therefore pressure to provide more data (especially as the kind of data needed to refine prediction models would need to include detailed information on personal habits, e.g. activity from wearable devices, geolocation for driving routes, health choices, etc)

Hyperpredictive models and potential for misclassification:

- Customers potentially being barred from getting insurance due to previously unknown risk factors, which may not be alterable; at the same time, the possibility of small predictive errors having large impacts in cost or lack of access to insurance, particularly for demographics poorly represented in the underlying datasets used for training

Nudging:

- Insurance providers using the predictive capabilities of AI and the corresponding influence in price to alter customer behaviour in unacceptable ways (and without oversight into possible underlying interests embedded in insurance companies, including political and others)

References:

Independent report: Snapshot Paper - AI and Personal Insurance (2019). Centre for Data Ethics and Innovation. Available from: https://www.gov.uk/government/publications/cdei-publishes-its-first-series-of-three-snapshot-papers-ethical-issues-in-ai/snapshot-paper-ai-and-personal-insurance (Accessed: 15 December 2024).

Pruciak, M. (2021) *10 Business Applications of Neural Network (With Examples!)*. Available from: https://www.ideamotive.co/blog/business-applications-of-neural-network (Accessed: 15 December 2024).