Opening Statement to Joint Committee on Enterprise, Trade and Employment Committee.

Artificial Intelligence in the Workplace

Professor Gregory O'Hare

Whilst Artificial Intelligence has garnered heightened interest in recent months, it is a technology that has existed for some considerable time. The origins can be traced back to none other than Alan Turing when in 1950 in a seminal paper entitled *Computing Machinery and Intelligence* he postulated how to construct an intelligent machine and significantly how one might attest to the existence of such intelligence. The latter became known as the *Turing Test*.

Some 5 years later a Dartmouth Summer Research Project on Artificial Intelligence hosted by John McCarthy and Marvin Minsky in 1956 organised a conference that was to become a key milestone. At this conference Allen Newell, Cliff Shaw, and Herbert Simon, presented their *Logic Theorist* which sought to mimic human problem solving, and, is considered to be the first artificial intelligence program.

Interestingly the subsequent journey for Artificial Intelligence has witnessed twists and turns with many false dawns and unrealised promises counterbalanced by many landmark moments. Exemplars of the latter include:

11th May 1997	IBM's DeepBlue defeats reigning world chess champion Garry Kasperov;
8th Oct. 2005	A Stanford designed vehicle wins DARPA grand challenge of autonomously driving 211 kilometres across the desert;
25th May 2017	Google's Deepmind AlphaGo defeats world number 1 ranked Go player Ke Jie;
12th October 2017	David Hanson's humanoid robot *Sophia* granted citizenship of Saudi Arabia;
30th Nov 2022	OpenAI release ChatGPT an open source generative AI Tool;
27th & 28th March 2023	Deep fakes of Donald Trump being arrested and Pope Francis in White Puffer Jacket go viral;
17th April 2023	Boris Eldagsen's AI generated work entitled *The Electrician* won the Sony World Photography Awards;
18th April 2023	*Heart on My Sleeve* a generative AI track purported to be a collaboration between Canadian music superstars Drake and The Weeknd is released online and goes viral;
1st May 2023	Geoffrey Hinton, 2018 Turing Award winner and father of Deep Learning resigns from Google, to enable him to *'freely speak out about the risks of AI'*

An tOllamh Gregory O'Hare
Ceann, Scoil na hEolaíochta Ríomhaireachta
Agus na Staitisticí Ollamh na Ríomhaireachta Físiúla

Professor Gregory O'Hare
Head, School of Computer Science and Statistics
Professor of Artificial Intelligence

Scoil na hEolaíochta Ríomhaireachta agus na Staitisticí
Coláiste na Trínóide, Baile Átha Cliath,
Baile Átha Cliath 2, Éire.

School of Computer Science and Statistics
Trinity College Dublin,
Dublin 2, Ireland.

+353 1 896 1765
enquiries@scss.tcd.ie
www.scss.tcd.ie

AI is a profoundly *disruptive* technology. History is strewn with examples of *technological anxiety* which accompanies key advances like that of the wheel, loom, printing press, combustion engine, mobile phone, robotics, gene-editing and now artificial intelligence. This latest generation of AI, Generative AI as typified by ChatGPT, (Generative Pre-trained Transformer) are underpinned by large language models (LLM) built and subsequently refined using *both* supervised learning and reinforcement learning with human feedback (RLHF) techniques. While such models do not *understand* their inputs they are nevertheless able to establish statistical patterns and learn correlations from datasets of unimaginable scale that enable them to generate content that exhibits contextual relevance and appropriateness.

ChatGPT in amassing over 100 million users in 2 months is *the* fastest growing technology in history. By way of comparison the time taken to reach 100 million users by mobile phones was 16 years, iTunes 6.5 years, Twitter 5 years, Facebook 4.5 years, and TikTok nine months[1].

Generative AI differentiates itself from previous AI offerings in that it is originates content. Previous AI technologies typically inferred correlations, identified heuristics, provided recommendations, detected faults or performed diagnosis. These technologies resulted in automation and robotic deployments typically addressing physical and assembly line tasks and predominantly displacing blue collar workers, while assistive/advisory technologies typically complimented white collar workers enabling their performance of tasks faster and/or more accurately.

Generative AI in contrast *is* giving birth to new content and will have far reaching effects upon knowledge and white collar workers. Professions like journalism, media, the law, academia, marketing, architecture, engineering and the creative industries will all be profoundly affected. In a recent Goldman Sachs Report[2] of March 2023, they conclude that two thirds of US occupations will be impacted to some degree by AI empowered automation and generative AI could replace one fourth of all work related tasks. Specifically they predict some 44% of legal tasks being automated.

New businesses are already emerging, examples include companies such as: Anthropic, Deeper Insights, Stable Diffusion, Cohere and Stability AI. Such companies offer services by which to train generative AI on proprietary datasets generating new rich mixed media content. A 2023 Littler report[3], which interestingly attributes ChatGPT as a co-author, points to the emergence of new roles like *prompt engineers* with skills to craft queries which will induce highly relevant and accurate responses from generative AI platforms.

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[1] World of Statistics @stats_feed, Mar. 4, 2023

[2] Briggs, J. & Kodnani, D., The Potentially Large Effects of Artificial Intelligence on Economic Growth, Goldman Sachs Economics Research, March 26th 2023.

[3] Littler Report, An Overview of the Employment Law Issues posed by Generative AI in the workplace, May 2023.

An tOllamh Gregory O'Hare
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enquiries@scss.tcd.ie
www.scss.tcd.ie

AI in the workplace can manifest itself in a myriad of ways including, application screening, analysis of video recorded interviews (facial expressions, eye contact, voice tone and cadence), automation of tasks, monitoring engagement and biometric identification and classification. According to a 2023 OECD report[4] 49% of workers in finance and 39% in manufacturing said that their company's application of AI collected data on them as individuals or how they do their work.

Legislation *is* required. The EU AI act when passed will seek to be the world's first AI legislative framework. The act is framed around input from the *High Level Expert Group of EU, Ethics Guidelines for Trustworthy AI*. It adopts several ethical principles those of:

- Respect for human autonomy;
- Prevention of harm;
- Fairness;
- Explainability;

Explainability demands *system transparency*, *system auditability* and *system traceability*. This will enable individuals to contest decisions of particular AI systems and seek redress as a result of such decisions.

The velocity of AI technology is alas fast exceeding the rate at which the law around AI can be framed.

Yours Sincerely,

Professor Gregory O'Hare,
Head of School of Computer Science and Statistics &
Professor of Artificial Intelligence
Trinity College Dublin

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[4] Lane, M., Williams, M. & Broecke, S, The Impact of AI on the Workplace: Main Findings from OECD AI Surveys of Employers and Workers, OECD Social Employment and Migration Working Papers No 238, 22nd March 2023.

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Ceann, Scoil na hEolaíochta Ríomhaireachta
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