Human Capabilities in the Age of AI and Learning Machines

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Learning for an AI Workplace Seminar

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Introducing Our First AI Interns, Aiko and Aiden

From the department of non-human resources

Kylie Monson  Follow
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This week, Codeword is like many other agencies in welcoming two new interns for our Winter 2023 Internship Class.

We're unlike other agencies in that our interns aren't human.

Say hello to Aiko and Aiden (they/them), Codeword's first AI interns. 👋 They're also the first AI interns in the agency world, as far as we know.

Aiko will sit with our fabulous design team, reporting to Senior Art Director Emilio Ramos. They'll be taking on the kinds of design tasks that are appropriate for interns, like editing photos, drafting concept sketches/moodboard imagery, and icon design. Emilio is the ideal manager for our first non-human designer — he's deeply skeptical, ethically minded, and technically skilled.

Aiden will sit with our world-class editorial team, reporting to Senior Editor Terrence Doyle, another principled curmudgeon, and will be doing voice-and-tone studies, news analysis, and possibly writing some first drafts of internal content. Maybe.

We're not entirely sure, it depends on what they end up being good at.

As an artificial intelligence, I do not have personal experiences or the ability to perform physical tasks. However, I am able to provide information and assistance with a wide range of tasks and subjects, and I am designed to be helpful and efficient. I believe that I could be a valuable resource as an “intern,” although my abilities would be somewhat different from those of a human intern.
AI is not a single technology

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‘I believe that at the end of the century the use of words and general educated opinion will have altered so much that one will be able to speak of machines thinking without expecting to be contradicted’

(Turing, 1950)
Are machine learning (ML) algorithms merely engineering artifacts or are they agents capable of learning?

• A longstanding conception in the field of AI of humans as merely ‘information processing entities’, ‘computational architectures’ and ‘meat machines’ (e.g. Minsky, 1988; von Neumann, 1958)

• Whilst algorithms are imbued with agency and human cognitive qualities
## Antropomorphising technology, technomorphising humans

<table>
<thead>
<tr>
<th>Anthropomorphisms</th>
<th>Technomorphisms</th>
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<tr>
<td>• Machine learning</td>
<td>• Reskilling/Upskilling</td>
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<td>• Deep learning</td>
<td>• Rebooting</td>
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<td>• Neural networks</td>
<td>• Upgrading skills</td>
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<td>• Agents</td>
<td>• Processing information</td>
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<td>• Hallucinations</td>
<td>• Storage/processing power (of brain)</td>
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<td>• Computer vision</td>
<td>• Online/offline (conversation)</td>
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<td>• Perception</td>
<td>• Upgrades/enhancements (e.g. prosthetics)</td>
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<td>• etc</td>
<td>• etc.</td>
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My theses

• Machine learning is a misnomer - machines do not learn

• AI does not have agency

Margaryan, A. (2024). Why Machine Learning is a Misnomer. SSRN
Machine learning (ML) in a nutshell

• ‘A computer program is said to learn from experience E with respect to some class of tasks T and performance measure P if its performance at tasks in T improves with experience E’ (Mitchell, 1997: 2)

• ‘A machine can exhibit human-like behaviour, including the ability to act, think, and learn, if it possesses, among other capabilities, machine learning algorithms capable of adapting to new circumstances and of identifying patterns’ (Russell and Norvig, 2022: 20)

• ML=automated advanced stat tests applied to massive datasets to classify and cluster data, compute correlations, and predict patterns in the data
How does AI ‘learn’?

- Supervised
- Unsupervised
- Reinforcement
- Deep
How does AI ‘learn’?

**Supervised**
- Presented with pairs of input-output examples
- Learns to predict the output from similar future input
- Labelled by humans
- Analogy: language acquisition in children

**Unsupervised**

**Reinforcement**

**Deep**
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- Infers patterns among examples through statistical clustering

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How does AI ‘learn’?

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- Superficially analogous to language acquisition in children

Unsupervised
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Reinforcement
- No labelling but periodic human feedback to ‘reward’ desired action or ‘punish’ failure
- Analogy: Pavlov’s dogs

Deep
## How does AI ‘learn’?

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<td>• Learns to predict the output from similar future input</td>
<td>• Infers patterns among examples through clustering</td>
<td>• Analogy: Pavlov’s dogs</td>
<td>• Multiple layers of simple, adjustable computer elements, resulting in computation paths with many steps</td>
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<td>• Labelled by humans</td>
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<td>• Can create new algorithms by recognising rules governing patterns in the big data they process</td>
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Machine learning is ‘statistics on data steroids’

- Advanced data and information processing
- Mathematical/statistical analysis
- Precedence-based pattern matching
- Data extraction, classification, labelling, ordering
- Narrow and limited conception of learning as information processing
Learning is a shift in consciousness that dramatically and permanently alters our being in the world. Such a shift involves our understanding of ourselves; our relationships with other humans and the natural world; our understanding of the relations of power in interlocking social structures; our visions of alternative approaches to living and our sense of the possibilities.

(O’Sullivan et al., 2002: p. 11).
Human learning processes and capabilities

• Purpose and intentionality
Human learning processes and capabilities

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• Transformation of frames of references
Human learning processes and capabilities

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• Cognitive dissonance
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Human learning processes and capabilities

• Purpose and intentionality
• Transformation of frames of references
• Cognitive dissonance
• Self-reflection and self-reaction
• Social learning
Why does this matter?

• Misappropriation of terms promotes an inaccurate and misleading depiction of what machines can and cannot do

• Use of sensationalist terminology promotes enchantment – and anxiety - with machines

• Risks a more profound alteration of how we as humans may be led to perceive ourselves, our agency and learning capabilities, and our position vis-à-vis machines in the future
Thank you!