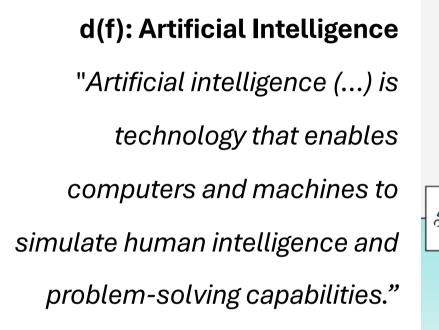
AI x Psychology <mark>Perspectives</mark>, <mark>use cases</mark>, <mark>needs</mark>

Cato Bjørkli Psykolog & PhD i Human Factors Førsteamenuensis i arbeids- og organisasjonspsykologi Psykologisk Institutt Universitetet i Oslo

PERSPECTIVES

The goal of psychology is to *understand, explain,* and *predict* human behavior.

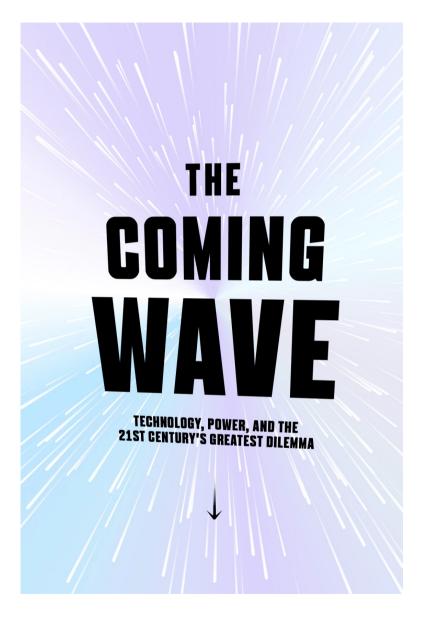
Observations and reflections of human life through scientific methods that allow development of theory and practice to the benefit of humans.



Large Language Models (LLMs), Machine Learning, Pattern Recognition, Generative Multimodal Models (anything-to-anything)

> https://www.ibm.com/topics/artificial-intelligence retrieved 2024 06 03





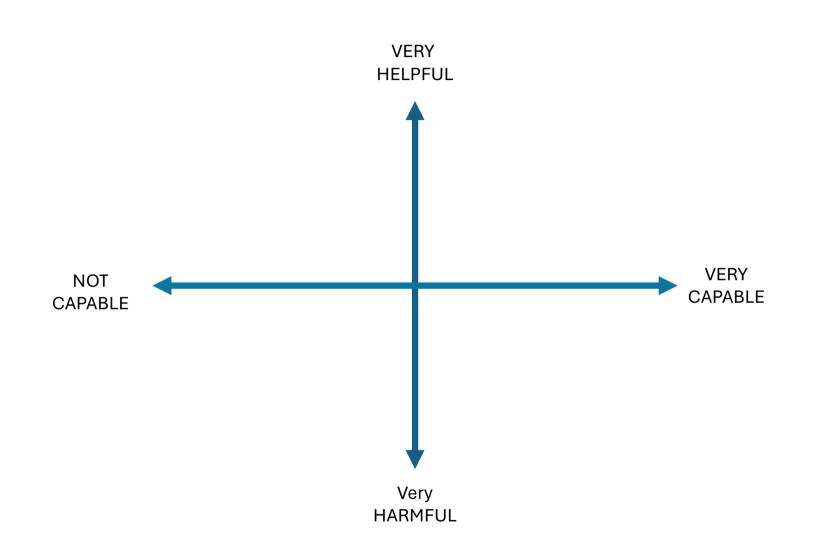
WAVES: The global diffusion or proliferation of a generation of technology anchored in a new general-purpose technology.

Suleyman, Mustafa. The Coming Wave: Technology, Power, and the Twenty-first Century's Greatest Dilemma (p. 15). Crown. Kindle Edition.



Artificial intelligence makes psychology more relevant.

Language, communication, symbols, creativity, analysis, methodological use cases, social aspects





STATISTICS & ANALYSIS

The field of machine learning is devoted to building methods that identify patterns in data, in order to make automated predictions or decisions.

		le lear	ning
Level: PhD Credit	s: 5		
Teaching: Every au	tumn Teaching language: Eng	glish	
Course descri	ption	\rightarrow	Teaching
			Teaching Examinatio
→ Course content			-

https://www.uio.no/studier/emner/sv/psykologi/PSY9511/index-eng.html

MEMORABILITY

(...) we set out to investigate **if vision**

transformers can yield better

predictions of memorability than the

state-of- the-art in image

memorability prediction. (...)

Image Memorability Prediction with Vision Transformers

Thomas Hagen^{1,⊠} and Thomas Espeseth^{1,∞}

lepartment of Psychology, University of Oslo, Oslo, Norwa, ment of Psychology, Oslo New University College, Oslo, N sity College, Oslo, Norwa

Behavioral studies have shown that the memorability of images

is similar across groups of people, suggesting that memorability is a function of the intrinsic properties of images, and is unrelated to people's individual experiences and traits. Deep learning networks can be trained on such properties and be used to predict memorability in new data sets. Convolutional neural networks (CNN) have pioneered image memorability prediction, but more recently developed vision transformer (ViT) models may have the potential to yield even better predictions. In this paper, we present the ViTMem, a new memorability model ased on ViT, and evaluate memorability predictions obtained by it with state-of-the-art CNN-derived models. Results showed that ViTMem performed equal to or better than state-of-theart models on all data sets. Additional semantic level analyses revealed that ViTMem is particularly sensitive to the semantic content that drives memorability in images. We conclude that ViTMem provides a new step forward, and propose that ViT-derived models can replace CNNs for computational prediction of image memorability. Researchers, educators, advertisers, visual designers and other interested parties can leverage the model to improve the memorability of their image material.

memorability | vision transformers | psychology | semantic information

Introduction

Everyone knows that our memories depend on the experiences we have had, facts we have encountered, and the abilities we have to remember them. Combinations of these factors differ between individuals and give rise to unique memories in each of us. However, a complementary perspective on memory focuses on the material that is (to be) remembered rather than the individual that does the remembering. In one central study, Isola et al. (1) presented more than 2000 scene images in a continuous repeat-detection task. The participants were asked to respond whenever they saw an identical repeat. The results revealed that the memorability score (percent correct detections) varied considerably between images. Most importantly, by running a consistency analysis in which Spearman's rank correlation was calculated on the memorability scores from random splits of the participant group, Isola and colleagues (1) were able to show that the memorability score ranking was consistent across participants - some images were memorable and some were forgettable. These results indicate that the degree to which an image was correctly detected depended on properties intrinsic to the image itself, not the traits of the observers. This is important because it shows that one can use the memorability scores in a

stimulus set to predict memory performance in a new group These results have been replicated and extended in a num-

ber of studies, revealing that similar findings are obtained with different memory tasks (2), different retention times (1, 2), different contexts (3), and independent of whether encoding is intentional or incidental (4). However, although image memorability has proven to be a robust and reliable phenomenon, it has not been straightforward to pinpoint the image properties that drive it. What seems clear though, is that memorability is multifaceted (5, 6). One way to characterize the underpinnings of memorability is to investigate the contribution from processes at different levels of the visual processing stream. For example, at the earliest stages of processing of a visual scene, visual attributes such as local contrast, orientation, and color are coded. At an intermediate level, contours are integrated, surfaces, shapes, and depth cues are segmented, and foreground and background are distinguished. At a higher level, object recognition is conducted through matching with templates stored in long term mem-

Positive correlations between brightness and high contrast of objects with memorability has been found (7), but in general, low-level visual factors such as color, contrast, and spatial frequency do not predict memorability well (5, 8, 9). This is consistent with results showing that perceptual features are typically not retained in long term visual memory (10). In contrast to the low-level features, the evidence for a relation between intermediate to high level semantic features and memorability is much stronger. For example, images that contain people, faces, body parts, animals, and food are often associated with high memorability, whereas the opposite is a typical finding for objects like buildings and furniture and images of landscapes and parks (3, 7, 11, 12). Other intermediate to high level features such as object interaction with the context or other objects, saliency factors, and image composition also contribute to memorability (5). Furthermore, although memorability is not reducible to high-level features such as aesthetics (1, 12), interestingness (1, 13), or popularity (12), emotions, particularly of negative valence, seem to predict higher memorability (9, 12). Finally, memorability seems to be relatively independent of cognitive control, attention, or priming (14).

Overall, the available evidence indicates that memorability seems to capture intermediate- to high-level properties of semantics, such as objects or actions, and image composition, such as layout and clutter, rather than low-level fea-

Hagen et al. | January 23, 2023 | 1-7

https://arxiv.org/pdf/2301.08647



gasjert medarbeider. Jeg forstår at du jobber på Arbeidspsykologi avdeling en som Forsker. Er du komfortabel og klar til å gi tilbakemelding på arbei dsmiljøet?

Ja, jeg er klar!

2. Det er flott å høre, Cato. Vi starter med det første temaet. Kan du på en skala fra 1 til 7, der 1 er svært uenig og 7 er svært enig, rangere i h vilken grad du opplever et positivt arbeidsmiljø på din arbeidsplass?

6, vil jeg si. Det er ganske bra, altså.

3. Det er bra å høre at du opplever arbeidsmiljøet som positivt, Cato. Kan du utdype litt rundt hva det er som gjør arbeidsmiljøet positivt for deg? Er det noe spesifikt som bidrar til denne opplevelsen?

Vel, jeg liker folkene som jobber her. Flinke og faglig sterke personer so m bryr seg om arbeidsplassen og hva de jobber med. Høyt faglig engasjement gjør at alle kjenenr stolthet over å jobbe her, tror jeg.

4. Det høres virkelig ut som et sterkt og engasjert team du er en del av,

GEPETTO

- Gepetto is a GPT4-based instance run via API in a standard terminal window on a MacBook Pro.(2,3 gHz, 8-core i9 Intel)
- Pre-prompted to pilot the capacity to do open-ended work environment interviews aligned to theoretical models and methods

STUDENT EVALUATION

<mark>& FEEDBACK</mark>

Using GPT.UIO.NO to help students explore a specific topic – and have the student critically evaluate the conversation contents with reference to our lectures and curriculum.

Modell: GPT-3.5	Turbo			
Er det noe jeg kan hjelpe deg med? For å starte en samtale, kan du skrive inn spørsmålet ditt eller be om hjelp med et bestemt tema. Du kan også finne inspirasjon i noen av eksemplene nedenfor som kan hjelpe deg i gang.				
Q ^{*.} Forslag til bruk	C			
"Gi en oversikt over de viktigste skrittene i vitenskapelig metode."	"Hva er maskinlæring, og hvordan skiller det seg fra tradisjonell programmering?"			
"Gi en oppsummering av årsakene bak den franske revolusjonen."	"Beskriv ulike former for kulturell appropriasjon og deres konsekvenser."			
"Du er en hjelpsom læringspartner med ekspertise innen menneske-teknologi samspill som bidrar til diskusjon og refleksjon sammen med brukeren. Du gir ikke direkte svar, men prøver heller å la brukeren resonnere seg fram til et standpunkt med hjelp av egne refleksjoner og din hjelp. Brukerens oppgave er å lage en definisjon av hva fagfeltet menneske-teknologi-organisasjon (MTO) inneholder og er opptatt av. Spør om navnet på brukeren først, så starter dialogen mellom dere. Bruk navnet underveis. Være oppmuntrende og nysgjerrig. Hjelp brukeren til å skrive mer enn bare				
Generert tekst kan inneholde feil eller unøvakticheter. Les mer om	bearensninger på våre veiledningssider			

CLINICAL DATA

Using labelled data from real patient treatments as basis for fine-tuning and analysis of the role of language in providing effective psychotherapy. Estimated database: 10.000 h of professional labelled data

https://www.sv.uio.no/psi/om/organisasjon/fa gavdelinger/klinisk/

Klinisk psykologi



Avdelingens virksomhet består av forskning, formidling og undervisning innenfor fagfeltet klinisk psykologi.

Undervisning

Avdelingen underviser på profesjonsprogrammet i psykologi. Hoveddelen av undervisningen foregår i siste halvdel av studiet.

EMOTION RESEARCH

The use of LLMs to investigate the basis of this emotion in social relations using a variety of measures from social psychology and anthropology.

Kama muta: A social-relational emotion

Objectives

Experiences of "being moved" can be intense emotional episodes that involve strong feelings for others, crying and goosebumps, and social motives. We investigate the basis of this emotion in social relations using a variety of measures from social psychology and anthropology.

Outcomes

We have discovered that kama muta is a universal Colourbox.com emotion that is experienced as positive and motivating. Please visit our project page <u>kamamutalab.org</u> to learn more about our research, as well as our full publication list.



Photo illustration: Colourbox.com



Enable local initiatives to move forward **Build local** capacities to develop projects

TECHNICAL

Access to computational power for fine-tuning

Flexibility in what models/APIs to use

PRACTICAL

A more visible and accessible contact with IT

Low threshold access to basic info/training

ADMINISTRATIVE

Dialogue on data handling in research/applications

Dialogue on budgeting/funding

AI x Psychology <mark>Perspectives</mark>, <mark>use cases</mark>, <mark>needs</mark>

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