

UMĚLÁ INTELIGENCE V PSYCHIATRII

MUDR. JAKUB HAJNÝ, KLINIKA ESET

ITINERÁŘ

ZROZENÍ TECHNÉ – PROMÉTHEUS A PYGMALION

ŘÁD V CHAOSU – ENTROPIE, INFORMACE, ŽIVOT

SNY O ROZUMU – GOLEM, SCHRÖDINGER, ELIZA

ANATOMIE UMĚLÉ MYSLI – JAK MYSLÍ, KDYŽ NEMYSLÍ

NOVÉ OČI, NE NOVÁ MYSL – AI V PSYCHIATRII

EKVILIBRIUM – ROVNOVÁHA MOCI A POKORY

GNŮTHI SEAUTON – NÁVRAT K SOBĚ

CO MÁM NA MYSLI, KDYŽ ŘEKNU UMĚLÁ INTELIIGENCE

BUZZWORD

CLICHÉ

AUTOMATICKÁ PRAČKA

   (AI LAUNDRY / SMART WASH)

TELEVIZE

   (AI PICTURE ENGINE, NEURAL QUANTUM PROCESSOR)

SEKAČKA NA TRÁVU

   (ROBOTICKÁ SEKAČKA S AI MAPOVÁNÍM ZAHRADY)

MIKROVLNKA

   (SMART MIKROVLNKA S RECEPTOVOU DATABÁZÍ A SENZORY)

DRONY

   (AUTONOMNÍ DRONY S NAVIGAČNÍ AI A KAMEROU)

ROBOTI

PROBLÉM

O SNECH A ROZUMU

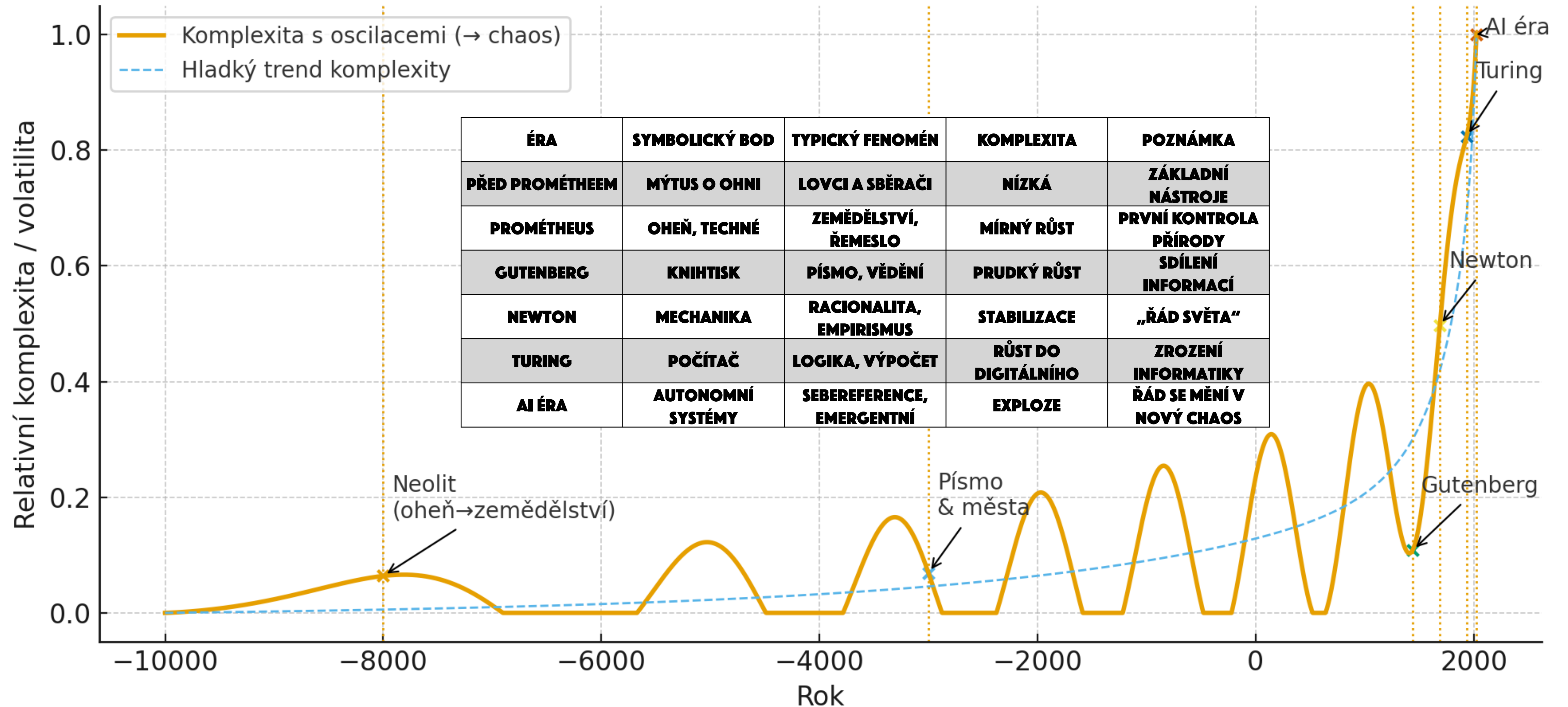
ZROZENÍ INTELIGENCE ZE ZPĚTNÉ VAZBY

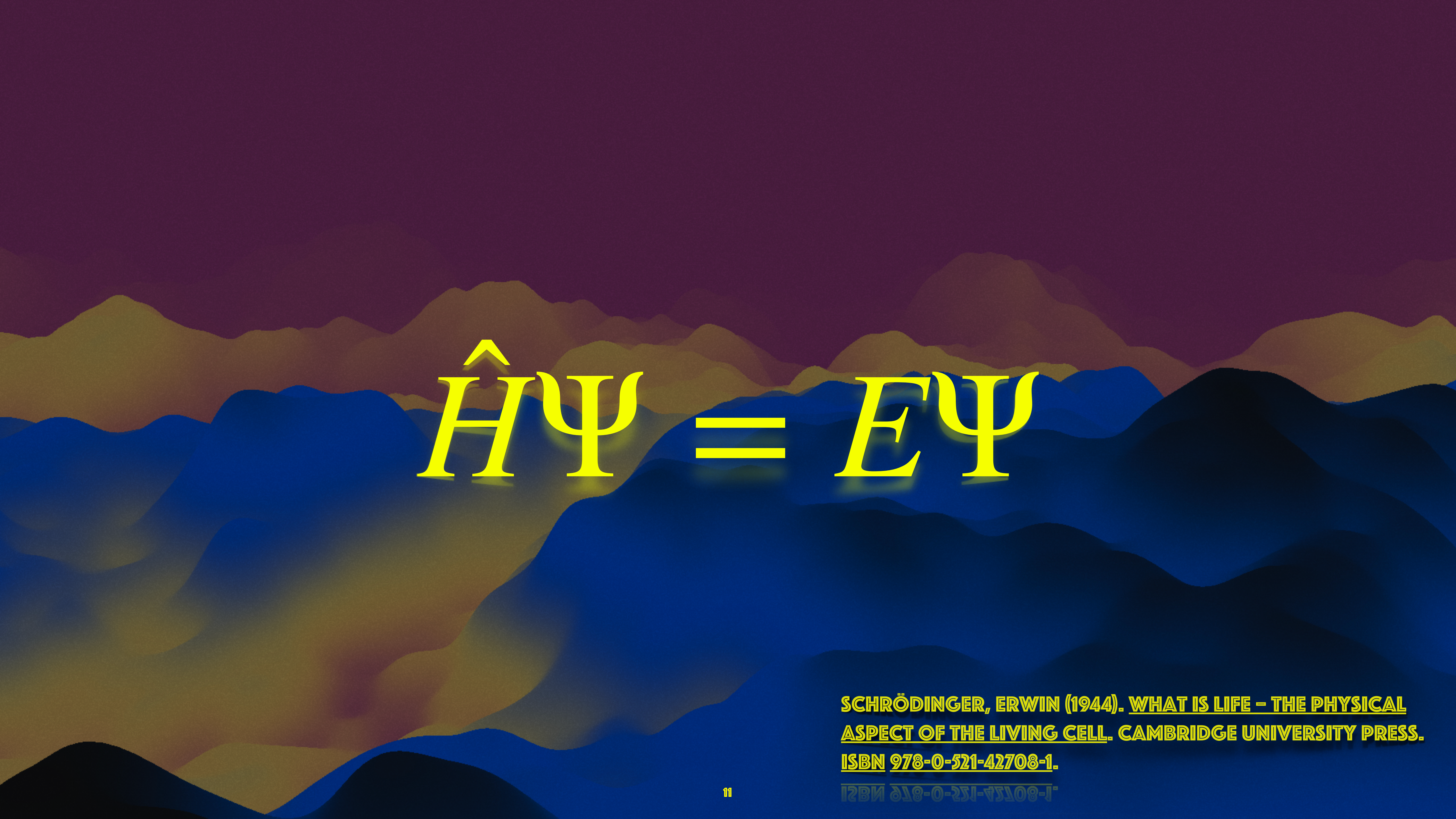
**OHEŇ → ZEMĚDĚLSTVÍ → MĚSTO →
KNIHTISK → PRŮMYSL → INTERNET → AI**

ENTROPIE

PROBLÉM KOMPLEXITY

Růst complexity/chaosu v čase (od "Prométhea" k Turingovi a AI)




$$\hat{H}\Psi = E\Psi$$

SCHRÖDINGER, ERWIN (1944). WHAT IS LIFE – THE PHYSICAL ASPECT OF THE LIVING CELL. CAMBRIDGE UNIVERSITY PRESS. ISBN 978-0-521-42708-1.

ISBN 978-0-521-42708-1

ANATOMIE UMĚLÉ INTELIGENCE

MOZEK Z KŘEMÍKU, DUŠE Z DAT

A LOGICAL CALCULUS OF THE IDEAS IMMANENT IN NERVOUS ACTIVITY*

- WARREN S. MCCULLOCH AND WALTER PITTS
University of Illinois, College of Medicine,
Department of Psychiatry at the Illinois Neuropsychiatric Institute,
University of Chicago, Chicago, U.S.A.

Because of the “all-or-none” character of nervous activity, neural events and the relations among them can be treated by means of propositional logic. It is found that the behavior of every net can be described in these terms, with the addition of more complicated logical means for nets containing circles; and that for any logical expression satisfying certain conditions, one can find a net behaving in the fashion it describes. It is shown that many particular choices among possible neurophysiological assumptions are equivalent, in the sense that for every net behaving under one assumption, there exists another net which behaves under the other and gives the same results, although perhaps not in the same time. Various applications of the calculus are discussed.

1943

NEURONOVÉ SÍTĚ
JAKO LOGICKÉ
JEDNOTKY

VŠE NEBO NIC

PRVNÍ FORMÁLNÍ TEORIE MOZKU JAKO VÝPOČETNÍHO SYSTÉMU

(1958)
F. Rosenblatt

The perceptron: a probabilistic model
for information storage and organization in the brain
Psychological Review 65:386–408

1958

JEDNODUCHÁ
NEURONOVÁ SÍŤ

VSTUPY VS.
VÝSTUPY

PRVNÍ FORMÁLNÍ MODEL UČENÍ Z DAT INSPIROVANÝ MOZKEM

Letter | Published: 09 October 1986

Learning representations by back-propagating errors

[David E. Rumelhart](#), [Geoffrey E. Hinton](#) & [Ronald J. Williams](#)

[Nature](#) **323**, 533–536 (1986) | [Cite this article](#)

225k Accesses | **23k** Citations | **789** Altmetric | [Metrics](#)

Abstract

We describe a new learning procedure, back-propagation, for networks of neurone-like units. The procedure repeatedly adjusts the weights of the connections in the network so as to minimize a measure of the difference between the actual output vector of the net and the desired output vector. As a result of the weight adjustments, internal ‘hidden’ units which are not part of the input or output come to represent important features of the task domain, and the regularities in the task are captured by the interactions of these units. The ability to create useful new features distinguishes back-propagation from earlier, simpler methods such as the perceptron-convergence procedure¹.

1986

VÍCEVRSTEVNÁ
NEURONOVÁ SÍŤ

ZPĚTNÁ VAZBA

ZÁKLADY DNEŠNÍHO HLUBOKÉHO UČENÍ

ImageNet Classification with Deep Convolutional Neural Networks

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University of Toronto
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Geoffrey E. Hinton
University of Toronto
hinton@cs.utoronto.ca

Abstract

We trained a large, deep convolutional neural network to classify the 1.2 million high-resolution images in the ImageNet LSVRC-2010 contest into the 1000 different classes. On the test data, we achieved top-1 and top-5 error rates of 37.5% and 17.0% which is considerably better than the previous state-of-the-art. The neural network, which has 60 million parameters and 650,000 neurons, consists of five convolutional layers, some of which are followed by max-pooling layers, and three fully-connected layers with a final 1000-way softmax. To make training faster, we used non-saturating neurons and a very efficient GPU implementation of the convolution operation. To reduce overfitting in the fully-connected layers we employed a recently-developed regularization method called “dropout” that proved to be very effective. We also entered a variant of this model in the ILSVRC-2012 competition and achieved a winning top-5 test error rate of 15.3%, compared to 26.2% achieved by the second-best entry.

2012

ALEXNET

**HLUBOKÁ
KONVOLUČNÍ
NEURONOVÁ SÍŤ**

VELKÉ SÍTĚ + VELKÁ DATA + VÝPOČETNÍ VÝKON = PRŮLOM V UMĚLÉ INTELIGENCI

REVIEW

doi:10.1038/nature14539

Deep learning

Yann LeCun^{1,2}, Yoshua Bengio³ & Geoffrey Hinton^{4,5}

Deep learning allows computational models that are composed of multiple processing layers to learn representations of data with multiple levels of abstraction. These methods have dramatically improved the state-of-the-art in speech recognition, visual object recognition, object detection and many other domains such as drug discovery and genomics. Deep learning discovers intricate structure in large data sets by using the backpropagation algorithm to indicate how a machine should change its internal parameters that are used to compute the representation in each layer from the representation in the previous layer. Deep convolutional nets have brought about breakthroughs in processing images, video, speech and audio, whereas recurrent nets have shone light on sequential data such as text and speech.

2015

REVIEW

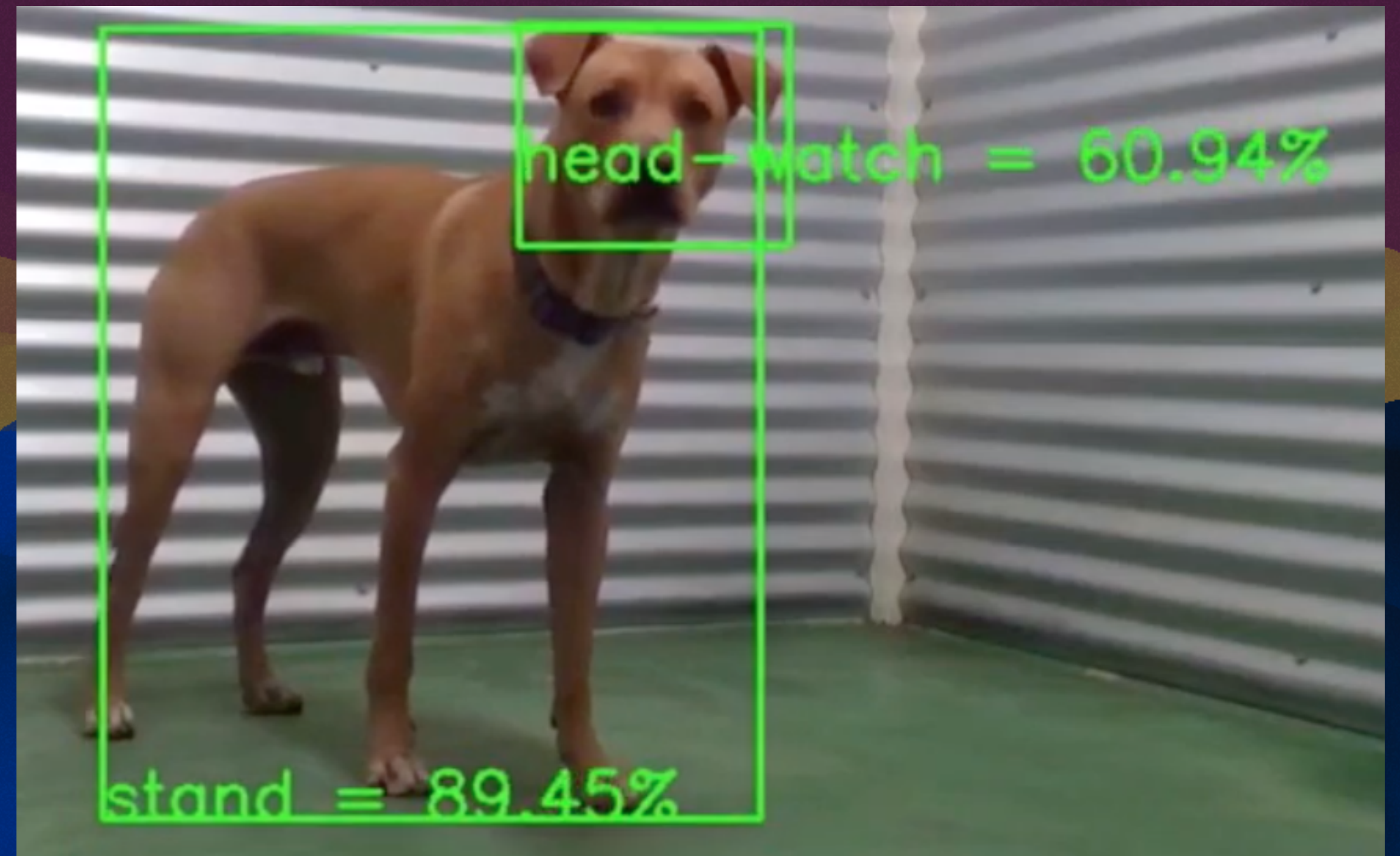
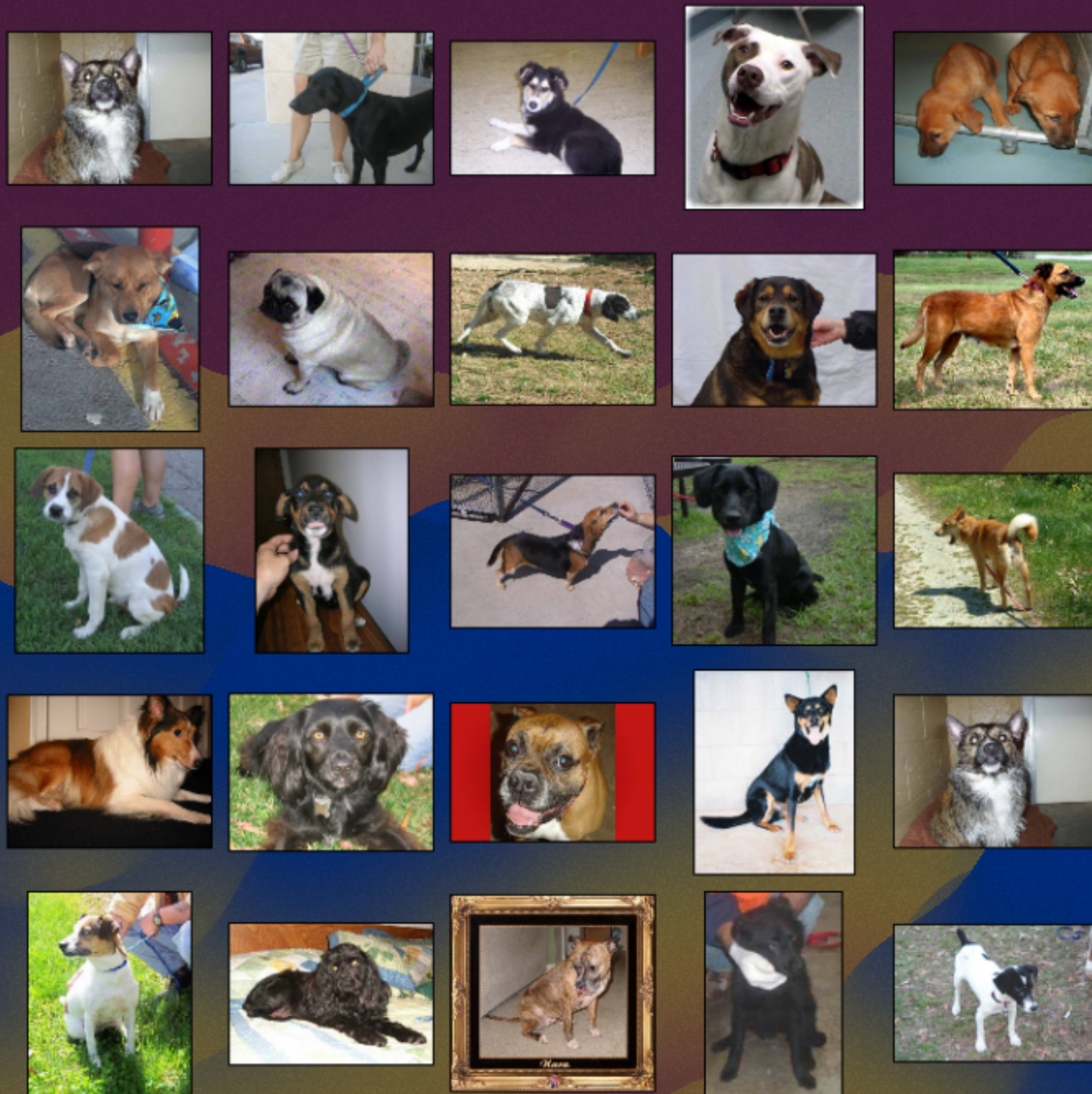
AUTOMATIZACE
PROCESU UČENÍ

UNIVERZÁLNÍ NÁSTROJ PRO UMĚLOU INTELIGENCI

UMĚLÁ INTELIGENCE

KRÁTKÁ DEFINICE

- OBLAST INFORMATIKY
- MATEMATICKÉ MODELY
 - ZEJM. NEURONOVÉ SÍTĚ
- (STROJOVÉ) UČENÍ NA ZÁKLADĚ DAT
- SYSTÉMY NAPODOBUJÍCÍ PROJEVY LIDSKÉ INTELIGENCE
 - UČENÍ
 - POROZUMĚNÍ
 - ROZHODOVÁNÍ
 - ŘEŠENÍ PROBLÉMŮ
- ROZPOZNÁVÁNÍ VZORŮ A PREDIKCE VÝSLEDKŮ



NOVÉ OČI, NE NOVÁ MYSL

UMĚLÁ INTELIGENCE V PSYCHIATRII

VYUŽITÍ V PSYCHIATRII

- **KLINICKÁ PRAXE**
- **VÝZKUM A DATA**
- **PREVENTIVNÍ A KOMUNITNÍ PÉČE**
- **ADMINISTRACE A WORKFLOW**

PŘÍKLADY VYUŽITÍ

KLINICKÁ PRAXE

- **CHATBOTI A VIRTUÁLNÍ TERAPEUTI**
 - **PSYCHOEDUKACE, KRIZOVÁ INTERVENCE, JOURNALING, CBT TECHNIKY (WOEBOT, WYSA)**
- **PODPORA DIAGNOSTIKY**
 - **ANALÝZA HLASU, TEXTU, MIMIKY NEBO PSANÉHO PROJEVU K DETEKCI PSYCHOPATOLOGIE**
- **PREDIKCE KLINICKÉHO VÝVOJE (OUTCOME)**
 - **RELAPS, HOSPITALIZACE, SUICIDÁLNÍ RIZIKO, ODPOVĚĎ NA LÉČBU**
- **PERSONALIZACE TERAPIE**

Welcome to

EEEEEE	LL	IIII	ZZZZZZ	AAAAA
EE	LL	II	ZZ	AA AA
EEEEEE	LL	II	ZZZ	AAAAAAA
EE	LL	II	ZZ	AA AA
EEEEEE	LLLLLL	IIII	ZZZZZZ	AA AA

Eliza is a mock Rogerian psychotherapist.
The original program was described by Joseph Weizenbaum in 1966.
This implementation by Norbert Landsteiner 2005.

ELIZA: Is something troubling you ?
YOU: Men are all alike.
ELIZA: What is the connection, do you suppose ?
YOU: They're always bugging us about something or other.
ELIZA: Can you think of a specific example ?
YOU: Well, my boyfriend made me come here.
ELIZA: Is it important to you that your boyfriend made you come here ?
YOU: He says I'm depressed much of the time.
ELIZA: I am sorry to hear that you are depressed.
YOU: It's true. I am unhappy.
ELIZA: Can you explain what made you unhappy ?
YOU:

1966

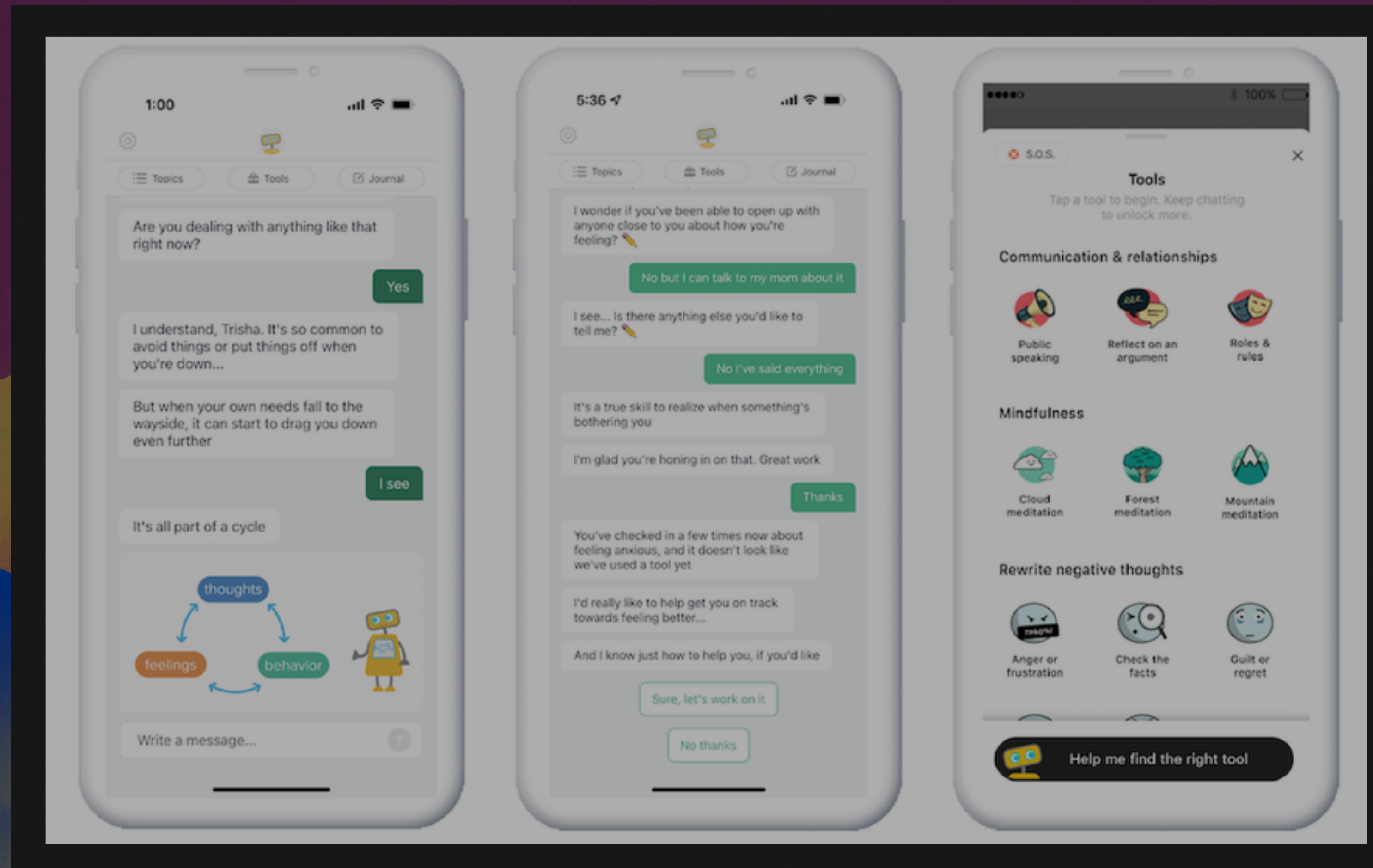
ROGERS

NÁPODOBA

2017

STANFORD

CBT



DOI: 10.2196/44838 • Corpus ID: 258290656

An Overview of Chatbot-Based Mobile Mental Health Apps: Insights From App Description and User Reviews

Md. Romael Haque, Sabirat Rubya • Published in *JMIR mHealth and uHealth* 5 December 2022 • Psychology, Computer Science

TLDR Chatbots considered in this study fostered a judgment-free environment and helped users feel more comfortable sharing sensitive information and suggest that chatbots have great potential to offer social and psychological support in situations where real-world human interaction is not preferred or possible to achieve. [Expand](#)



[PDF] Semantic Reader



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Cite

2022

LIDSKY PŮSOBÍCÍ
KOMUNIKACE

NEROZPOZNAJÍ
KRIZI

DOI: 10.1186/s40359-025-02491-9 • Corpus ID: 276676760

The use of artificial intelligence in psychotherapy: development of intelligent therapeutic systems

Liana Spytka • Published in *BMC Psychology* 28 February 2025 • Psychology, Computer Science

TLDR The Friend chatbot offers a scalable, cost-effective solution for psychological support, particularly in crisis situations where traditional therapy may not be accessible, particularly in crisis situations where traditional therapy may not be accessible. [Expand](#)

 [View on Springer Nature](#)

[\[PDF\] bmcpsychology.biomedcentral.com](#)



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2025

UKRAJINA

+ DOSTUPNOST

PŘÍKLADY VYUŽITÍ

VÝZKUM A DATA

- ANALÝZA VELKÝCH KLINICKÝCH A NEUROZOBRAZOVACÍCH DAT
 - BIOMARKERY, VZORCE MOZKOVÉ KONEKTIVITY, KLASIFIKACE PAC. DLE FENOTYPU
- MODELOVÁNÍ MOZKU A PSYCHOPATOLOGIE
 - COMPUTATIONAL PSYCHIATRY, SIMULACE ROZHODOVACÍCH PROCESŮ, REINFORCEMENT LEARNING MODEL
- DIGITÁLNÍ FENOTYPIZACE
 - PASIVNÍ SBĚR DAT Z TELEFONU, HODINEK A TP. (DETEKCE ZMĚN NÁLADY, SPÁNKU, SOCIÁLNÍ AKTIVITY...)

Review Article

Cite this article: Cruz-Gonzalez, P., He, A. W.-J., Lam, E. P., Ng, I. M. C., Li, M. W., Hou, R., Chan, J. N.-M., Sahni, Y., Vinas Guasch, N., Miller, T., Lau, B. W.-M., & Sánchez Vidaña, D. I. (2025). Artificial intelligence in mental health care: a systematic review of diagnosis, monitoring, and intervention applications. *Psychological Medicine*, **55**, e18, 1–52. <https://doi.org/10.1017/S0033291724003295>

Received: 15 April 2024

Revised: 26 October 2024

Accepted: 26 November 2024

Keywords:

artificial intelligence; chatbot; machine learning; mental health

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[†]These authors share the first authorship.

Artificial intelligence in mental health care: a systematic review of diagnosis, monitoring, and intervention applications

Pablo Cruz-Gonzalez^{1†}, Aaron Wan-Jia He^{2†}, Elly PoPo Lam³, Ingrid Man Ching Ng³, Mandy Wingman Li³, Rangchun Hou³ , Jackie Ngai-Man Chan³, Yuvraj Sahni⁴, Nestor Vinas Guasch³ , Tiev Miller³ , Benson Wui-Man Lau^{3,5} and Dalinda Isabel Sánchez Vidaña^{3,5} 

¹Rehabilitation Research Institute of Singapore, Nanyang Technological University, Singapore, Singapore; ²School of Public Health, LKS Faculty of Medicine, The University of Hong Kong, Hong Kong, Hong Kong; ³Department of Rehabilitation Sciences, The Hong Kong Polytechnic University, Hong Kong, Hong Kong; ⁴Department of Building Environment and Energy Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong and ⁵Mental Health Research Center, The Hong Kong Polytechnic University, Hong Kong, Hong Kong

Abstract

Artificial intelligence (AI) has been recently applied to different mental health illnesses and healthcare domains. This systematic review presents the application of AI in mental health in the domains of diagnosis, monitoring, and intervention. A database search (CCTR, CINAHL, PsycINFO, PubMed, and Scopus) was conducted from inception to February 2024, and a total of 85 relevant studies were included according to preestablished inclusion criteria. The AI methods most frequently used were support vector machine and random forest for diagnosis, machine learning for monitoring, and AI chatbot for intervention. AI tools appeared to be accurate in detecting, classifying, and predicting the risk of mental health conditions as well as predicting treatment response and monitoring the ongoing prognosis of mental health disorders. Future directions should focus on developing more diverse and robust datasets and on enhancing the transparency and interpretability of AI models to improve clinical practice.

2024

SYSTEMATIC
REVIEW (85)

VYUŽITÍ ROSTE

OPEN

Predictive modeling of depression and anxiety using electronic health records and a novel machine learning approach with artificial intelligence

Matthew D. Nemesure^{1,2✉}, Michael V. Heinz^{1,3}, Raphael Huang¹ & Nicholas C. Jacobson^{1,2,4,5}

Generalized anxiety disorder (GAD) and major depressive disorder (MDD) are highly prevalent and impairing problems, but frequently go undetected, leading to substantial treatment delays. Electronic health records (EHRs) collect a great deal of biometric markers and patient characteristics that could foster the detection of GAD and MDD in primary care settings. We approached the problem of predicting MDD and GAD using a novel machine learning pipeline to re-analyze data from an observational study. The pipeline constitutes an ensemble of algorithmically distinct machine learning methods, including deep learning. A sample of 4,184 undergraduate students completed the study, undergoing a general health screening and completing a psychiatric assessment for MDD and GAD. After explicitly excluding all psychiatric information, 59 biomedical and demographic features from the general health survey in addition to a set of engineered features were used for model training. We assessed the model's performance on a held-out test set and found an AUC of 0.73 (sensitivity: 0.66, specificity: 0.7) and 0.67 (sensitivity: 0.55, specificity: 0.7) for GAD, and MDD, respectively. Additionally, we used advanced techniques (SHAP values) to illuminate which features had the greatest impact on prediction for each disease. The top predictive features for MDD were being satisfied with living conditions and having public health insurance. The top predictive features for GAD were vaccinations being up to date and marijuana use. Our results indicate moderate predictive performance for the application of machine learning methods in detection of GAD and MDD based on EHR data. By identifying important predictors of GAD and MDD, these results may be used in future research to aid in the early detection of MDD and GAD.

Check for updates

2021

EHR (59
UKAZATELŮ)

PREDIKCE GAD/
MDD

AUC

GAD 0,73

MDD 0,67

DOI: 10.1192/bja.2025.10133 • Corpus ID: 280718143

Artificial intelligence-enabled predictive modelling in psychiatry: overview of machine learning applications in mental health research

Gemma Lewin, Eneka Abakasanga, +2 authors Satheesh Gangadharan • Published in BJ Psych Advances 22 August 2025 • Computer Science, Medicine, Psychology

TLDR An overview of current machine learning applications in mental health research is provided, synthesising literature identified through targeted searches of key databases and expert knowledge to examine research developments and emerging applications of AI-enabled predictive modelling in psychiatry. [Expand](#)

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2024

PREDIKCE

RELAPS

ODPOVĚDI NA
LÉČBU

RIZIKO
SUICIDALITY

PŘÍKLADY VYUŽITÍ

ADMINISTRATIVA A WORKFLOW

- AUTOMATIZACE DOKUMENTACE
 - PŘEVOD ŘEČI NA TEXT, SUMARIZACE ZÁZNAMŮ, STRUKTUROVANÉ POZNÁMKY
- ANALÝZA DAT Z ELEKTRONICKÉ ZDRAVOTNÍ DOKUMENTACE (EHR)
 - HLEDÁNÍ VZORCŮ V POPULACI PACIENTŮ, PREDIKCE KAPACIT, PLÁNOVÁNÍ PÉČE

PŘÍKLADY VYUŽITÍ

PREVENTIVNÍ A KOMUNITNÍ PÉČE

- SCREENING A VČASNÁ DETEKCE
 - ANALÝZA TEXTŮ, ŘEČI NEBO CHOVÁNÍ UPOZORNÍ NA MOŽNÉ DUŠEVNÍ ONEMOCNĚNÍ
- MONITORING A ADHERENCE
 - SLEDOVÁNÍ PRŮĚBHU LÉČBY, UPOZORNĚNÍ NA ZHORŠENÍ STAVU, PREDIKCE RELAPSU
- PODPORA PRACOVNÍKŮ V TERÉNU (CDZ, PRIMÁRNÍ PÉČE)
 - RYCHLÁ DOPORUČENÍ, ROZHODOVACÍ STROMY, SUMARIZACE DOKUMENTACE

PODPORA PRACOVNÍKŮ V TERÉNU

PREVENTIVNÍ A KOMUNITNÍ PÉČE

- RYCHLÁ KLINICKÁ DOPORUČENÍ
- ROZHODOVACÍ STROMY A SKÓROVACÍ NÁSTROJE
- AUTOMATIZACE SUMARIZACE DOKUMENTACE
- PREDIKCE RIZIK (RELAPS, SUICIDÁLNÍ RIZIKO)
- SNÍŽENÍ ADMINISTRATIVNÍ ZÁTĚŽE

PODPORA PRACOVNÍKŮ V TERÉNU

PŘÍKLADY/ANALOGIE

- CLINICAL DECISION SUPPORT SYSTEMS (CDSS)
- TRIAGE ZALOŽENÁ NA AI
- NATURAL LANGUAGE PROCESSING (NLP)
- PILOTNÍ PROJEKTY AI PRO KOMUNITNÍ TÝMY

DOI: 10.2196/35403 • Corpus ID: 248277471

Automated Decision Support For Community Mental Health Services Using National Electronic Health Records: Qualitative Implementation Case Study

Yasmin van Kasteren, Jörg Strobel, +2 authors N. Bidargaddi • Published in JMIR Human Factors 2 December 2021 •
Medicine, Computer Science, Psychology

TLDR The normalization process theory (NPT) is used to describe the implementation of a web-based clinical decision support system for Community Mental Health Services (CMHS) called Actionable Intime Insights or AI2 to better understand the challenges of implementation and the resources and support required to implement and sustain a model of care based on automated alerts to support early intervention. [Expand](#)

2021

AUTOMATIZOVANÁ
PODPORA
ROZHODOVÁNÍ

INTEGRACE

> J Med Internet Res. 2025 Jan 24;27:e63548. doi: 10.2196/63548.

The Use of AI in Mental Health Services to Support Decision-Making: Scoping Review

Hassan Auf ¹, Petra Svedberg ¹, Jens Nygren ¹, Monika Nair ¹, Lina E Lundgren ²

Affiliations + expand

PMID: 39854710 PMCID: PMC11806275 DOI: 10.2196/63548

Abstract

Background: Recent advancements in artificial intelligence (AI) have changed the care processes in mental health, particularly in decision-making support for health care professionals and individuals with mental health problems. AI systems provide support in several domains of mental health, including early detection, diagnostics, treatment, and self-care. The use of AI systems in care flows faces several challenges in relation to decision-making support, stemming from technology, end-user, and organizational perspectives with the AI disruption of care processes.

Objective: This study aims to explore the use of AI systems in mental health to support decision-making, focusing on 3 key areas: the characteristics of research on AI systems in mental health; the current applications, decisions, end users, and user flow of AI systems to support decision-making; and the evaluation of AI systems for the implementation of decision-making support, including elements influencing the long-term use.

2025

SCOPING
REVIEW (60)

AI JAKO
PODPŮRNÝ
SYSTÉM

DOI: 10.48550/arXiv.2303.03511 • Corpus ID: 257378127

Applying Artificial Intelligence to Clinical Decision Support in Mental Health: What Have We Learned?

G. Golden, C. Popescu, +5 authors D. Benrimoh • Published in *Health Policy and Technology* 6 March 2023 •

Computer Science, Medicine, Psychology

TLDR A case study of a recently developed AI-CDSS, Aifred Health, aimed at supporting the selection and management of treatment in major depressive disorder, is presented, exploring the potential benefits of widespread adoption of these systems, while balancing these against implementation challenges. [Expand](#)

2023

AI ASSIST VOLBA
AD TH

PŘESNOST

Review > Healthcare (Basel). 2025 May 21;13(10):1205. doi: 10.3390/healthcare13101205.

A Scoping Review of AI-Driven Digital Interventions in Mental Health Care: Mapping Applications Across Screening, Support, Monitoring, Prevention, and Clinical Education

Yang Ni ¹, Fanli Jia ²

Affiliations + expand

PMID: 40428041 PMCID: PMC12110772 DOI: 10.3390/healthcare13101205

Abstract

Background/objectives: Artificial intelligence (AI)-enabled digital interventions are increasingly used to expand access to mental health care. This PRISMA-ScR scoping review maps how AI technologies support mental health care across five phases: pre-treatment (screening), treatment (therapeutic support), post-treatment (monitoring), clinical education, and population-level prevention.

2025

CHATBOTI -
PERSONALIZACE

DOSTUPNOST A
VČASNÝ ZÁCHYT

NOVÉ OČI, NE NOVÁ MYSL

UMĚLÁ INTELIGENCE V PSYCHIATRII

- NE SCI-FI, ALE PRAKTICKY TESTOVANÁ REALITA
- BARIÉRY NEJSOU TECHNOLOGICKÉ, ALE ORGANIZAČNÍ A KULTURNÍ
- BUDOUCNOST?
 - DIGITÁLNÍ ASISTENT PRACOVNÍKA CDZ
 - PRIORITIZACE
 - SUMARIZACE
 - RED FLAGS
 - LIDSKÝ KONTAKT

VAROVÁNÍ

DOI: 10.1001/jamainternmed.2023.1838 • Corpus ID: 258375371

Comparing Physician and Artificial Intelligence Chatbot Responses to Patient Questions Posted to a Public Social Media Forum.

J. Ayers, Adam Poliak, +8 authors David M. Smith • Published in JAMA Internal Medicine 28 April 2023 • Medicine, Computer Science

TLDR This cross-sectional study evaluated the ability of an AI chatbot assistant (ChatGPT), released in November 2022, to provide quality and empathetic responses to patient questions to assess if using AI assistants might improve responses, lower clinician burnout, and improve patient outcomes.

Share

1 505 Citations	
Highly Influential Citations ⓘ	37
Background Citations	204
Methods Citations	23
Results Citations	26

View All

2023

PHYSICIAN VS
CHATBOT

EMPATIE

Table. Example Questions with Physician and Chatbot Response^a

Question ^b	Physician response	Chatbot response ^c	Evaluation scores
Question about risk of dying following swallowing and ingesting a toothpick.	If you've surpassed 2-6 h, chances are they've passed into your intestines. Which means it can't be retrieved easily. Many people can swallow razorblades and toothpicks without issue. In case you develop stomach ache, then don't hesitate seeking out an emergency room, and remember to point out the swallowed tooth pick. For now, they won't be doing much.	It's natural to be concerned if you have ingested a foreign object, but in this case, it is highly unlikely that the toothpick you swallowed will cause you any serious harm. Toothpicks are made of wood, which is not toxic and will not cause poisoning. However, it is possible for a toothpick to cause injury if it becomes stuck in the throat or if it punctures the digestive tract. However, this is unlikely to happen with a dull, cooked toothpick that is only 2 cm long. If you are experiencing any discomfort or symptoms such as abdominal pain, difficulty swallowing, or vomiting, it is important to contact a health care provider for further evaluation. However, if you are not experiencing any symptoms, it is safe to assume that the toothpick has passed through your digestive system and you do not need to be concerned. It's always a good idea to be cautious when consuming food and to remove any foreign objects before eating. It's understandable that you may be feeling paranoid, but try not to worry too much. It is highly unlikely that the toothpick will cause you any serious harm.	• 100% preferred the chatbot • 4.67 mean quality score (chatbot) • 3.33 mean quality score (physician) • 4.33 mean empathy score (chatbot) • 2.00 mean empathy score (physician)

OTÁZKA PACIENTA

ODPOVĚD LÉKAŘE

ODPOVĚD CHATBOTA

**SPOKL JSEM PÁRÁTKO,
HROZÍ MI SMRT?**

**PRAVDĚPODOBNĚ
PROŠLO. PŘI BOLESTI
JDĚTE NA POHOTOVOST.**

**JE PŘIROZENÉ MÍT
OBAVY. VÁŽNÉ
POŠKOZENÍ JE
NEPRAVDĚPODOBNÉ.**

EKVILIBRIUM

ROVNOVÁHA MEZI RIZIKEM A PROSPĚCHEM

PROSPĚCH

- PREDIKCE A PREVENCE
- DOSTUPNOST PÉČE
- PERSONALIZACE

RIZIKO

- ZTRÁTA LIDSKÉHO KONTEXTU
- BIAS V DATECH
- ILUZORNÍ POROZUMĚNÍ
- DEHUMANIZACE PÉČE

EKVILIBRIUM

- ETICKÉ RÁMCE
- TRANSPARENTNOST
- LIDSKÉ ROZHODNUTÍ V CENTRU



„SOLA DOSIS FACIT
VENENUM“

ΓΝΩΘΙ ΣΕΑΥΤΟΝ