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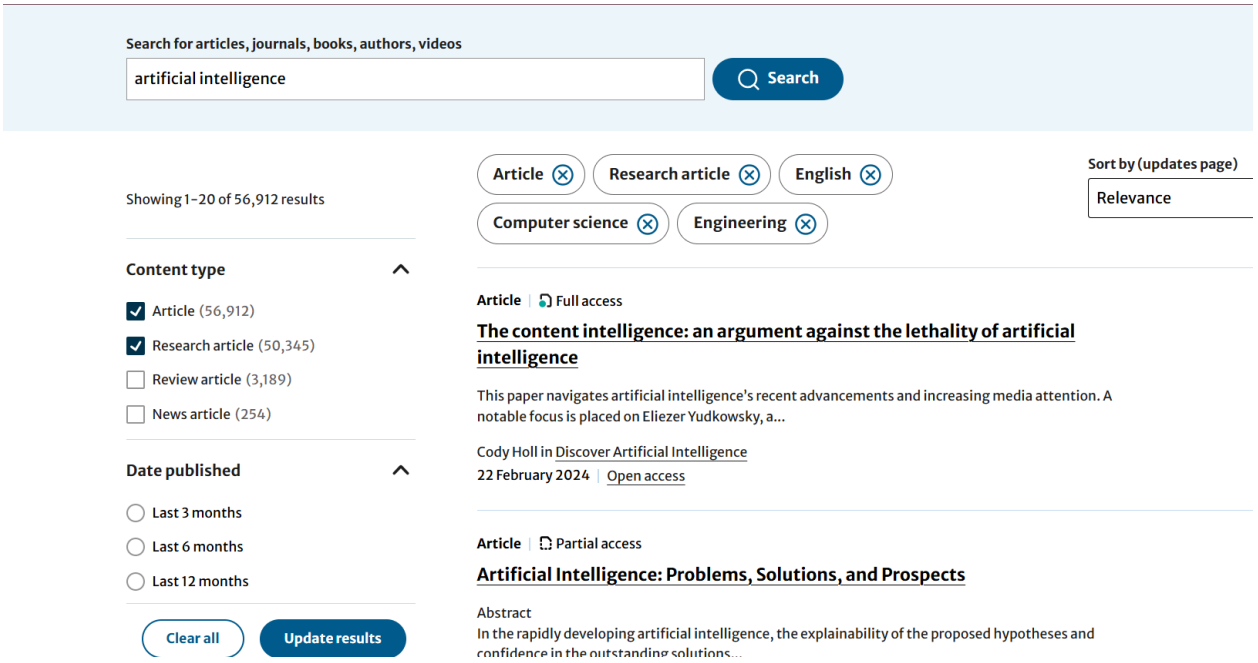

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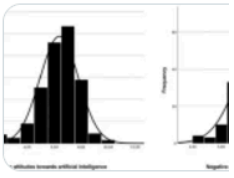

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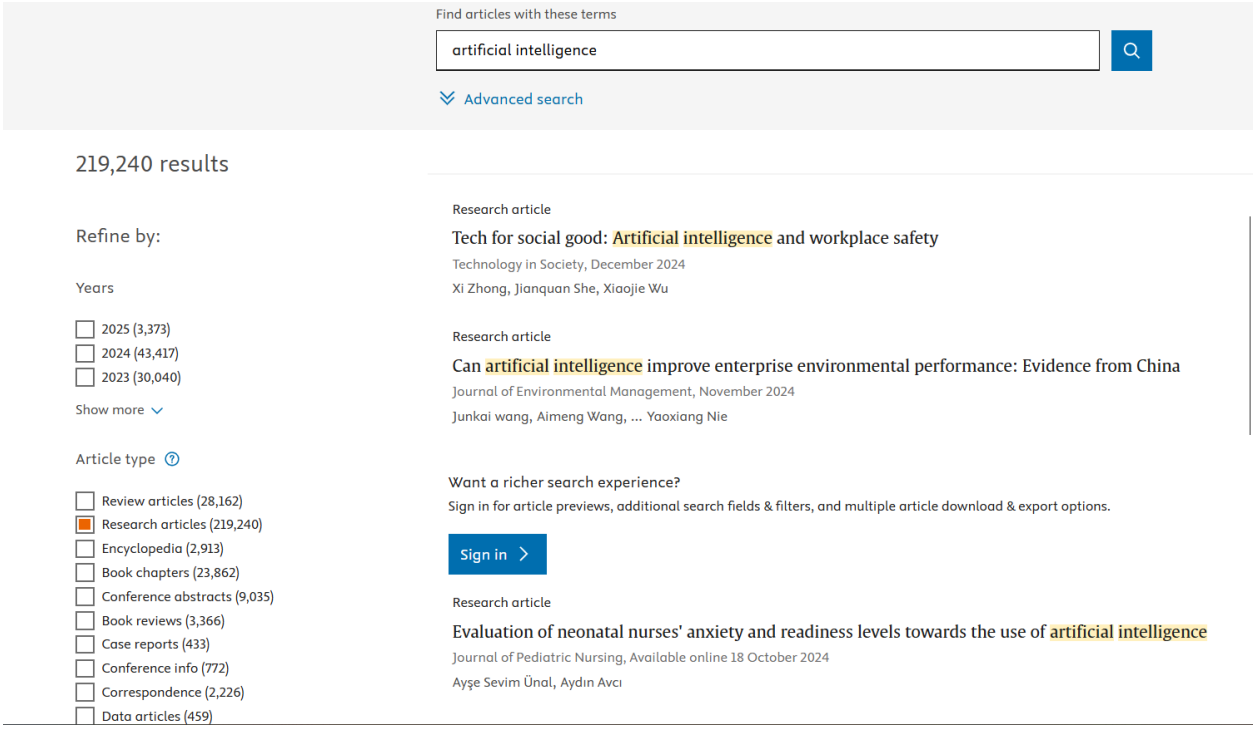

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Research article

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Hongyuan Zhang, Yibing Ding, ... Samuel Jung

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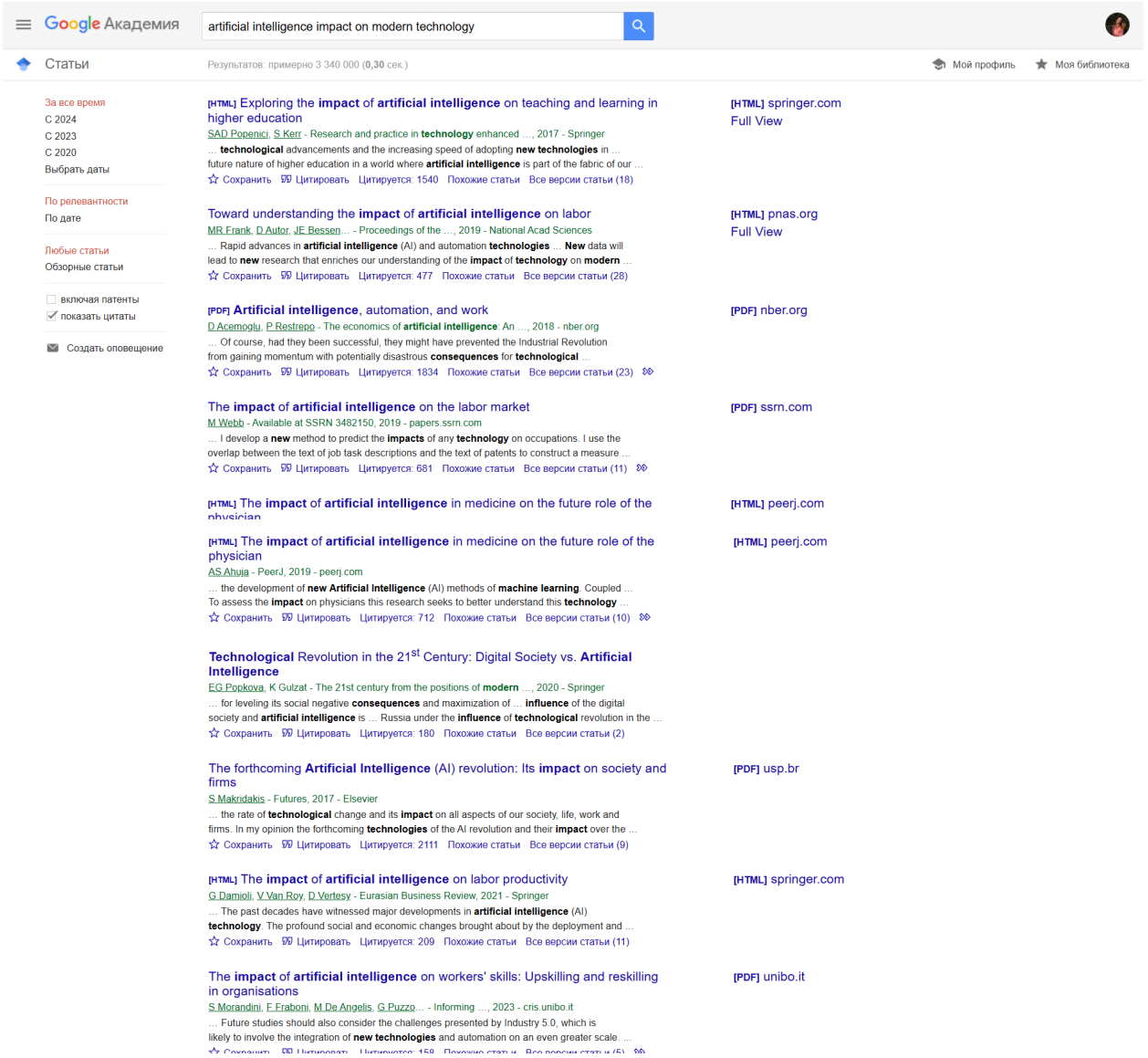

Статьи

1.

4.1 Introduction

Rapid advances in the field of artificial intelligence have profound implications for the economy as well as society at large. These innovations have the potential to directly influence both the production and the characteristics of a wide range of products and services, with important implications for productivity, employment, and competition. But, as important as these effects are likely to be, artificial intelligence also has the potential to change the innovation process itself, with consequences that may be equally profound, and which may, over time, come to dominate the direct effect.

Consider the case of Atomwise, a start-up firm that is developing novel technology for identifying potential drug candidates (and insecticides) by using neural networks to predict the bioactivity of candidate molecules. The company reports that its deep convolutional neural networks "far surpass" the performance of conventional "docking" algorithms. After appropriate training on vast quantities of data, the company's AtomNet product is described as being able to "recognize" foundational building blocks of

Iain M. Cockburn is the Richard C. Shipley Professor of Management at Boston University and a research associate of the National Bureau of Economic Research. Rebecca Henderson is the John and Natty McArthur University Professor at Harvard University, where she has a joint appointment at the Harvard Business School in the General Management and Strategy units, and a research associate of the National Bureau of Economic Research. Scott Stern is the David Sarnoff Professor of Management and chair of the Technological Innovation, Entrepreneurship, and Strategic Management Group at the MIT Sloan School of Management, and a research associate and director of the Innovation Policy Working Group at the National Bureau of Economic Research.

We thank Michael Kearney for extraordinary research assistance. For acknowledgments, sources of research support, and disclosure of the authors' material financial relationships, if any, please see http://www.nber.org/chapters/c14006.ack.

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Innovation Strategy Intellectual Property Life Sciences Artificial Intelligence

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Measuring competence? Exploring firm effects in pharmaceutical research R Henderson, I Cockburn Strategic management journal 15 (S1), 63-84	4705	2006
Scale, scope and spillovers: the determinants of research productivity in drug discovery R Henderson, I Cockburn RAND Journal of Economics 27 (1), 32-59	2085 *	1996
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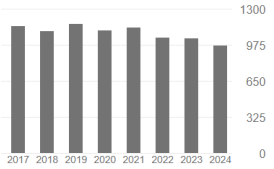

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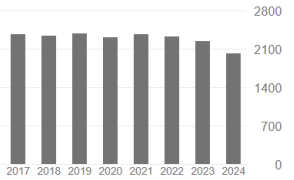

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The product market and the market for “ideas”: commercialization strategies for technology entrepreneurs JS Gans, S Stern Research policy 32 (2), 333-350	1922	2003
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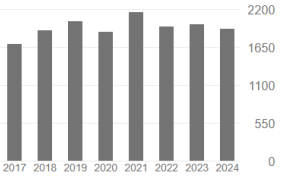

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Review

The forthcoming Artificial Intelligence (AI) revolution: Its impact on society and firms

Professor Spyros Makridakis ✉

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- Similarities between the Industrial, digital and artificial intelligent revolutions.
- The future of employment and wealth distribution when machines could perform all tasks.
- Will the Artificial Intelligence revolution create a utopian or dystopian future?

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The forthcoming information revolution: Its impact on society and firms
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Our final invention: Artificial intelligence and the end of the human era
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IBM Watson: The inside story of how the Jeopardy-winning supercomputer

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COUNTRY	SUBJECT AREA AND CATEGORY	PUBLISHER	H-INDEX
United Kingdom Universities and research institutions in United Kingdom Media Ranking in United Kingdom	Business, Management and Accounting └ Business and International Management Social Sciences ├ Development └ Sociology and Political Science	Elsevier Ltd	98

PUBLICATION TYPE	ISSN	COVERAGE	INFORMATION
Journals	00163287	1968-2023	Homepage How to publish in this journal tfuller@lincoln.ac.uk

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M Competitions Forecasting Uncertainty Artificial Intelligence (AI) Medical Predictions

TITLE	CITED BY	YEAR
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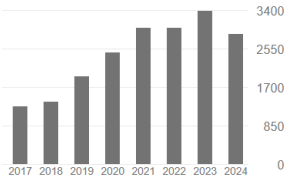

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3.

Abstract

Artificial intelligence (AI) is producing highly beneficial impacts in many domains, from transport to healthcare, from energy distribution to marketing, but it also raises concerns about undesirable ethical and social consequences. AI impact assessments (AI-IAs) are a way of identifying positive and negative impacts early on to safeguard AI's benefits and avoid its downsides. This article describes the first systematic review of these AI-IAs. Working with a population of 181 documents, the authors identified 38 actual AI-IAs and subjected them to a rigorous qualitative analysis with regard to their purpose, scope, organisational context, expected issues, timeframe, process and methods, transparency and challenges. The review demonstrates some convergence between AI-IAs. It also shows that the field is not yet at the point of full agreement on content, structure and implementation. The article suggests that AI-IAs are best understood as means to stimulate reflection and discussion concerning the social and ethical consequences of AI ecosystems. Based on the analysis of existing AI-IAs, the authors describe a baseline process of implementing AI-IAs that can be implemented by AI developers and vendors and that can be used as a critical yardstick by regulators and external observers to evaluate organisations' approaches to AI.

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Artificial Intelligence Review

COUNTRY	SUBJECT AREA AND CATEGORY	PUBLISHER	H-INDEX
Netherlands Universities and research institutions in Netherlands Media Ranking in Netherlands	Computer Science Artificial Intelligence Social Sciences Linguistics and Language	Springer Netherlands	115

PUBLICATION TYPE	ISSN	COVERAGE	INFORMATION
Journals	02692821, 15737462	1986-2023	Homepage How to publish in this journal

Artificial Intelligence Review

Годы охвата Scopus: от 1986 до 2025

Издатель: Springer Nature

ISSN: 0269-2821 E-ISSN: 1573-7462

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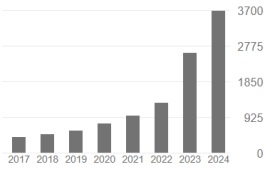

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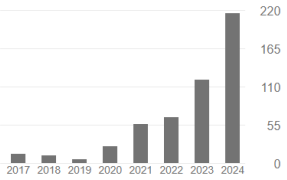

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Netherlands Universities and research institutions in Netherlands Media Ranking in Netherlands	Engineering Biomedical Engineering	Springer Netherlands	156

PUBLICATION TYPE	ISSN	COVERAGE	INFORMATION
Journals	00906964, 15216047	1972-2023	Homepage How to publish in this journal abmejournal@gmail.com

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The Impact of Artificial Intelligence on Quality and Safety

Michelle S. Lee, BA, Matthew M. Grabowski, MD, [...], and Thomas E. Mroz, MD +1 View all authors and affiliations

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United States Universities and research institutions in United States Media Ranking in United States	Medicine Neurology (clinical) Orthopedics and Sports Medicine Surgery	SAGE Publications Inc.	51

PUBLICATION TYPE	ISSN	COVERAGE	INFORMATION
Journals	21925682, 21925690	2014-2023	Homepage How to publish in this journal Contact

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6.

Learning Deep Architectures for AI

By **Yoshua Bengio**, Dept. IRO, Université de Montréal, Canada, yoshua.bengio@umontreal.ca

Suggested Citation
Yoshua Bengio (2009), "Learning Deep Architectures for AI", Foundations and Trends® in Machine Learning: Vol. 2: No. 1, pp 1-127.
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Publication Date: 15 Nov 2009

Subjects
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Автор:

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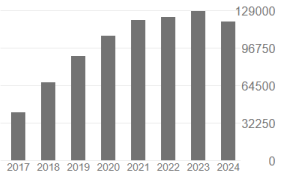

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7.

Pre-trained models: Past, present and future

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Jun Zhu [a 2]

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Abstract

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Large-scale pre-trained models (PTMs) such as BERT and GPT have recently achieved great success and become a milestone in the field of artificial intelligence (AI). Owing to sophisticated pre-training objectives and huge model parameters, large-scale PTMs can effectively capture knowledge from massive labeled and unlabeled data. By storing knowledge into huge parameters and fine-tuning on specific tasks, the rich knowledge implicitly encoded in huge parameters can benefit a variety of downstream tasks, which has been extensively demonstrated via experimental verification and empirical analysis. It is now the consensus of the AI community to adopt PTMs as backbone for downstream tasks rather than learning models from scratch. In this paper, we take a deep look into the history of pre-training, especially its special relation with transfer learning and self-supervised learning, to reveal the crucial position of PTMs in the AI development spectrum. Further, we comprehensively review the latest breakthroughs of PTMs. These breakthroughs are driven by the surge of computational power and the increasing availability of data, towards four important directions: designing effective architectures, utilizing rich contexts, improving computational efficiency, and conducting interpretation and theoretical analysis. Finally, we discuss a series of open problems and research directions of PTMs, and hope our view can inspire and advance the future study of PTMs.

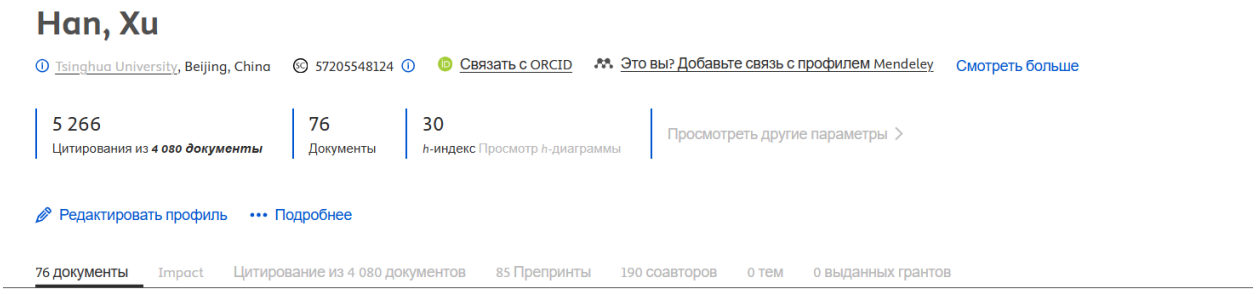
Previous article in issue

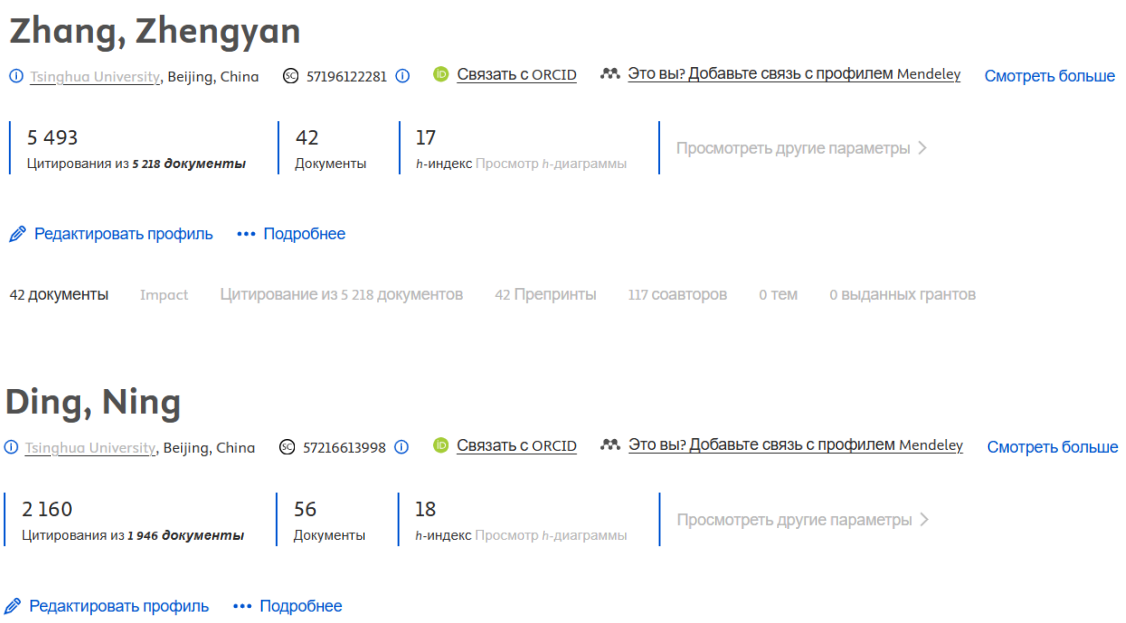
Next article in issue

Keywords

Pre-trained models; Language models; Transfer learning; Self-supervised learning; Natural language processing; Multimodal processing; Artificial intelligence

Авторы:





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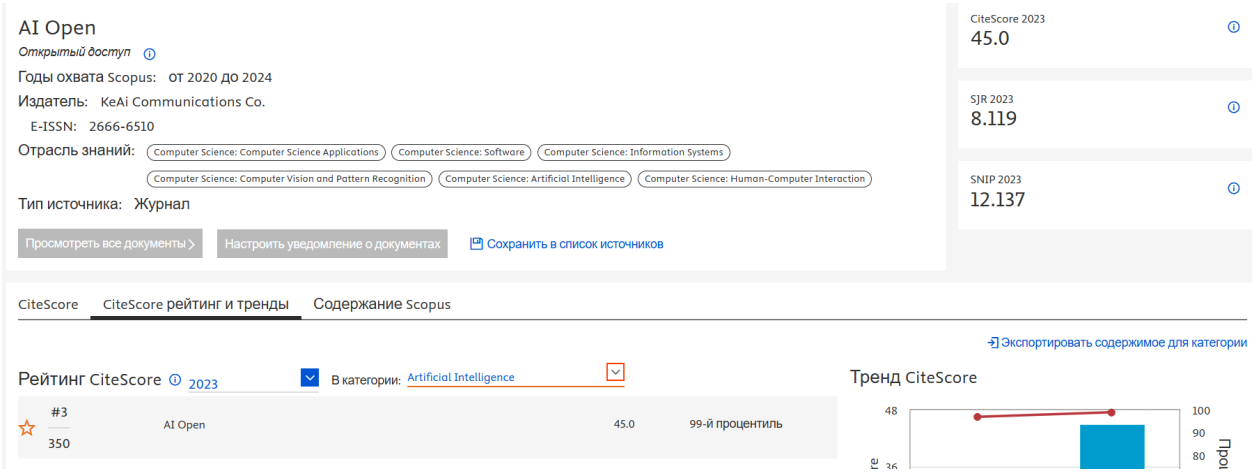

Вывод:

Тема искусственного интеллекта сильно востребована сейчас. Как и в русскоязычном поиске, было найдено много статей по поводу применения искусственного интеллекта в разных сферах как в медицине так и в образовании. Число статей, патентов по данной теме ежегодно растет.

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