

Artificial intelligence in gastric cancer: Application and future perspectives

Niu PH *et al.* Artificial intelligence in gastric cancer

Abstract

Gastric cancer is the fourth leading cause of cancer-related mortality across the globe, with a 5-year survival rate of less than 40%. In recent years, several applications of artificial intelligence (AI) have emerged in the gastric cancer field based on its efficient computational power and learning capacities, such as image-based diagnosis and prognosis prediction. AI-assisted diagnosis includes pathology, endoscopy, and computerized tomography, while researchers in the prognosis circle focus on recurrence, metastasis, and survival prediction. In this review, a comprehensive literature search was performed on articles published up to April 2020 from databases of PubMed, Embase, Web of Science, and the Cochrane Library, thereby the current status of AI-applications was systematically summarized in gastric cancer. Moreover, future directions that target at this field were also analyzed to overcome the risk of overfitting of AI models and enhance their accuracy as well as the applicability in clinical practice.

Key words: Gastric cancer; Image-based diagnosis; Prognosis prediction; Artificial intelligence; Machine learning; Deep learning

Niu PH, Zhao LL, Wu HL, Zhao DB, Chen YT. Artificial intelligence in gastric cancer: Application and future perspectives. *World J Gastroenterol* 2020; In press

Match Overview

- | | | |
|---|---|-----|
| 1 | Internet 27 words
crawled on 16-May-2020
worldwidescience.org | 1% |
| 2 | Crossref 14 words
Peng Jin, Xiaoyan Ji, Wenzhe Kang, Yang Li, Hao Liu, Fuhai Ma, Shuai Ma, Haitao Hu, Weikun Li, Yantao Tian. "Artificial ... | <1% |
| 3 | Crossref 13 words
Fei Lu, Zhikui Chen, Xu Yuan, Qiu Li, Zedong Du, Li Luo, Fengyi Zhang. "MMHG: Multi-modal Hypergraph Learning for Ov | <1% |
| 4 | Internet 13 words
crawled on 24-Jul-2020
www.hindawi.com | <1% |
| 5 | Crossref 13 words
Zhaoming Li, Tian Tian, Feng Lv, Yu Chang, Xinhua Wang, Lei Zhang, Xin Li, Ling Li, Wang Ma, Jingjing Wu, Mingzhi Zha ... | <1% |
| 6 | Crossref 12 words
Miyaki, Rie, Shigeto Yoshida, Shinji Tanaka, Yoko Kominami, Yoji Sanomura, Taiji Matsuo, Shiro Oka, Bisser Raytchev, Tor | <1% |



ALL

IMAGES

VIDEOS

5,180,000 Results

Any time ▼

Artificial Intelligence and Upper Gastrointestinal ...

<https://pubmed.ncbi.nlm.nih.gov/30549317>

With recent breakthroughs in **artificial intelligence**, **computer-aided diagnosis (CAD)** for **upper gastrointestinal endoscopy** is gaining increasing attention. Main research focuses in this field include automated identification of **dysplasia** in **Barrett's esophagus** and detection of early **gastric cancers**. ...

Cited by: 17

Author: Yuichi Mori, Shin-ei Kudo, Hussein E. N....

Publish Year: 2019

Application of artificial intelligence using a ...

<https://www.ncbi.nlm.nih.gov/pubmed/29335825>

1. **Gastric Cancer**. 2018 Jul;21(4):653-660. doi: 10.1007/s10120-018-0793-2. Epub 2018 Jan 15. **Application of artificial intelligence** using a convolutional neural network for detecting **gastric cancer** in endoscopic images.

Cited by: 139

Author: Toshiaki Hirasawa, Kazuharu Aoyama, T...

Publish Year: 2018

Artificial intelligence and upper gastrointestinal ...

<https://onlinelibrary.wiley.com/doi/abs/10.1111/den.13317>

Dec 14, 2018 · With recent breakthroughs in **artificial intelligence**, computer-aided diagnosis (CAD) for upper gastrointestinal endoscopy is gaining increasing attention. Main research focuses in this field include automated identification of dysplasia in Barrett's esophagus and detection of early **gastric cancers**.

Cited by: 17

Author: Yuichi Mori, Shin-ei Kudo, Hussein E. N....

Publish Year: 2019

Artificial intelligence and upper gastrointestinal ...

<https://onlinelibrary.wiley.com/doi/full/10.1111/den.13317>



国内版

国际版

Chat with Bing

Artificial Intelligence in Gastric Cancer: Application and Future Pers|



Sign in



ALL

IMAGES

VIDEOS

Add the Give with Bing extension >

5,780,000 Results

Any time ▼

Artificial intelligence in gastric cancer: a systematic review

<https://pubmed.ncbi.nlm.nih.gov/32613386>

Artificial intelligence in **gastric cancer**: a systematic review. In the **foreseeable future**, **AI applications** can play an important role in **gastric cancer management** in the era of precision medicine. In the **foreseeable future**, **AI applications** can play an important role in **gastric cancer management** in the era of precision medicine.

Artificial intelligence in gastric cancer: a systematic ...

<https://link.springer.com/article/10.1007/s00432-020-03304-9> ▼

Jul 01, 2020 · This study aims to systematically review the **application** of **artificial intelligence** (AI) techniques in **gastric cancer** and to discuss the potential limitations **and future** directions of AI in **gastric cancer**. A systematic review was performed that follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Pubmed, EMBASE, the Web of Science, and the ...

Cited by: 1

Author: Peng Jin, Xiaoyan Ji, Wenzhe Kang, Yang Li...

Publish Year: 2020

Application of artificial intelligence ... - Gastric Cancer

<https://link.springer.com/article/10.1007/s10120-018-0793-2> ▼

Jan 15, 2018 · Image recognition using **artificial intelligence** with deep learning through **convolutional neural networks** (CNNs) has dramatically improved and been increasingly **applied** to medical fields for diagnostic imaging. We developed a **CNN** that can automatically detect **gastric cancer** in **endoscopic images**.

Cited by: 161

Author: Toshiaki Hirasawa, Kazuharu Aoyama, Tets...

Publish Year: 2018

Search Tools

Turn on Hover Translation (开启取词)



ALL

IMAGES

VIDEOS

MAPS

NEWS

SHOPPING

5,210,000 Results

Any time ▼

[Artificial intelligence in gastric cancer: a systematic review](https://pubmed.ncbi.nlm.nih.gov/32613386)

<https://pubmed.ncbi.nlm.nih.gov/32613386>

Artificial intelligence in **gastric cancer**: a systematic review. In the **foreseeable future**, **AI applications** can play an important role in **gastric cancer management** in the era of precision medicine. In the **foreseeable future**, **AI applications** can play an important role in **gastric cancer management** in the era of precision medicine.

[Artificial intelligence in gastric cancer: a systematic ...](https://link.springer.com/article/10.1007/s00432-020-03304-9)

<https://link.springer.com/article/10.1007/s00432-020-03304-9> ▼

Jul 01, 2020 - This study aims to systematically review the **application** of **artificial intelligence** (AI) techniques in **gastric cancer** and to discuss the potential limitations and **future** directions of AI in **gastric cancer**. A systematic review was performed that follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Pubmed, EMBASE, the Web of ...

Cited by: 1

Author: Peng Jin, Xiaoyan Ji, Wenzhe Kang, Yan...

Publish Year: 2020

[Application of artificial intelligence ... - Gastric Cancer](https://link.springer.com/article/10.1007/s10120-018-0793-2)

<https://link.springer.com/article/10.1007/s10120-018-0793-2> ▼

Jan 15, 2018 - Image recognition using **artificial intelligence** with deep learning through **convolutional neural networks** (CNNs) has dramatically improved and been increasingly **applied** to medical fields for diagnostic imaging. We developed a **CNN** that can automatically detect **gastric cancer** in **endoscopic images**.

Cited by: 160

Author: Toshiaki Hirasawa, Kazuharu Aoyama, Te...

Publish Year: 2018

[Artificial intelligence and upper gastrointestinal ...](https://onlinelibrary.wiley.com/doi/abs/10.1111/den.13317)

<https://onlinelibrary.wiley.com/doi/abs/10.1111/den.13317>

Dec 14, 2018 - With recent breakthroughs in **artificial intelligence**, computer-aided diagnosis (CAD) for **upper gastrointestinal endoscopy** is gaining increasing attention. Main research focuses in this field include automated identification of dysplasia in **Barrett's esophagus** and detection of early **gastric cancers**. By helping endoscopists avoid missing and mischaracterizing neoplastic change in both the **esophagus** ...