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Retrospective Study

**Construction of a convolutional neural network classifier developed by CT images
for pancreatic cancer diagnosis**

Han Ma, Zhong-Xin Liu, Jing-Jing Zhang, Feng-Tian Wu, Cheng-Fu Xu, Zhe Shen,
Chao-Hui Yu, You-Ming Li

Abstract

BACKGROUND

Efforts should be made to develop a deep-learning diagnosis system to distinguish
pancreatic cancer from benign tissue due to the high morbidity of pancreatic cancer.

AIM

Match Overview

1	Crossref 90 words Y. Fujisawa, Y. Otomo, Y. Ogata, Y. Nakamura, R. Fujita, Y. Ishitsuka, R. Watanabe, N. Okiyama, K. Ohara, M. Fujimoto.	2%
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In this paper, the deep learning strategy named **Convolutional Neural network** (CNN) model is used to predict the **cancer images** of the pancreas, which is embedded with the model of Gaussian Mixture ...

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Author: Xufeng Huang, Qiang Lei, Tingli Xie, Yah... **Publish Year:** 2020

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Convolutional neural networks (CNNs) have shown promise in **image** analysis, but the **networks'** potential for **pancreatic cancer detection** and diagnosis is unclear. We aimed to investigate whether CNN could distinguish individuals with and without **pancreatic cancer** on **CT**...

Cited by: 2 **Author:** Kao-Lang Liu, Tinghui Wu, Po-Ting Chen, Yu...
Publish Year: 2020

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Methods:Daily **CT** data acquired for 24 **pancreatic** head **cancer** patients using **CT-on-rails**, during the routine **CT-guided CRT** delivery with a radiation dose of 50.4 Gy in 28 fractions, were analyzed.

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As Deep **Convolutional Neural Networks** (DCNNs) have shown robust performance and results in medical **image** analysis, a number of **deep-learning-based** tumor detection methods were **developed** in recent years. Nowadays, the automatic detection of pancreatic tumors using **contrast-enhanced Computed Tomography** (CT) is widely applied for the diagnosis and staging of pancreatic cancer.

Construction of a Convolutional Neural Network Classifier developed by CT images for Pancreatic Cancer Diagnosis

Running Title: CNN Classifier Identifies Pancreatic Cancer

Han Ma¹, Zhongxin Liu², Jingjing Zhang¹, Fengtian Wu³, Chengfu Xu¹, Zhe Shen¹,
Chaohui Yu^{1,4*}, Youming Li^{1*}

Abstract:

Background: Efforts should be made to develop a deep-learning diagnosis system to distinguish pancreatic cancer from benign tissue due to the high morbidity of pancreatic cancer. In this study, a convolutional neural network (CNN) classifier was constructed to assess pancreas CT images to assist in pancreatic cancer diagnoses.

Methods: A CNN model was constructed using a dataset of 3,494 CT images obtained from 222 patients with pathological confirmed pancreatic cancer and 3,751 CT images from 190 patients with normal pancreas from June 2017 to June 2018. We built three

Match Overview

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Construction of a convolutional neural network classifier developed



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Sep 04, 2017 · Dmitriev K. et al. (2017) **Classification of Pancreatic Cysts in Computed Tomography Images** Using a Random Forest and **Convolutional Neural Network** Ensemble. In: Descoteaux M., Maier-Hein L., Franz A., Jannin P., Collins D., Duchesne S. (eds) Medical Image Computing and Computer Assisted Intervention – MICCAI 2017. MICCAI 2017.

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Author: Konstantin Dmitriev, Arie E. Kaufman, Am...

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Jan 29, 2019 · Automatic **classification** of pulmonary peri-fissural nodules in **computed tomography** using an ensemble of 2D views and a **convolutional neural network** out-of-the-box. Med Image Anal 2015 ;26(1):195–202.

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Author: Shelly Soffer, Avi Ben-Cohen, Orit Shimo...

Publish Year: 2019

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The diagnostic performance of CT for pancreatic cancer is interpreter-dependent, and approximately 40% of tumours smaller than 2 cm evade detection. Convolutional neural networks (CNNs) have shown promise in image **analysis**, but the networks' potential for ...

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Author: Kao-Lang Liu, Tinghui Wu, Po-Ting Chen,...

Publish Year: 2020

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