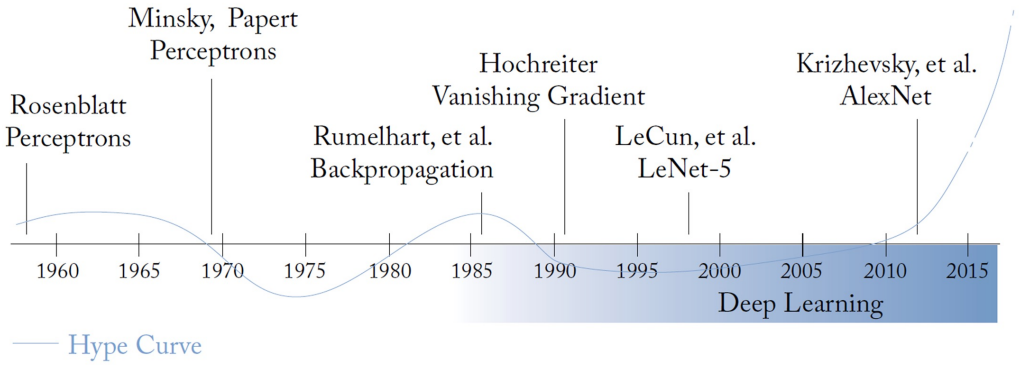
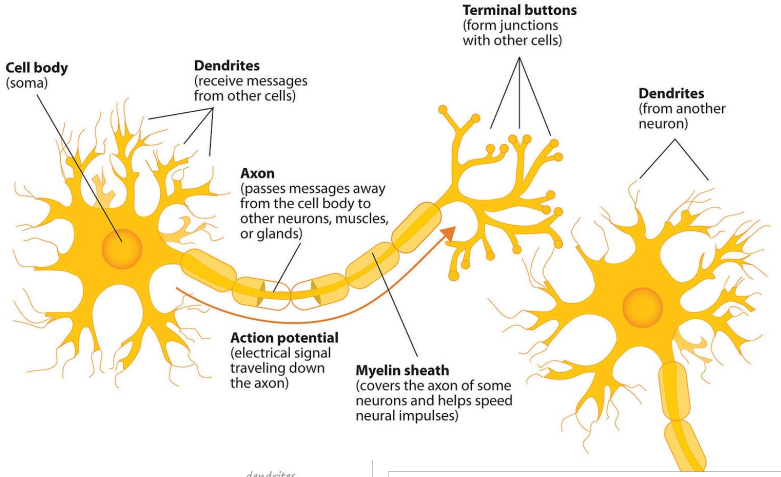
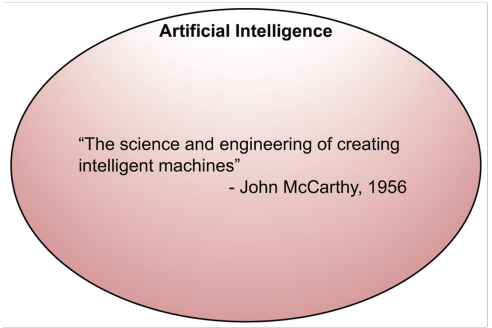
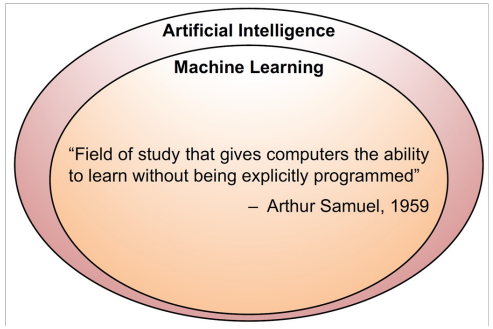
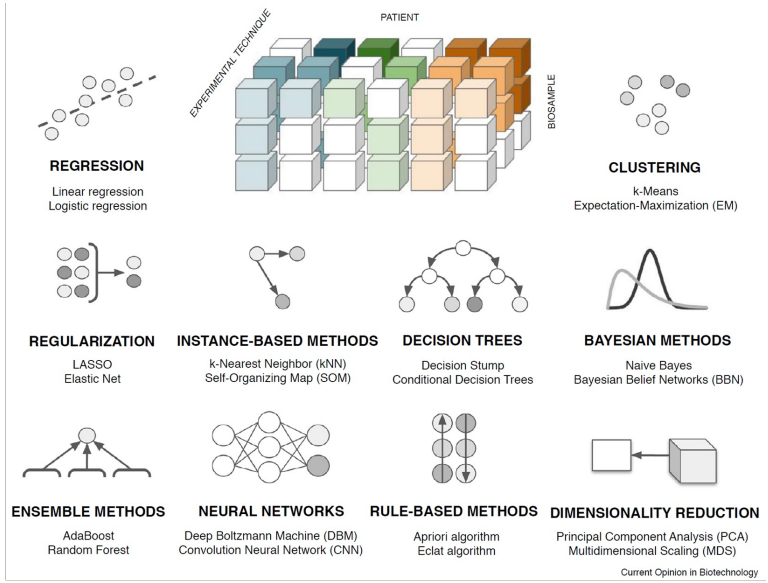
Artificial Intelligence (AI)

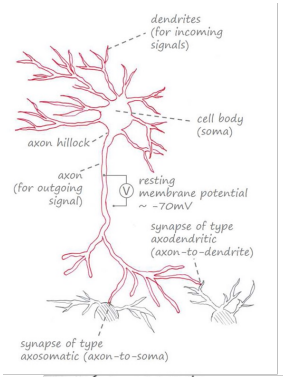


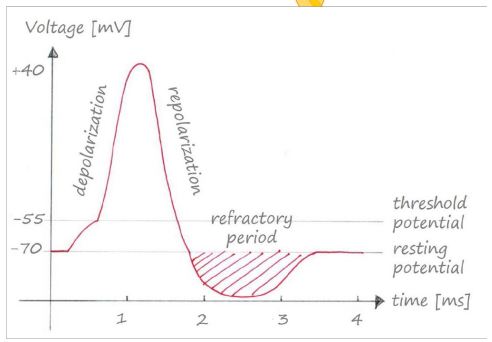


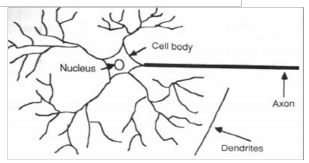


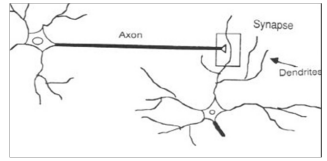


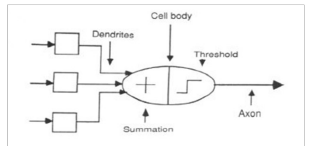






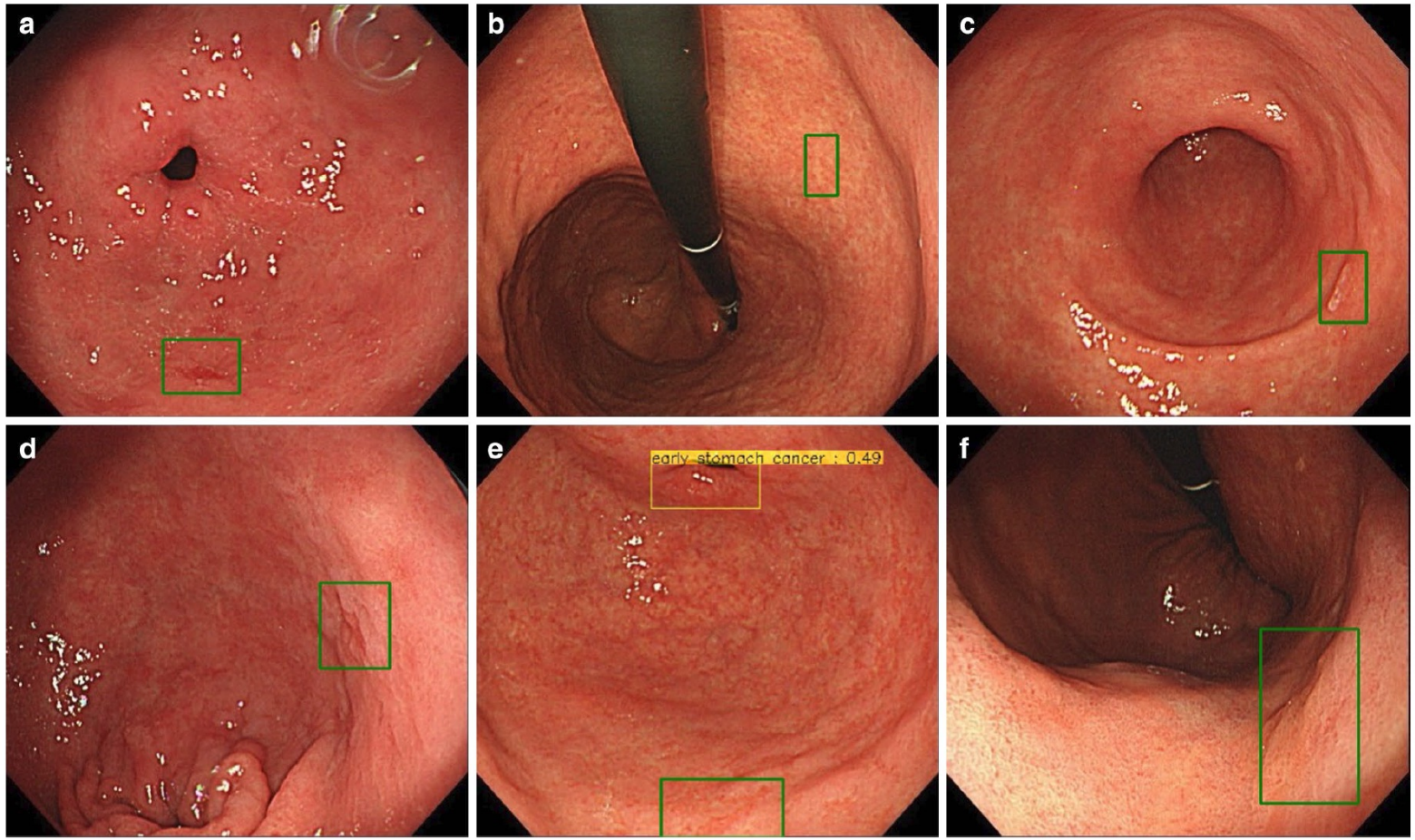






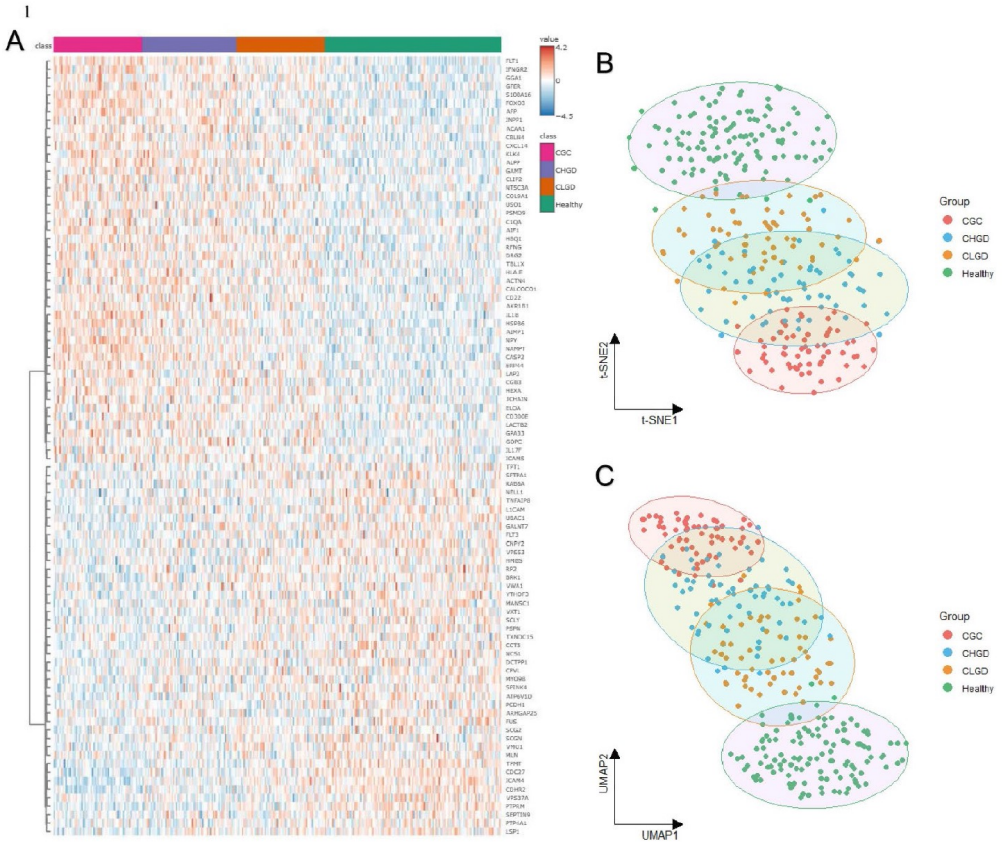
AI Role in Cardia Cancer

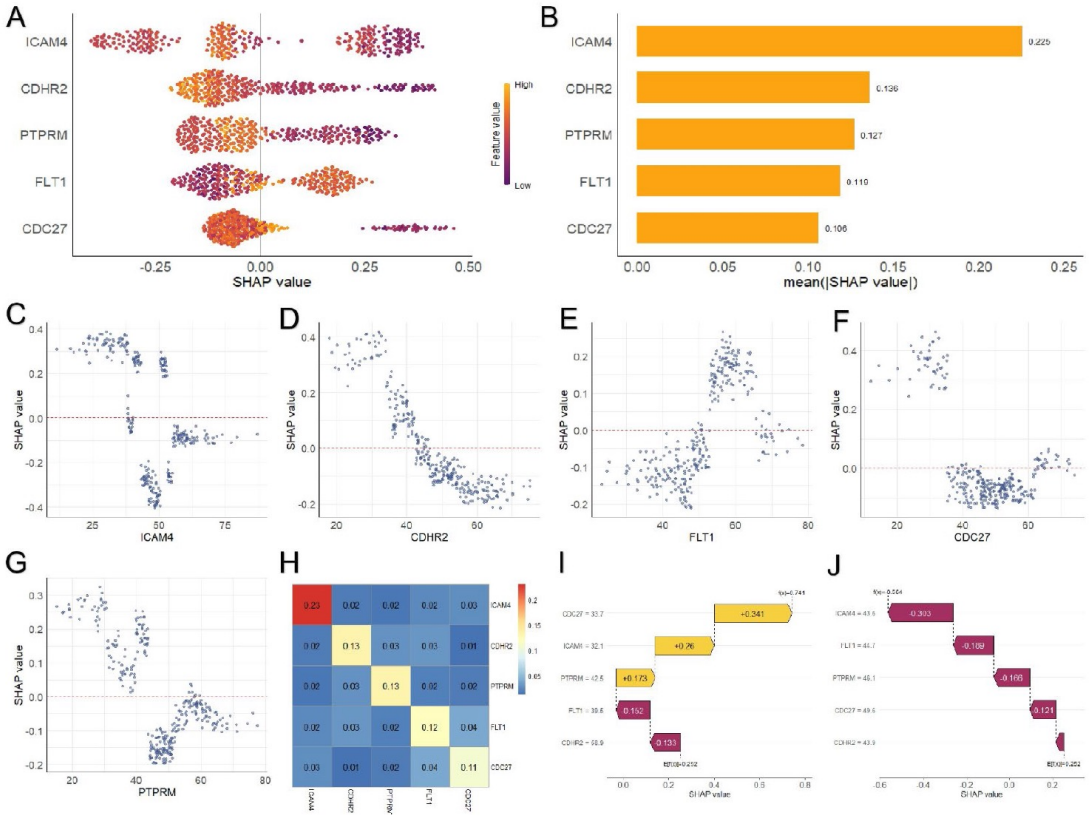
Application of artificial intelligence using a convolutional neural network for detecting gastric cancer in endoscopic images – Gastric Cancer Journal - 2018



AI Role in Cardia Cancer

Proteomic and serological markers for diagnosing cardia gastric cancer and precursor lesions in a Chinese population – Nature 2024

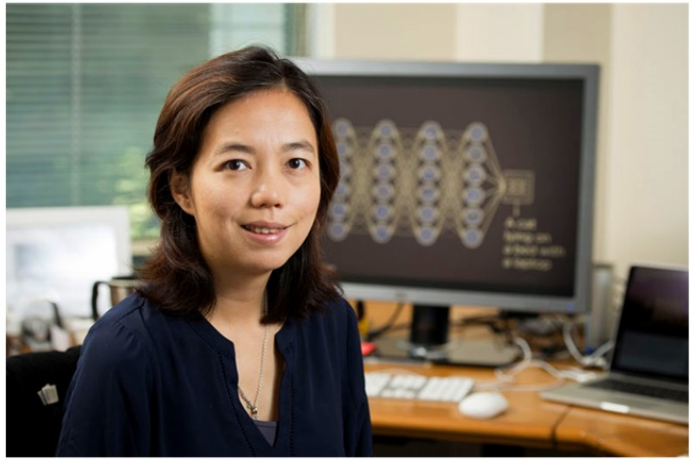




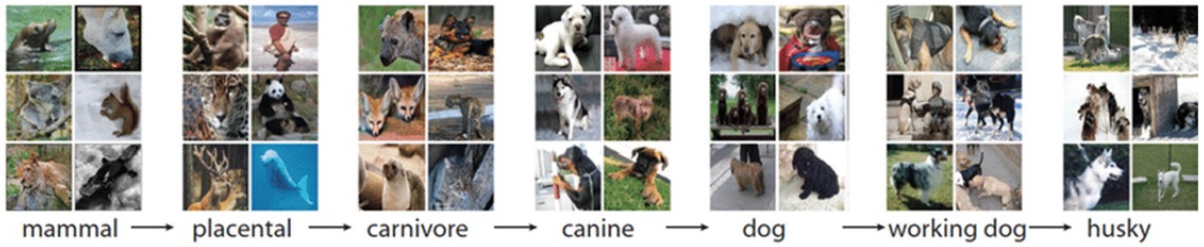
Ref. Stanford University
Ref. Deep Learning for Computer Architects

Data Value

What We Need for using AI in Medicine: New Data Lakes is Vital!



Prof. Geoffrey Hinton, Godfather of AI



Ref. Stanford University
Ref. Deep Learning for Computer Architects

Dataset Sources in the World

NIH National Institutes of Health
Turning Discovery Into Health

NIH NATIONAL CANCER INSTITUTE

Mendeley

ELSEVIER

HARVARD Dataverse

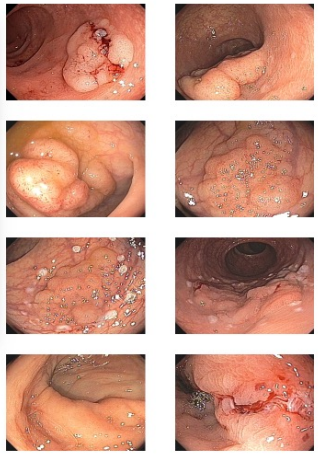
Carnegie Mellon University

DataBio
we give life to the data!

UCI University of California, Irvine

New Datasets – New Horizons

Patient Demographic				Morphology & Charachteristics								Pathology	
Patient Code	Image & Video	Sex	Age	Polyp Location	Size (cm)	Circum	Cross Two Folds	Paris	Pit	JNET	LST Type	Diagnosis	Dysplasia Grade & Differentiation
23001	+	F	35	Rectum	2*2	<1/3	Neg	0-2a	3	2A	LST-G HT	Tubular	LGD
23002	+	M	76	Rectum	3*3	<1/3	Pos	0-2a	3, 4	2A	LST-G HT	T + V	LGD
23003	+	F	66	Rectum	4*3	<1/3	Pos	0-2a	4, 5	2B	LST-G HT	Villous	HGD
23004	-	F	50	Rectum	3.5*1.5	<1/3	Pos	0-2a + 1s	3, 4, 5	0-2a + 1s	LST-G MN	T + V	HGD
23005	+	F	73	Rectum	4*3	<1/3	Pos	0-2a + 1s	4, 5	0-2a + 1s	LST-G MN	Villous	HGD
23006	+	M	82	Rectum	4*3	<1/3	Pos	0-2a +2c	3, 4	2A	LST-NG PD	T + V	LGD
23007	+	F	42	Rectum	3.5*2	<1/3	Pos	0-2a + 1s	4, 5	0-2a + 1s	LST-G MN	Villous	Nuclear Atypia
23008	+	F	48	Rectosigmoid	4*4	<1/3	Pos	0-2a	-	2A	LST-G HT	Serrated	Traditional Serrated Adenoma
23009	-	M	68	Rectosigmoid	5*3	<1/3	Pos	0-2a	3, 4, 5	3	LST-G HT	T + V	HGD
23010	-	F	64	Rectum	2*1.5	<1/3	Neg	1ps	3, 5	2B	-	Tubular	HGD
23011	-	F	53	Rectum	1.5*1	<1/3	Neg	1s	3	2A	-	Tubular	LGD
23012	-	M	47	Rectum	1.5*1	<1/3	Neg	1ps	3, 4	2A	-	T + V	LGD
23013	-	F	73	Rectum	2*2	<1/3	Neg	0-2a	3, 4, 5	2B	LST-G HT	T + V	HGD
23014	-	F	60	Rectum		<1/3	Neg	-	-	-	-	Adenocarcinoma	N/A
23015	-	F	44	Rectum	2.5*2	<1/3	Neg	0-2a + 1s	3, 4, 5	2B	LST-G HT	T + V	HGD
23016	-	F	57	Rectum	1	<1/3	Neg	1s	1	1	-	Hyperplastic	-
23017	-	F	43	Rectum	1	<1/3	Neg	1s	1	1	-	Hyperplastic	-
23018	-	M	67	Rectum	1*1	<1/3	Neg	1s	1	1	-	Hyperplastic	-
23019	-	F	34	Rectum	1*1	<1/3	Neg	1s	3	2A	-	Tubular	LGD
23020	-	M	69	Rectum	1.5*1	<1/3	Neg	1p	3	2A	-	Tubular	LGD
23021	-	F	64	Rectum	1*1	<1/3	Neg	1s	1	1	-	Hyperplastic	-
23022	-	M	44	Rectum	1*1	<1/3	Neg	1s	1	1	-	Hyperplastic	-
23023	-	F	32	Rectum	3*3	<1/3	Pos	0-2a	3, 4, 5	2B	-	T + V	HGD



Forootan *et al. BMC Research Notes* (2024) 17:393
https://doi.org/10.1186/s13104-024-07062-6

BMC Research Notes

DATA NOTE Open Access

ERCPMP: an endoscopic image and video dataset for colorectal polyps morphology and pathology

Mojgan Forootan[1], Mohsen Rajabnia[2], Ahmad R. Mafi[1], Hamed Azhdari Tehrani[3], Erfan Ghadirzadeh[1], Mahziar Setayeshfar[4], Zahra Ghaffari[1], Mohammad Tashakoripour[1], Mohammad Reza Zali[1] and Hamidreza Bolhasani[5*]

Abstract
This dataset contains demographic, morphological and pathological data, endoscopic images and videos of 191 patients with colorectal polyps. Morphological data is included based on the latest international gastroenterology classification references such as Paris, Pit and JNET classification. Pathological data includes the diagnosis of the polyps including Tubular, Villous, Tubulovillous, Hyperplastic, Serrated, Inflammatory and Adenocarcinoma with Dysplasia Grade & Differentiation.

Objectives: Today the most important challenge of developing accurate algorithms for medical prediction, detection, diagnosis, treatment and prognosis is data. ERCPMP is an Endoscopic Image and Video Dataset for Recognition of Colorectal Polyps Morphology and Pathology. This dataset can be used for developing deep learning algorithms for polyps detection, classification, and segmentation.

Data description: Images were captured with Olympus colonoscope and are presented in RGB format, JPG type with the resolution of 368 * 256 pixels and 96 dpi. The name of each file (image or video) includes pathological diagnosis, grade and JNet classification of the related polyp.

Keywords Colorectal polyps, Dataset, Endoscopy, Colonoscopy, Morphology, Surface pattern, Pathology, Artificial intelligence

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[2]Alborz University of Medical Sciences, Alborz, Iran
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[5]Department of Computer Engineering, Science and Research Branch, Islamic Azad University, Tehran, Iran

Objective

Colorectal cancer (CRC) is a significant cause of mortality worldwide, responsible for an estimated 1.9 million new cases and 935,000 deaths globally among 5.2 million diagnosed cases in 2020 [1]. It is the third most prevalent malignancy worldwide and the second major cause of cancer-related mortality [1]. Detecting CRC early through screening methods like colonoscopy, fecal occult blood tests, and sigmoidoscopy is crucial for improving patient outcomes, which can detect polyps and early-stage malignancies that can be excised before they progress [2, 3].

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SPRINGER NATURE

New Datasets – New Horizons

ERCPMP: An Endoscopic Image and Video Dataset for Colorectal Polyps Morphology and Pathology

Mendeley

ELSEVIER

www.databiox.com

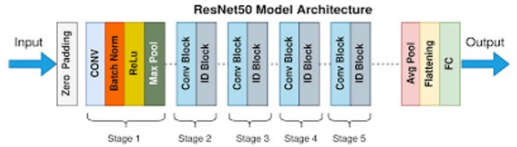
https://data.mendeley.com/datasets/7grhw5tv7n/6

New Datasets – New Horizons

Setup main Model

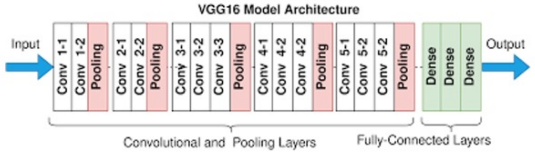
Resnet50
- Residual connections
- Train 4 and last layer

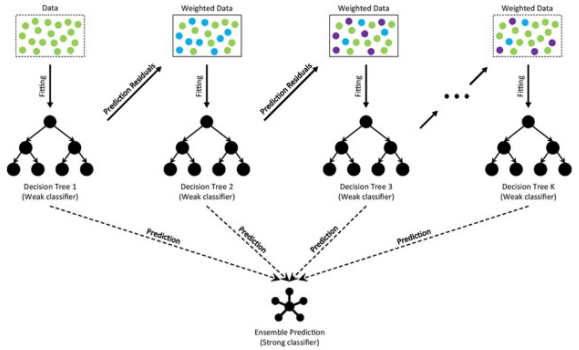
VGG_16
- Using 3*3 filters suitable for high precision
- Train just last layer



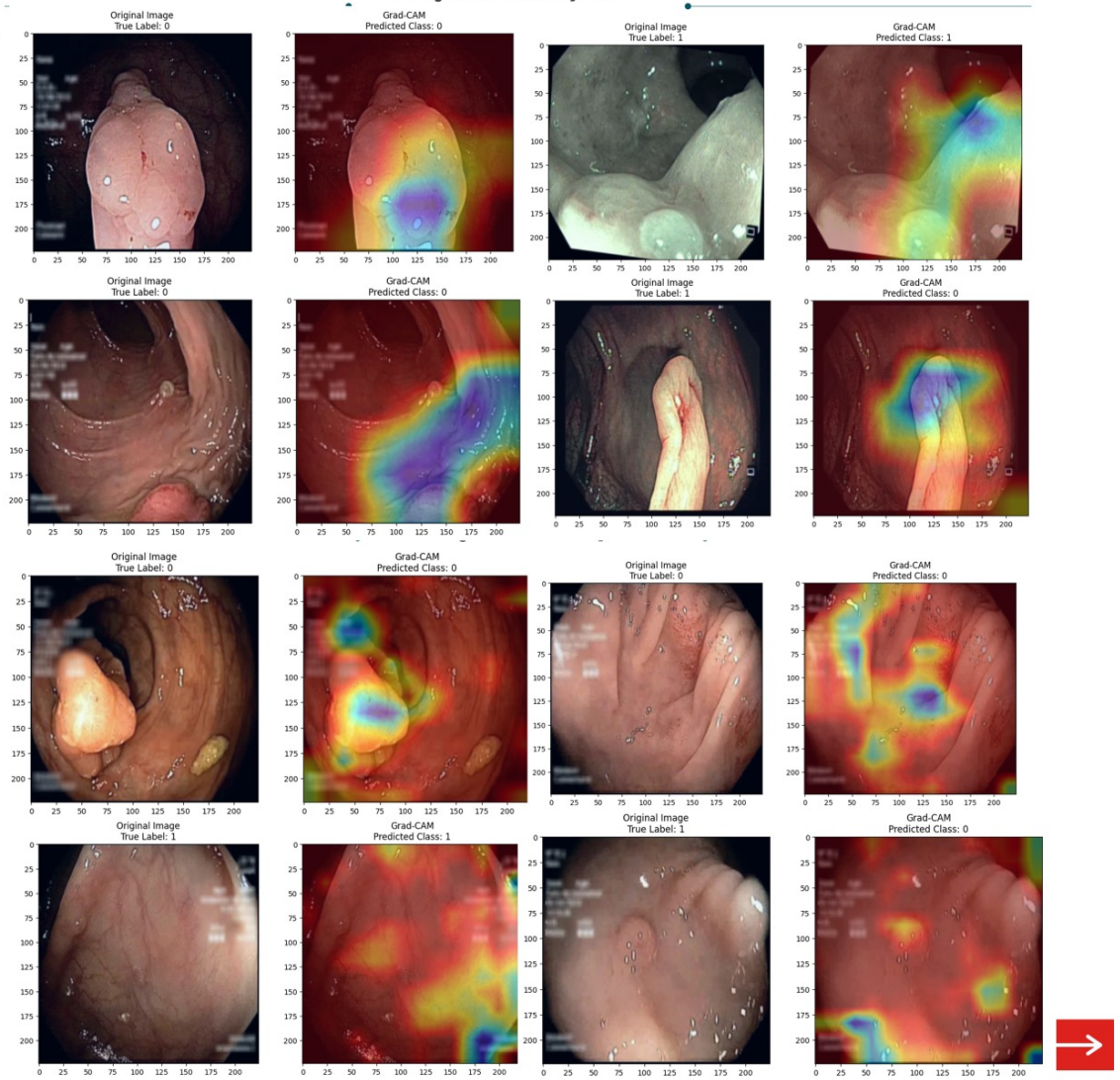
Why?

Both architectures, pre-trained on large datasets like ImageNet, offer excellent feature extraction capabilities, making them powerful tools for various image classification tasks through transfer learning





Project Analysis



& Motivation…

Motivation & Hope...

Dream Big, Work Hard and Stay focused.

2003 - 2006

6 times Surgery

+30 times Chemotherapy and...

Accepted as Postdoctoral Researcher at Harvard Medical School

May 2023

HARVARD MEDICAL SCHOOL

BRIGHAM HEALTH

BRIGHAM AND WOMEN'S HOSPITAL

Dana-Farber Cancer Institute

Brigham and Women's Hospital
Founding Member, Mass General Brigham

November 2, 2022

Hamidreza Bolhasani

[redacted]

Dear Mr. Bolhasani,

It is with pleasure that I send you this offer letter for a full-time, exempt position as a Postdoctoral Research Fellow at Brigham and Women's Hospital (BWH) in the Department of Pathology. This position is anticipated to begin on or about **May 22nd, 2023**. The department will appoint you to the BWH Medical Staff as a Research Fellow and will propose that you be appointed as a Research Fellow at the Harvard Medical School (HMS); however, final approval of this appointment rests with HMS.

The Research Fellow position is intended to provide training to facilitate your transition to an academic or research career. Primary duties include, but are not limited to; researching, developing, designing, executing, and interpreting research experiments. This position will also contribute to scientific literature, reports, journals and presentations as well as investigate, create, and develop new methods and technologies for research advancement.

Thanks

Mojgan Forootan, MD
Hamidreza Bolhasani, PhD

Bolhasani@gmail.com

Jan 2025

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