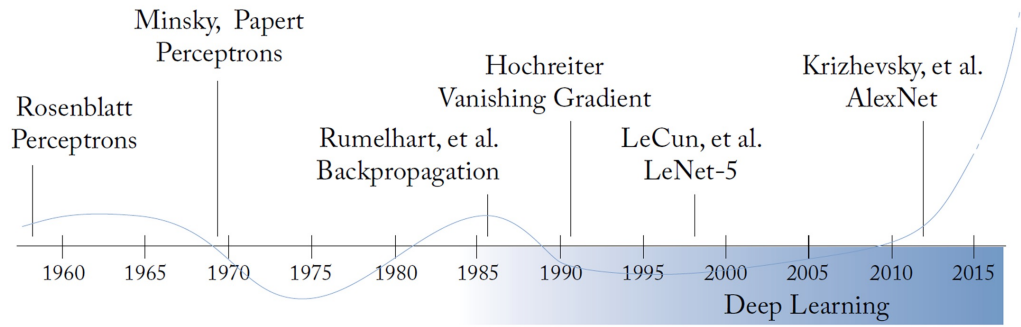
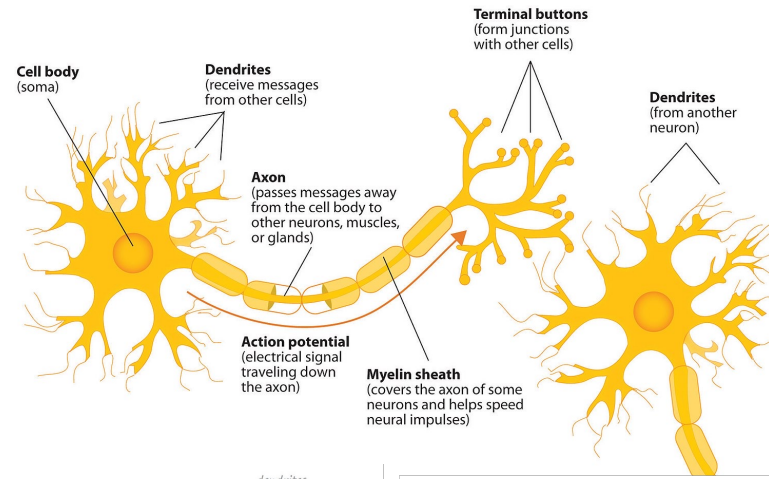


Artificial Intelligence (AI)



— Hype Curve



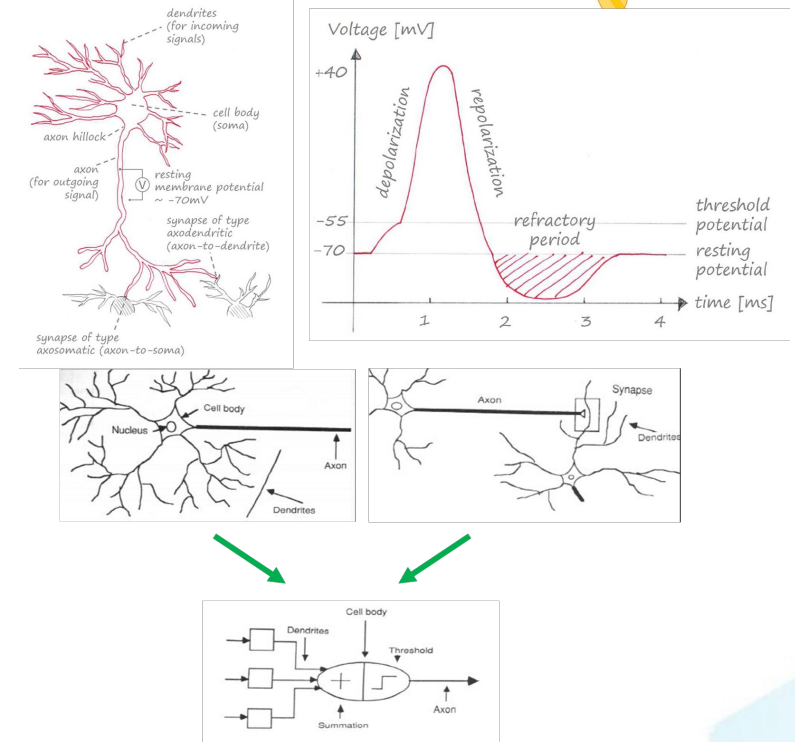
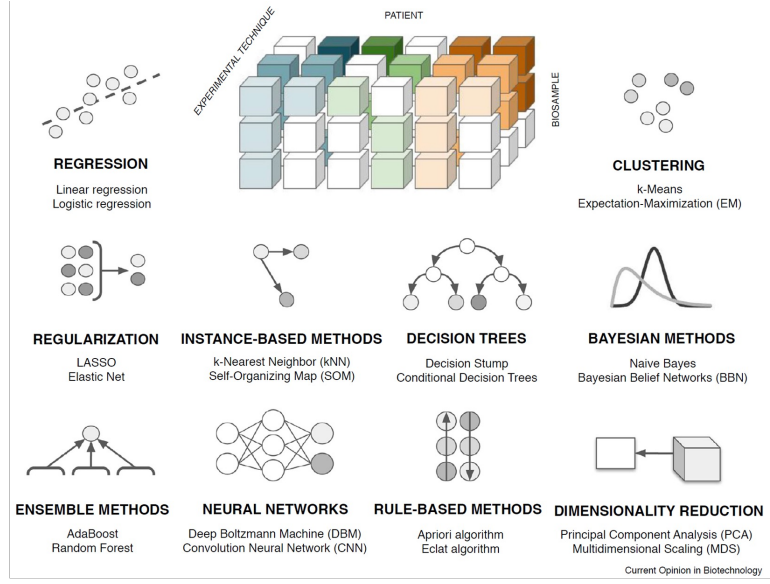
Artificial Intelligence

"The science and engineering of creating intelligent machines"
- John McCarthy, 1956

Artificial Intelligence

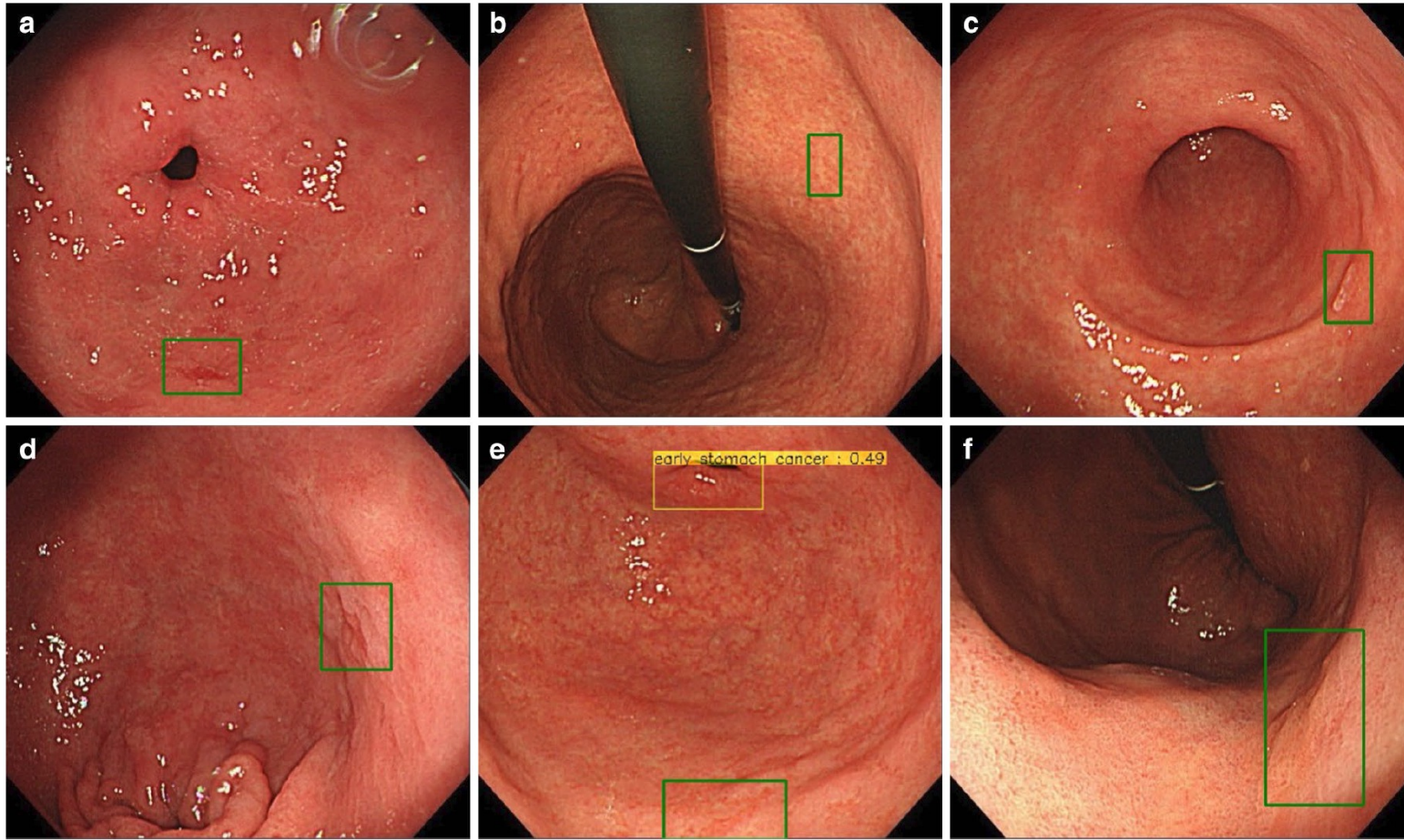
Machine Learning

"Field of study that gives computers the ability to learn without being explicitly programmed"
- Arthur Samuel, 1959



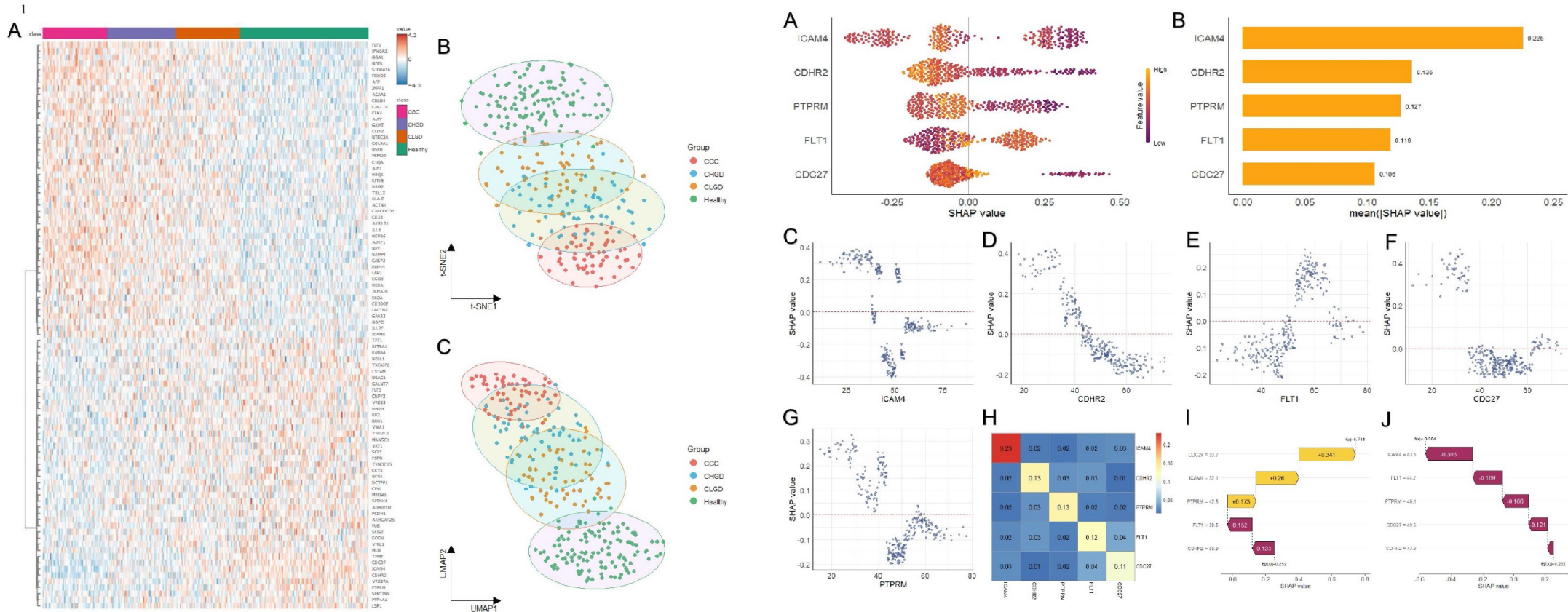
AI Role in Cardia Cancer

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

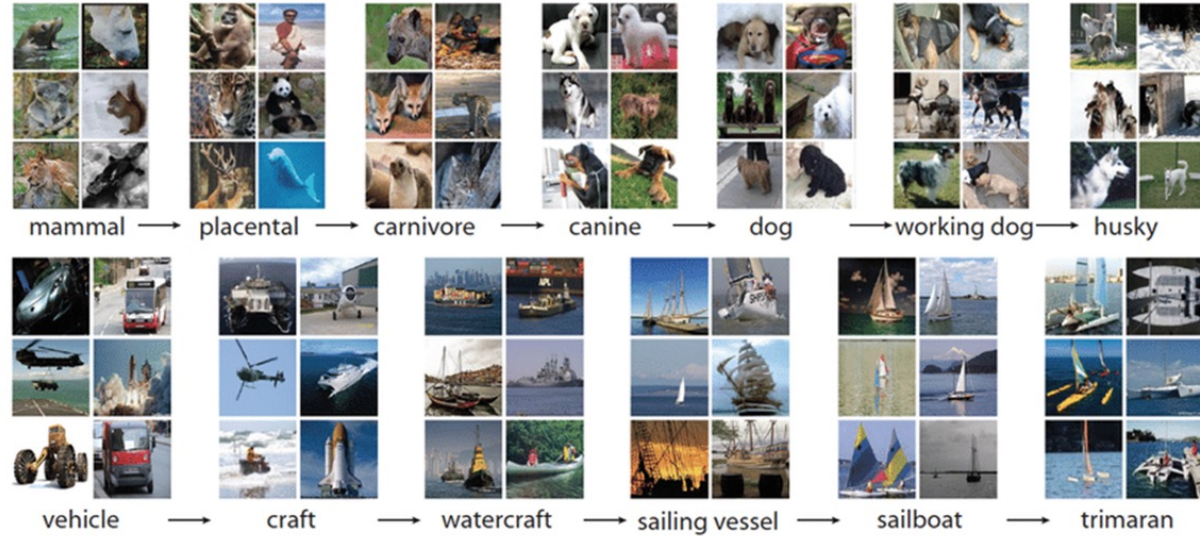


Data Value

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



Prof. Geoffrey Hinton, Godfather of AI



Dataset Sources in the World



Dataset Search

Search for Data Sets



Try [boston education data](#) or [weather site.noaa.gov](#)

Find out more about including your datasets in Dataset Search.



National Institutes of Health
Turning Discovery Into Health



NATIONAL
CANCER
INSTITUTE



ELSEVIER



HARVARD
Dataverse

Carnegie
Mellon
University



University of
California, Irvine



New Datasets – New Horizons



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 Forootan¹, Mohsen Rajabnia², Ahmad R. Mafi¹, Hamed Azhdari Tehrani³, Erfan Ghadirzadeh¹, Mahziar Setayeshfar⁴, Zahra Ghaffari¹, Mohammad Tashakoripour¹, Mohammad Reza Zali¹ 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.

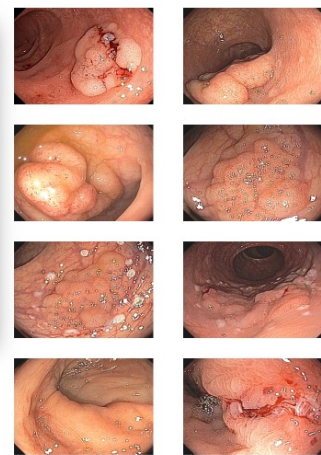
Data description: Images were captured with Olympus colonoscope and are presented in RGB format, JPG type with the resolution of 368 * 256 pixels and 96 dpi. The name of each file (image or video) includes pathological diagnosis, grade and JNet classification of the related polyp.

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

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].

Patient Demographic			Morphology & Characteristics							Pathology			
Patient Code	Image & Video	Sex	Age	Polyp Location	Size (cm)	Circum	Cross Two Folds	Paris	PR	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	3, 4, 5	2B	LST-G HT	Villous	HGD
23004	-	F	60	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	3, 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-MG 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	HGD
23008	+	F	48	Rectosigmoid	4*4	<1/3	Pos	0-2a	2A	2A	LST-G HT	Serrated Adenoma	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	1s	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	1s	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



*Correspondence: hamidreza.bolhasani@sbau.ac.ir
¹Gastroenterology and Liver Disease Research Center, Research Institute for Gastroenterology and Liver Diseases, Shahid Beheshti University of Medical Sciences, Tehran, Iran
²Alborz University of Medical Sciences, Alborz, Iran
³Department of Hematology and Medical Oncology, Shahid Beheshti University of Medical Sciences, Tehran, Iran
⁴Iran University of Medical Sciences, Tehran, Iran
⁵Department of Computer Engineering, Science and Research Branch, Islamic Azad University, Tehran, Iran



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New Datasets – New Horizons

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



ELSEVIER



www.databiox.com

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



23001_1_Tubular_LGD_JNet_2A.jpg



23001_2_Tubular_LGD_JNet_2A.jpg



23001_3_Tubular_LGD_JNet_2A.jpg



23001_Video_1_Tubular_LGD_JNet_2A.mp4



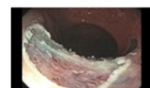
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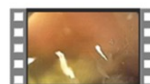
23002_2_TubuloVillous_LGD_JNet_2A.jpg



23002_3_TubuloVillous_LGD_JNet_2A.jpg



23002_4_TubuloVillous_LGD_JNet_2A.jpg



23002_Video_1_TubuloVillous_LGD_JNet_2A.mp4



23003_1_Villous_HGD_JNet_2B.jpg



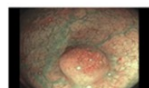
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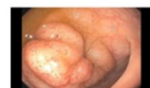
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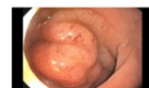
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23003_5_Villous_HGD_JNet_2B.jpg



23003_6_Villous_HGD_JNet_2B.jpg



23003_7_Villous_HGD_JNet_2B.jpg



23003_Video_1_Villous_HGD_JNet_2B.mp4



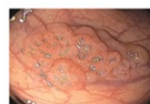
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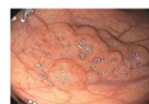
23005_1_Villous_HGD_JNet_2B.jpg



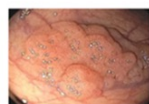
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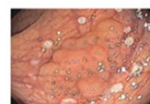
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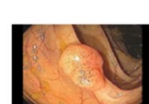
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23005_5_Villous_HGD_JNet_2B.jpg



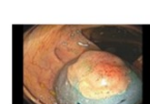
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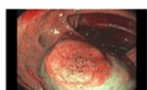
23005_7_Villous_HGD_JNet_2B.jpg



23005_8_Villous_HGD_JNet_2B.jpg



23005_9_Villous_HGD_JNet_2B.jpg



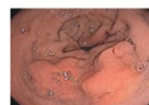
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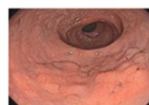
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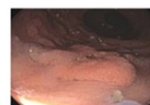
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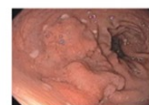
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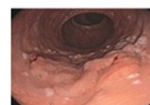
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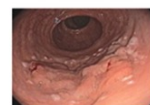
23006_3_TubuloVillous_LGD_JNet_2A.jpg



23006_4_TubuloVillous_LGD_JNet_2A.jpg



23006_5_TubuloVillous_LGD_JNet_2A.jpg

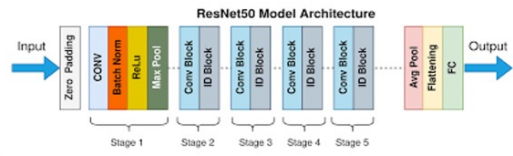


23006_6_TubuloVillous_LGD_JNet_2A.jpg

New Datasets – New Horizons



Setup main Model



Resnet50

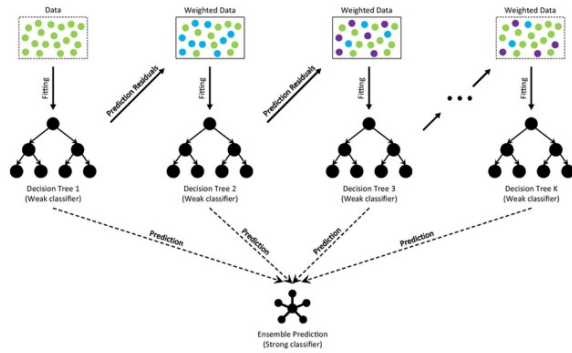
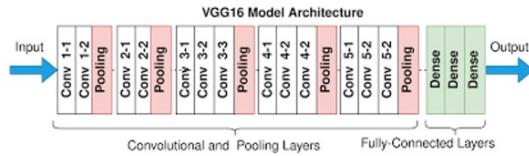
- Residual connections
- Train 4 and last layer

VGG_16

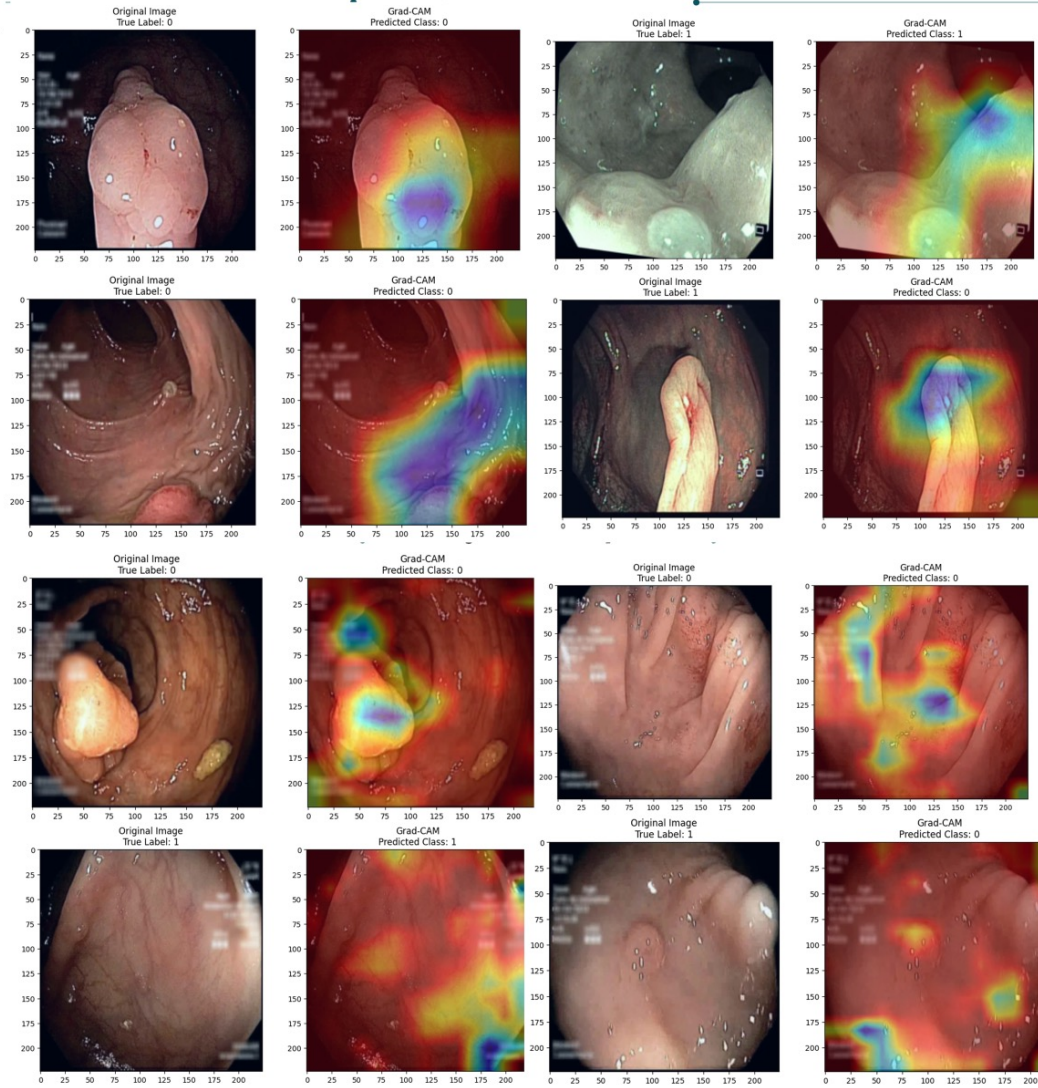
- Using 3*3 filters for high precision
- Train just last layer

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...



L-R: Dr Ali Nemati, Hamid Reza Bolhasani, Prof. Masoud Irvani, Prof. Babak Bahar, Dr Mohammad Faker, Dr Shahsavan © www.livestrong.ir

Accepted as Postdoctoral Researcher at Harvard Medical School

May 2023



HARVARD
MEDICAL SCHOOL



November 2, 2022

Hamidreza Bolhasani



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.



BRIGHAM HEALTH



**BRIGHAM AND
WOMEN'S HOSPITAL**



Dana-Farber
Cancer Institute

Thanks

Mojgan Forootan, MD
Hamidreza Bolhasani, PhD

Bolhasani@gmail.com

Jan 2025

