PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE

AI improving the effectiveness of MBS

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SCCBM Sociedad Chilena de Cirugía Bariátrica y Metabólica

IFSO
XXIX IFSO World Congress
1-4 September 2026 | Toronto, Canada

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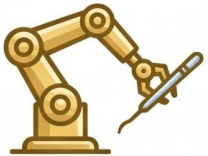
Why AI is the Singularity?

Artificial Intelligence

Language & Reasoning

Computer Vision

Predictive Analytics

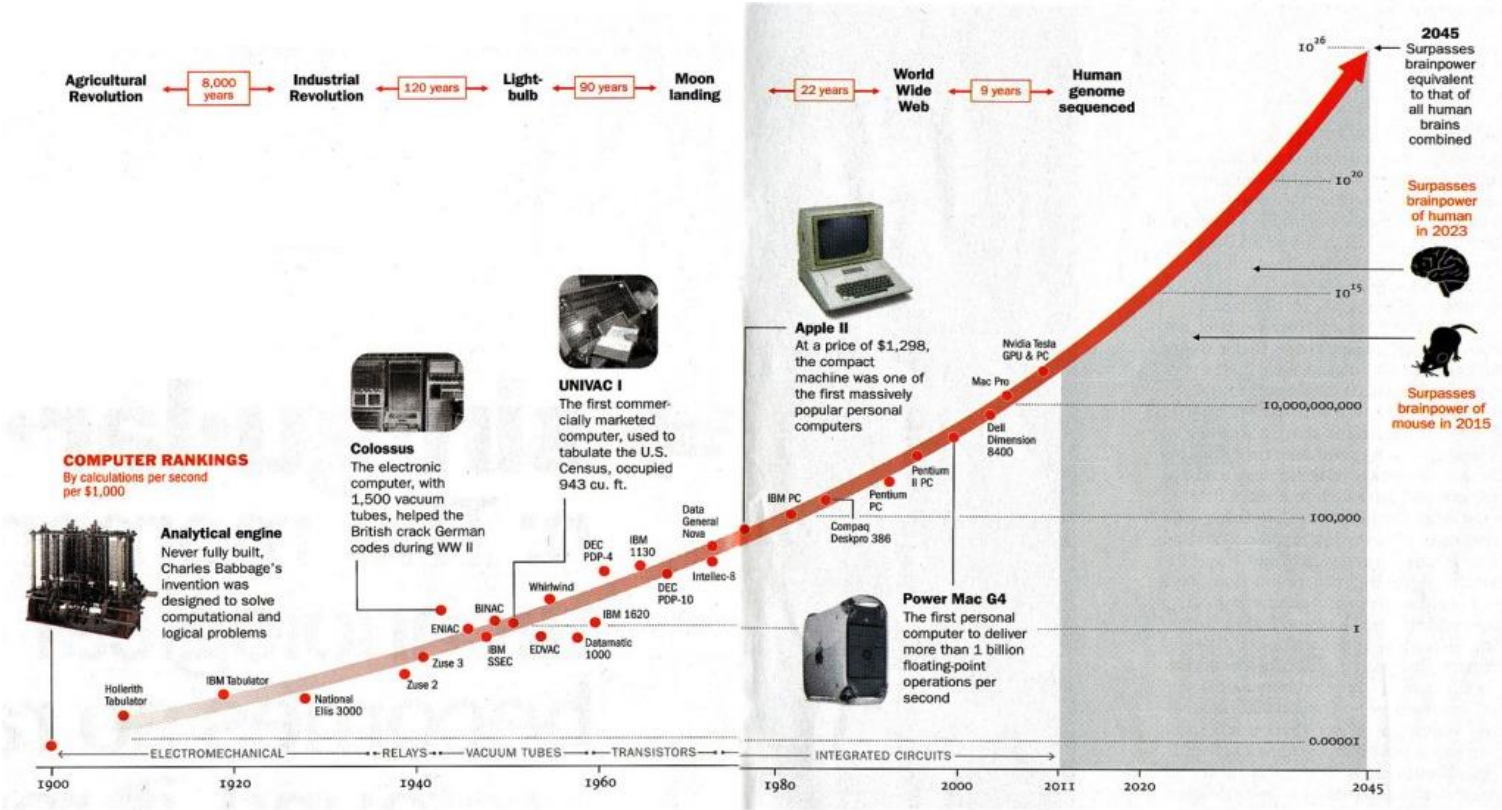


Robotics & Automation

Generative AI

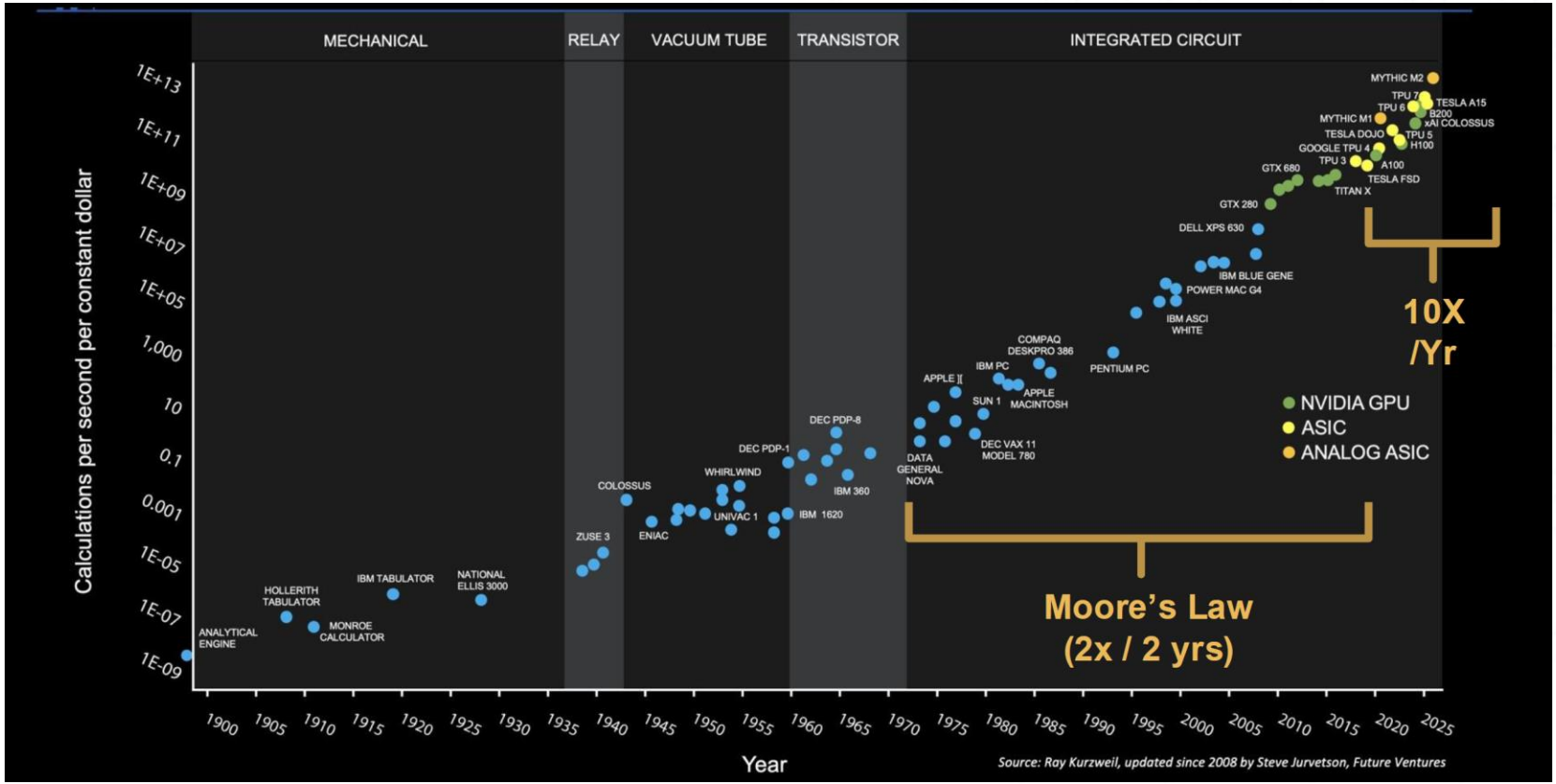
Autonomous Agents

Moore's Law

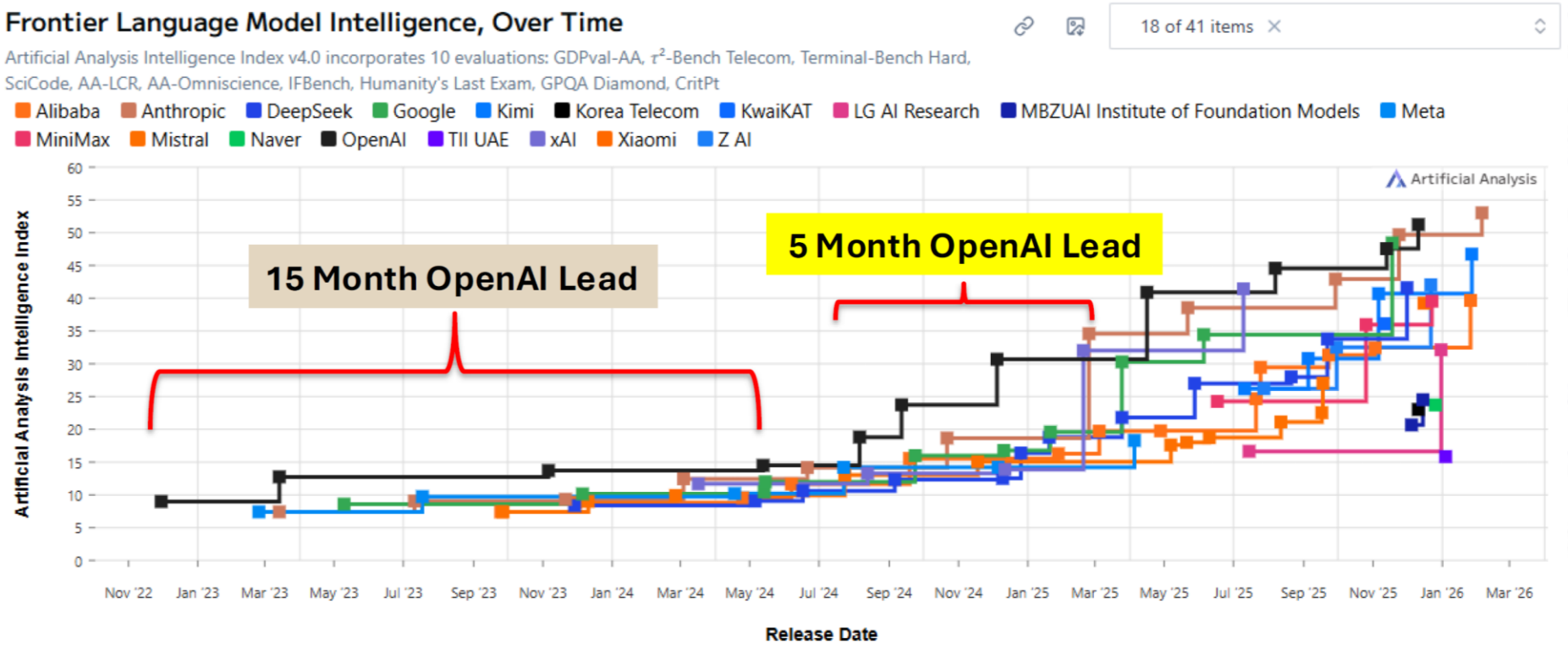


Ray Kurzweil, The Singularity is Near 2005

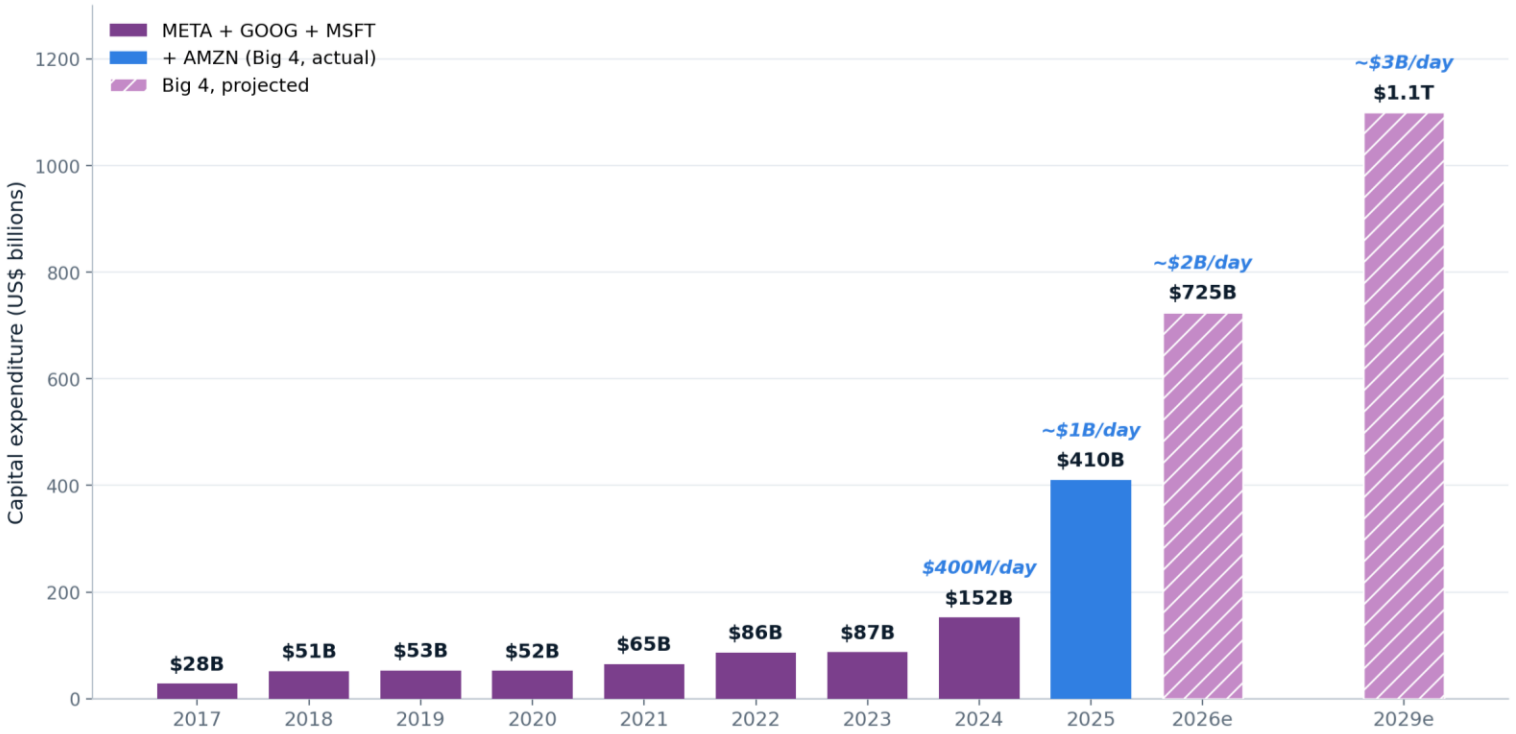
Kurzweil's Law



Artificial Intelligence: LLMs

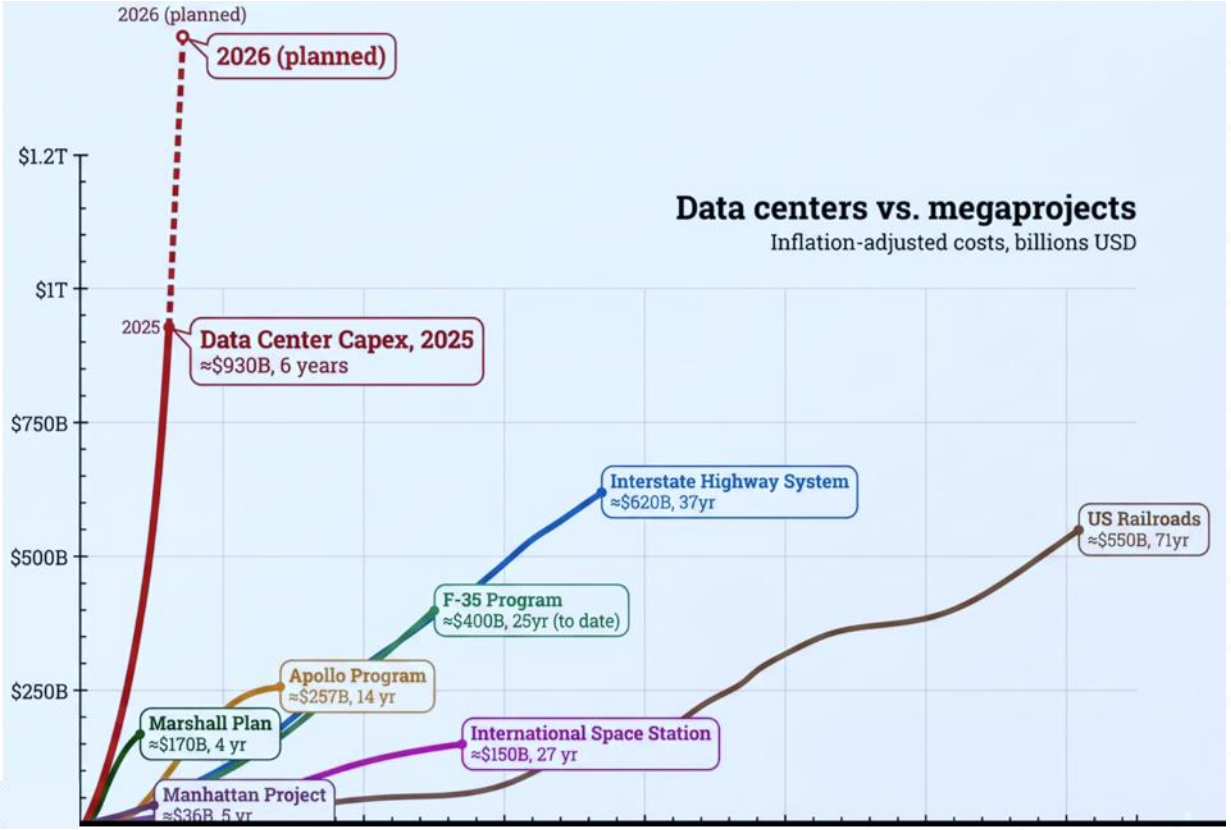


AI Hyperscalers Infrastructure Spending Explosion



Company filings and guidance 2026e

AI vs other human Megaprojects



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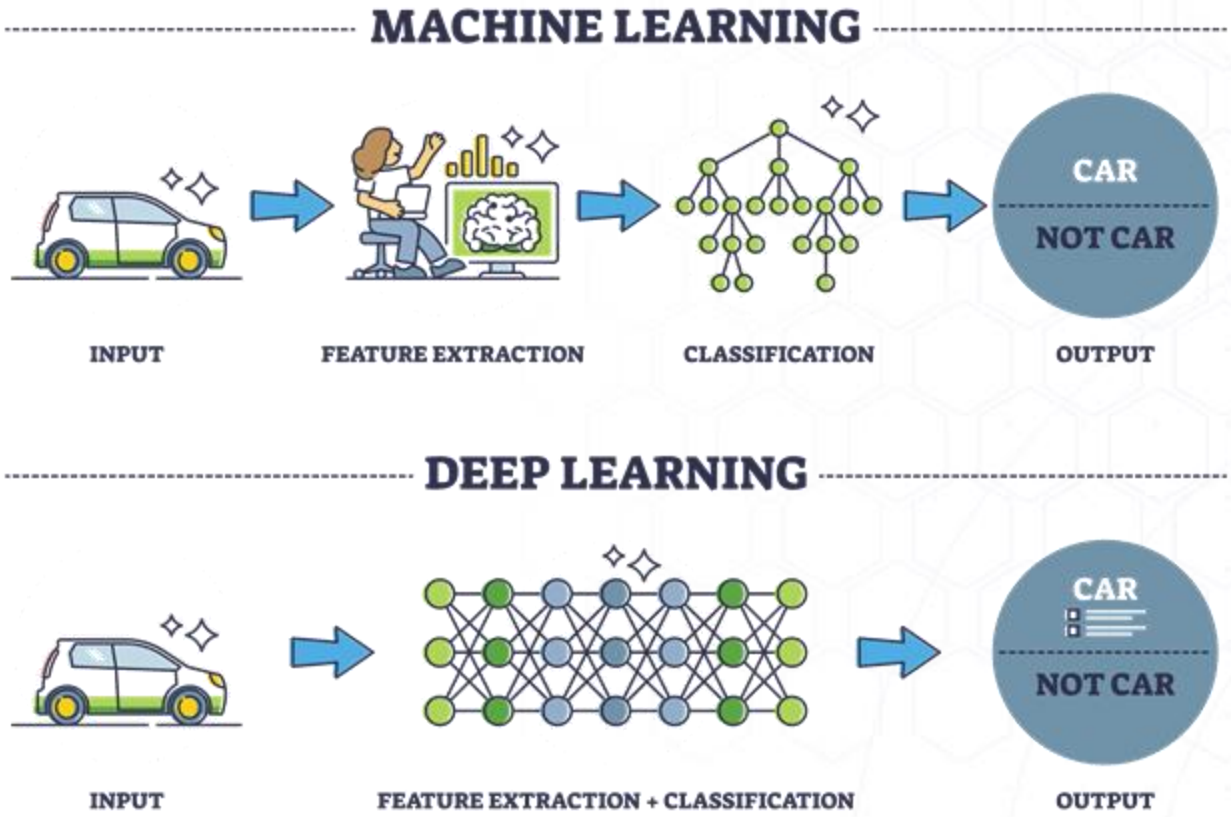
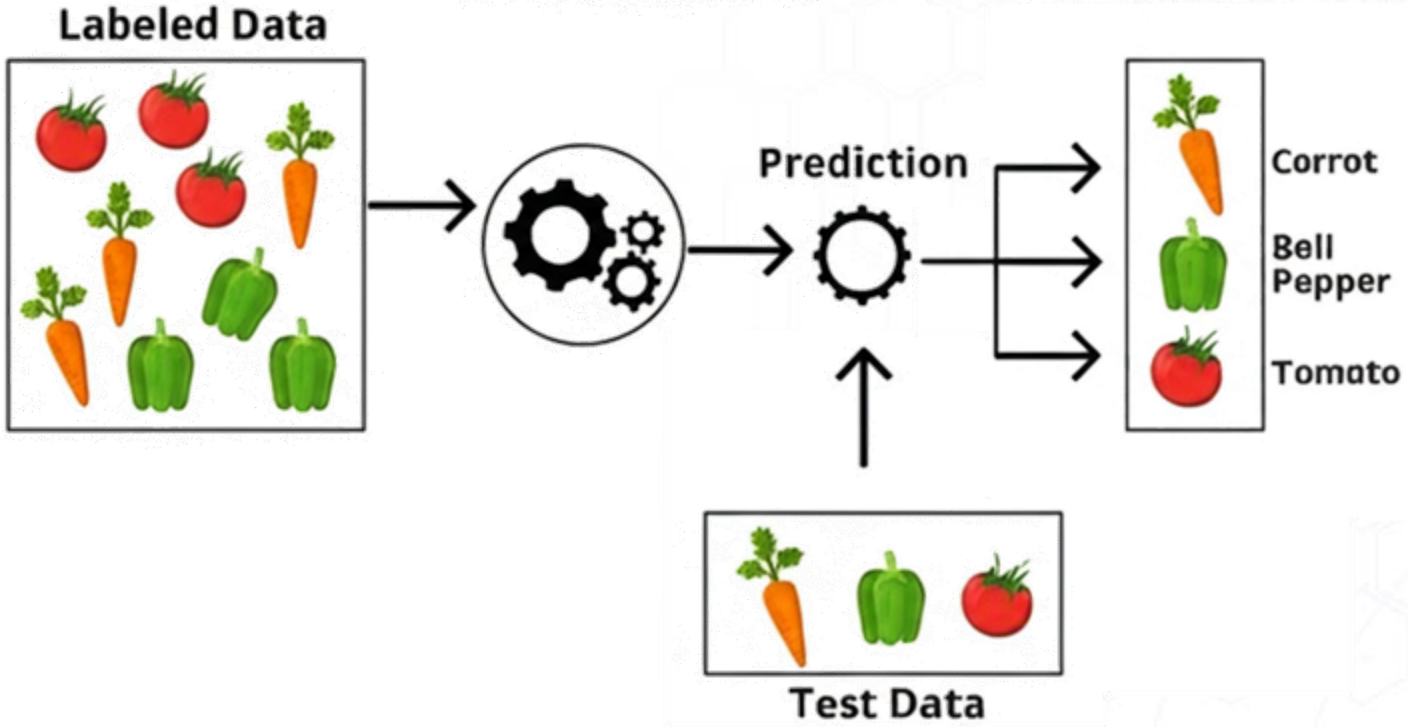
AI Training

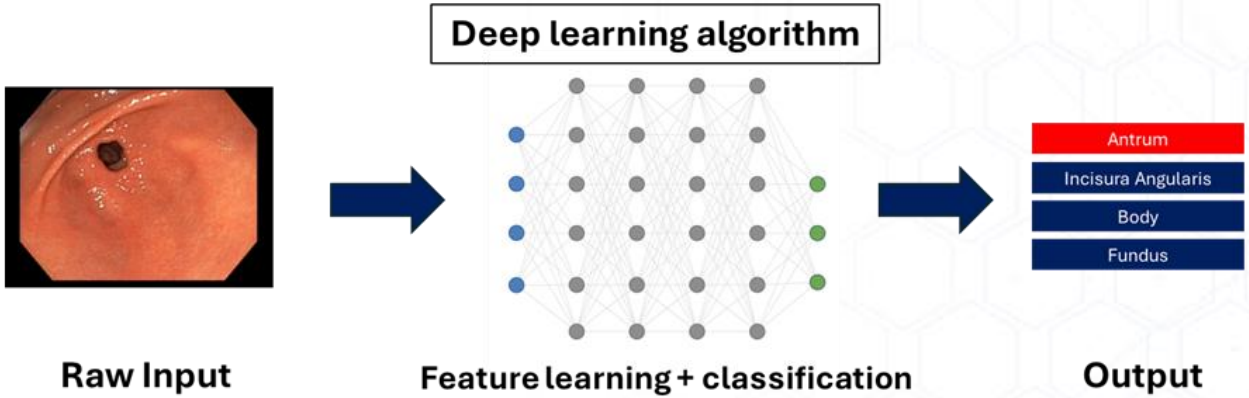
How do AI Models Work?

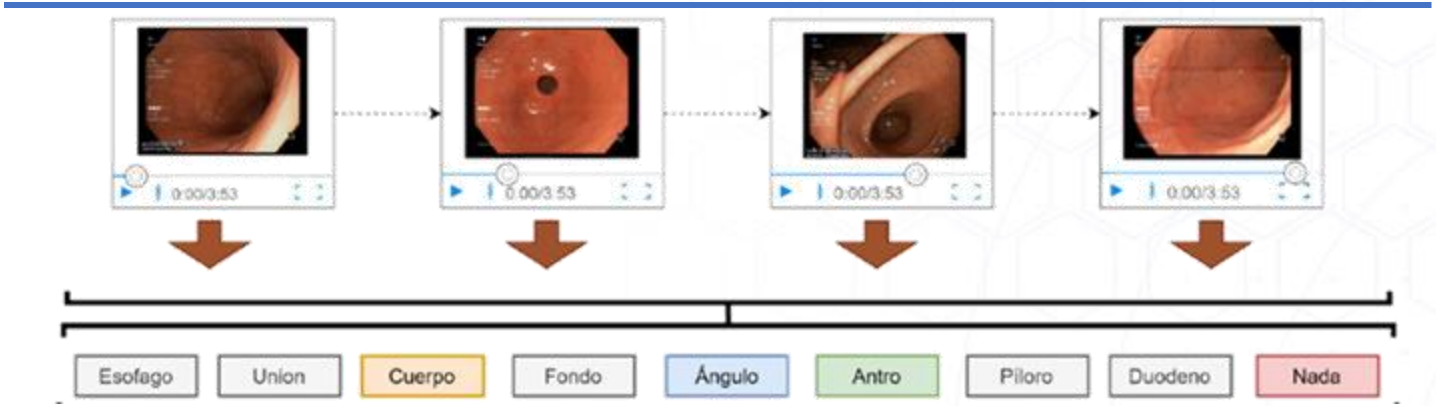


How do Models Learn?



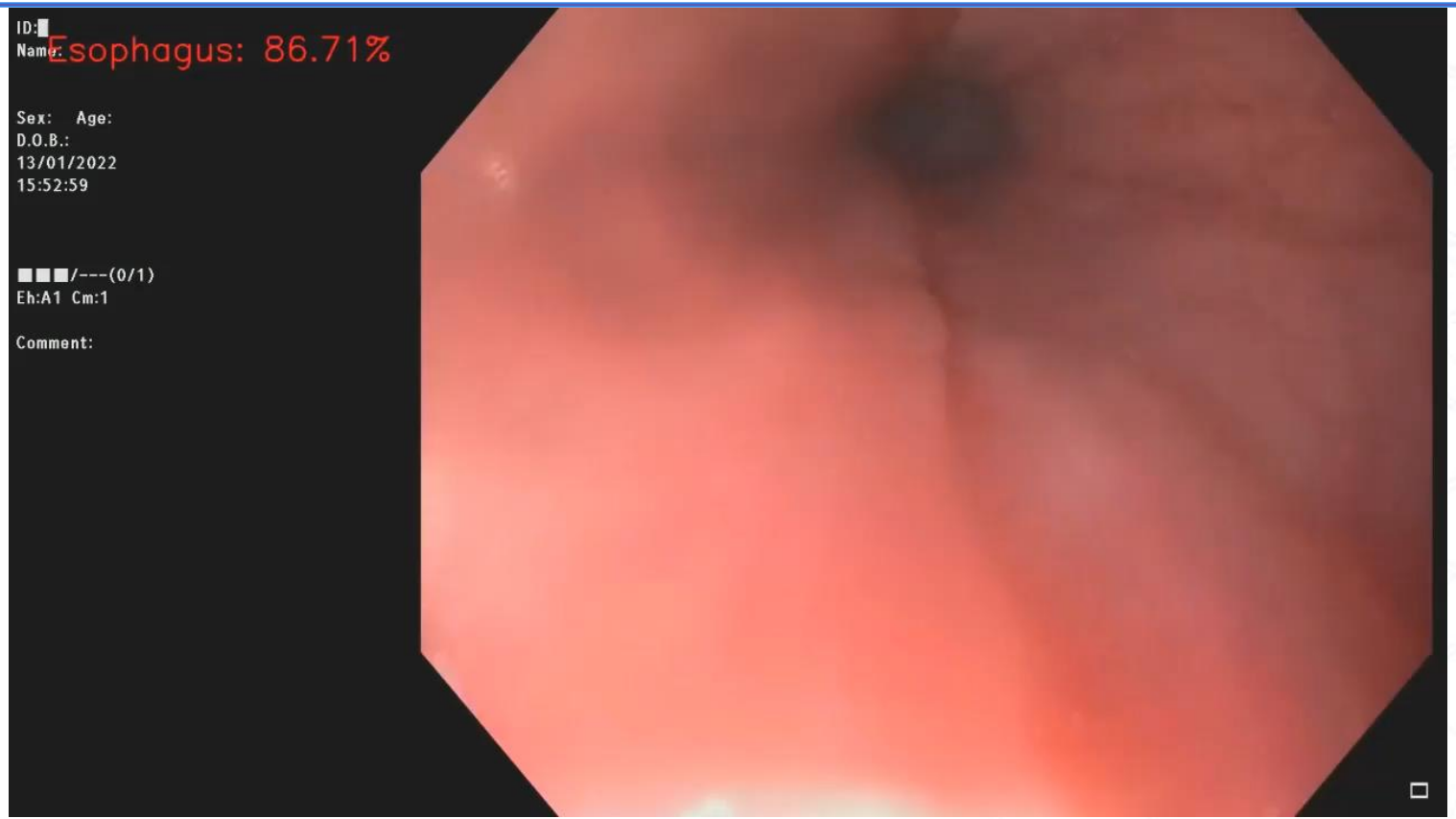
Deep Learning in Upper Endoscopy





Achurra, GSE Journal 2025

Our AI endoscopic detection model



Achurra 2026, pre-publish data

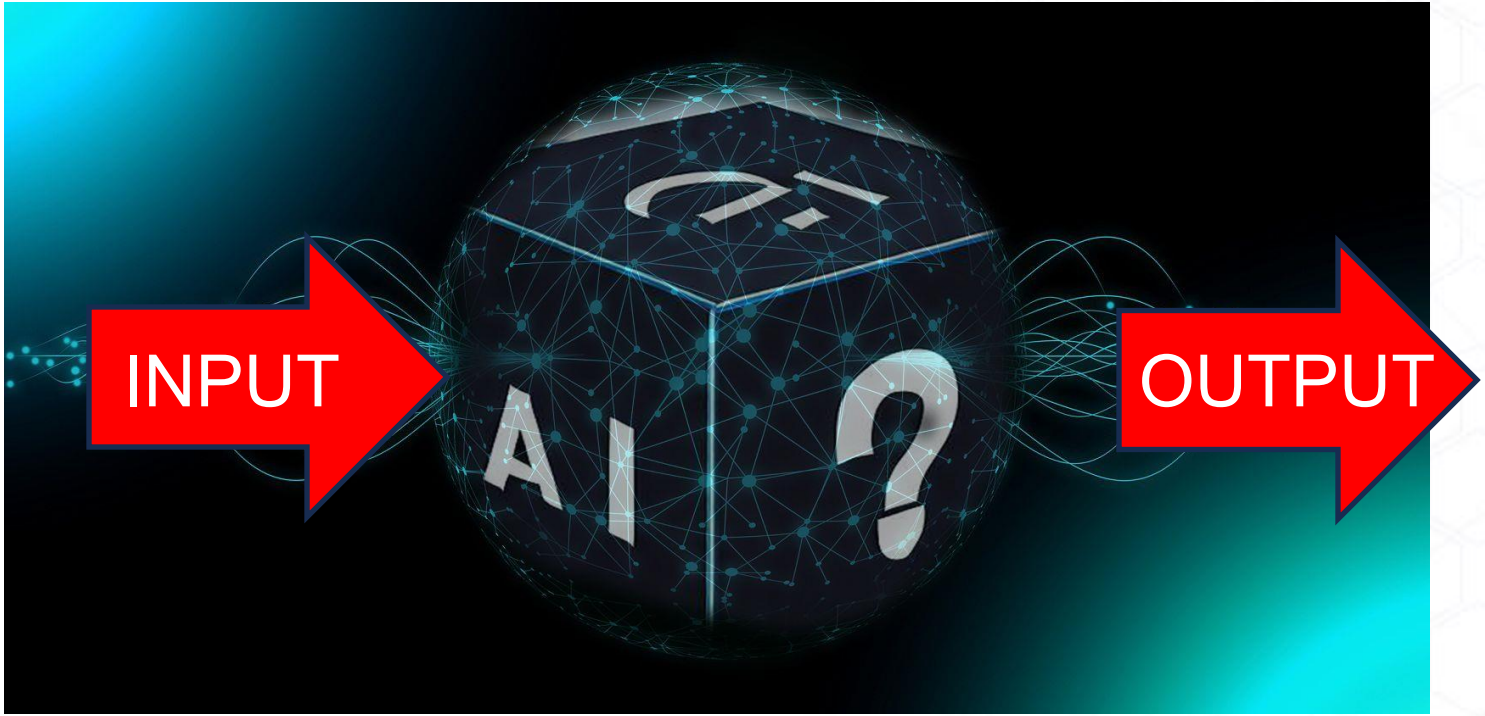
Atrophy detection in endoscopic Images

ViT – (TF2-TF1-TF2):
accuracy: **91.49%**

	Pred. Riesgo	Pred. No Riesgo
Endo. Riesgo	12	1
Endo. No Riesgo	3	31

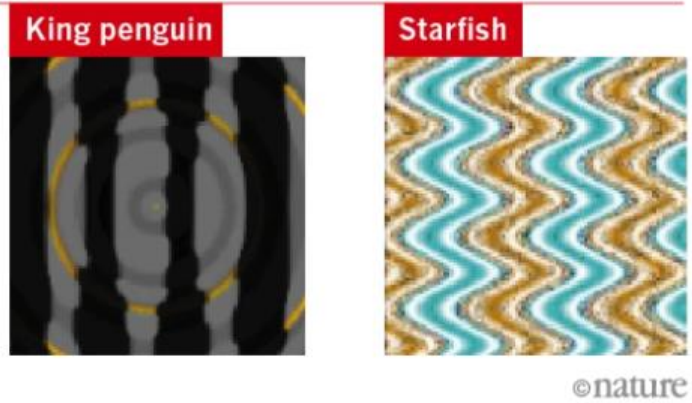
Achurra 2026, pre-publish data

AI main Limit: BLACK BOX



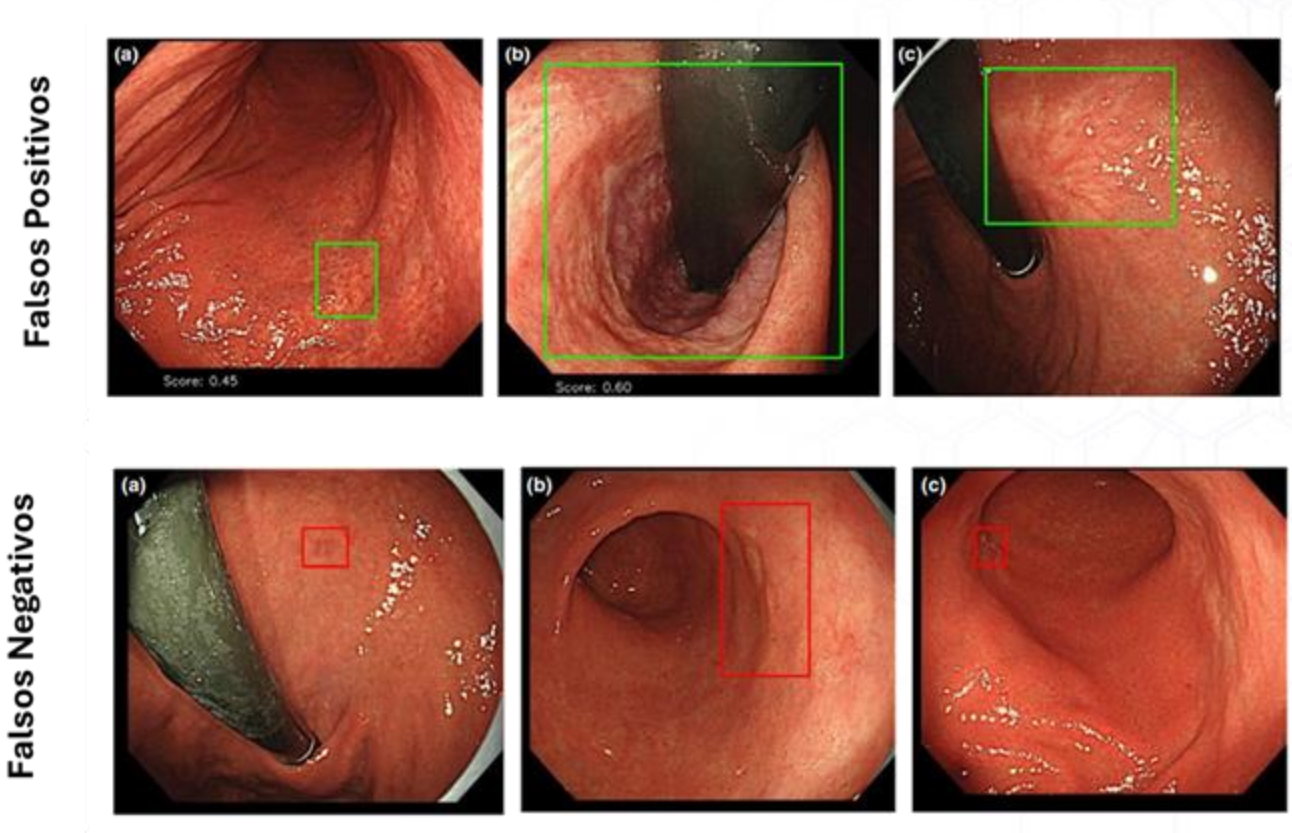
AI Errors

Scientists have evolved images that look like abstract patterns — but which DNNs see as familiar objects.



Nature 2019

AI Errors


Falsos Positivos
(a)
Score: 0.45
(b)
Score: 0.60
(c)
Falsos Negativos
(a)
(b)
(c)

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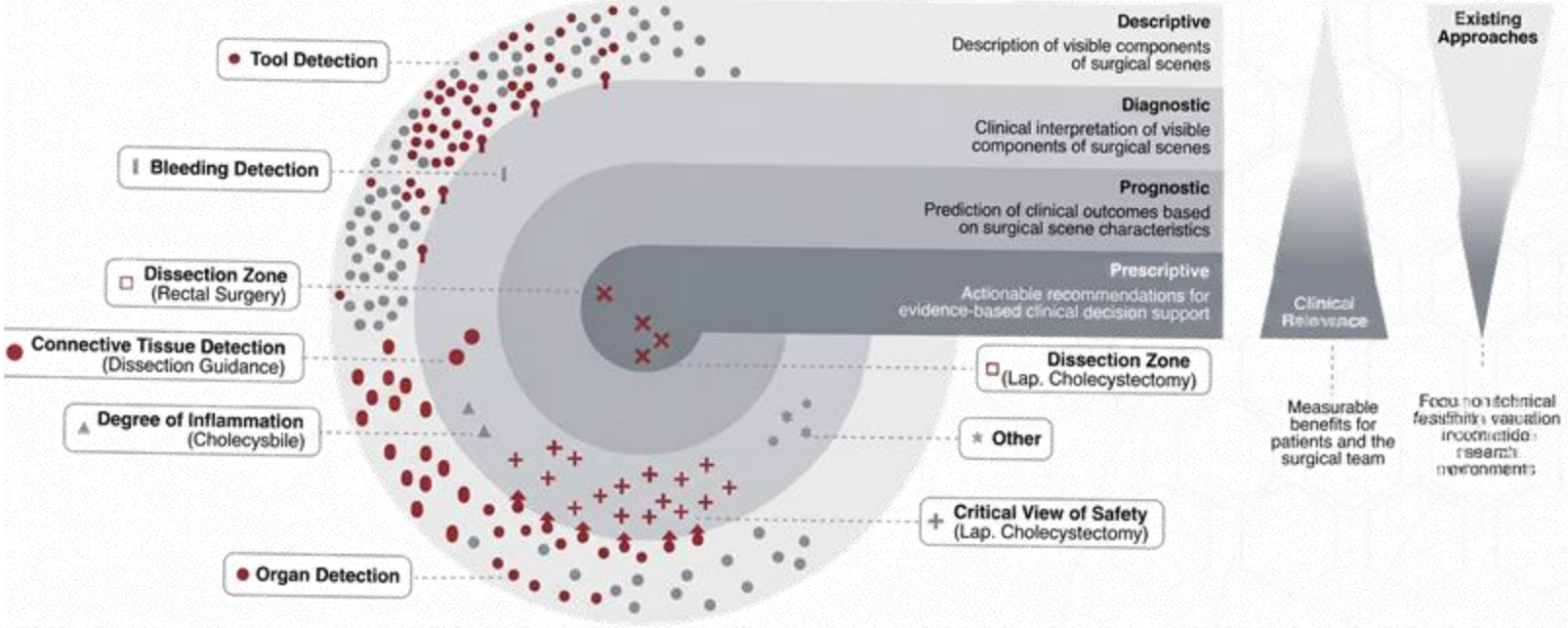
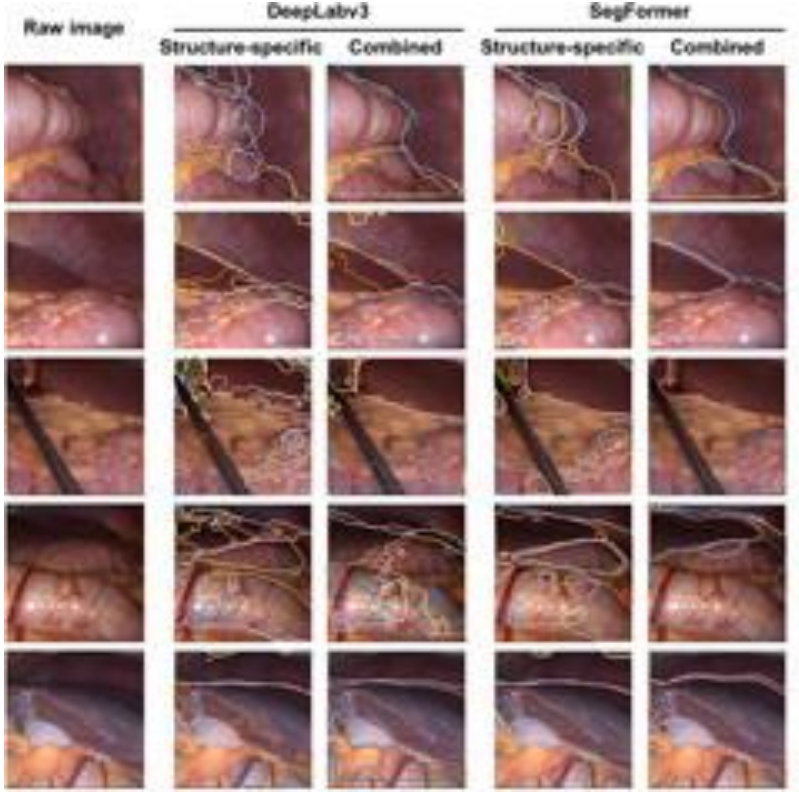
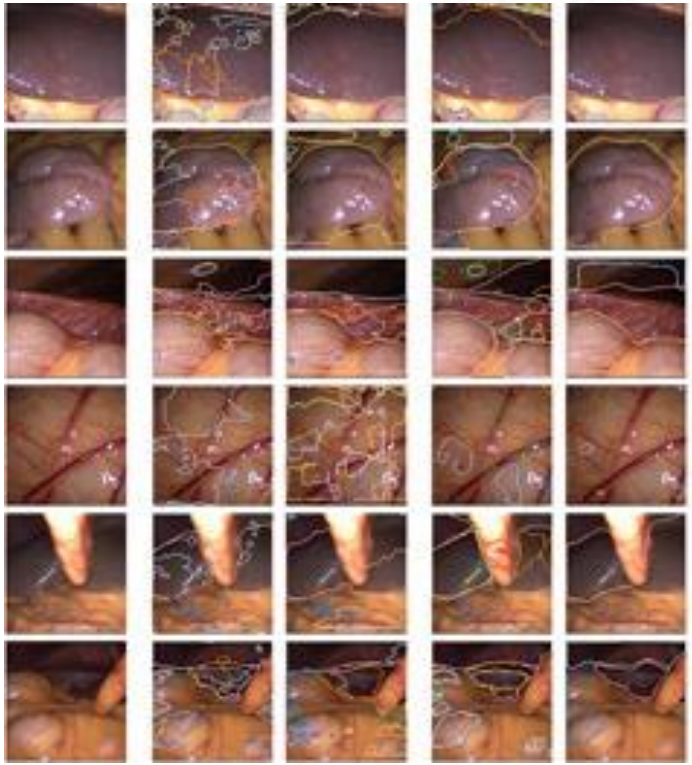
AI in Surgery

AI in Surgery



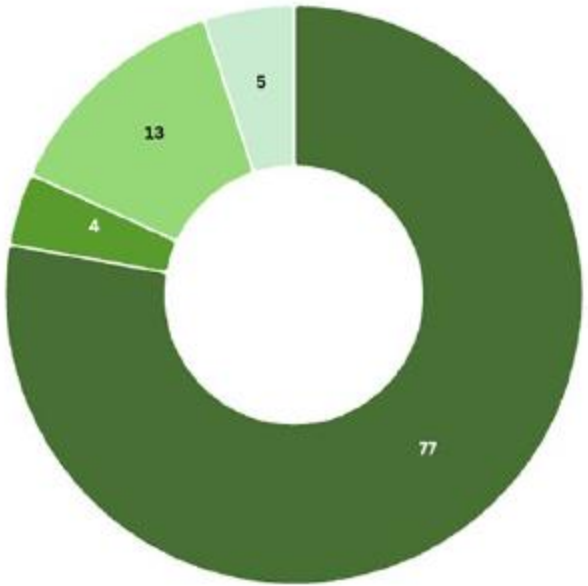
AI in Surgery





Kolbinger et al, In J Surg 2023

AI in Surgery: Op Notes

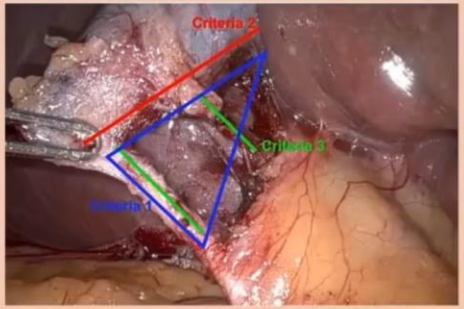


- No significant discrepancy
- omission of key steps from the operative report that were seen on video (false negative)
- inclusion of key steps in the operative report that were not seen on video (false positive)
- any error that implies a meaningful difference in technique

Stueker, et al, Int J of Surg 2025

Computer vision

INTRAOPERATIVE COMPUTER VISION: THE CRITICAL VIEW OF SAFETY



Mechanism

Deep CNNs trained on thousands of surgical video frames operating at near real-time

Objective

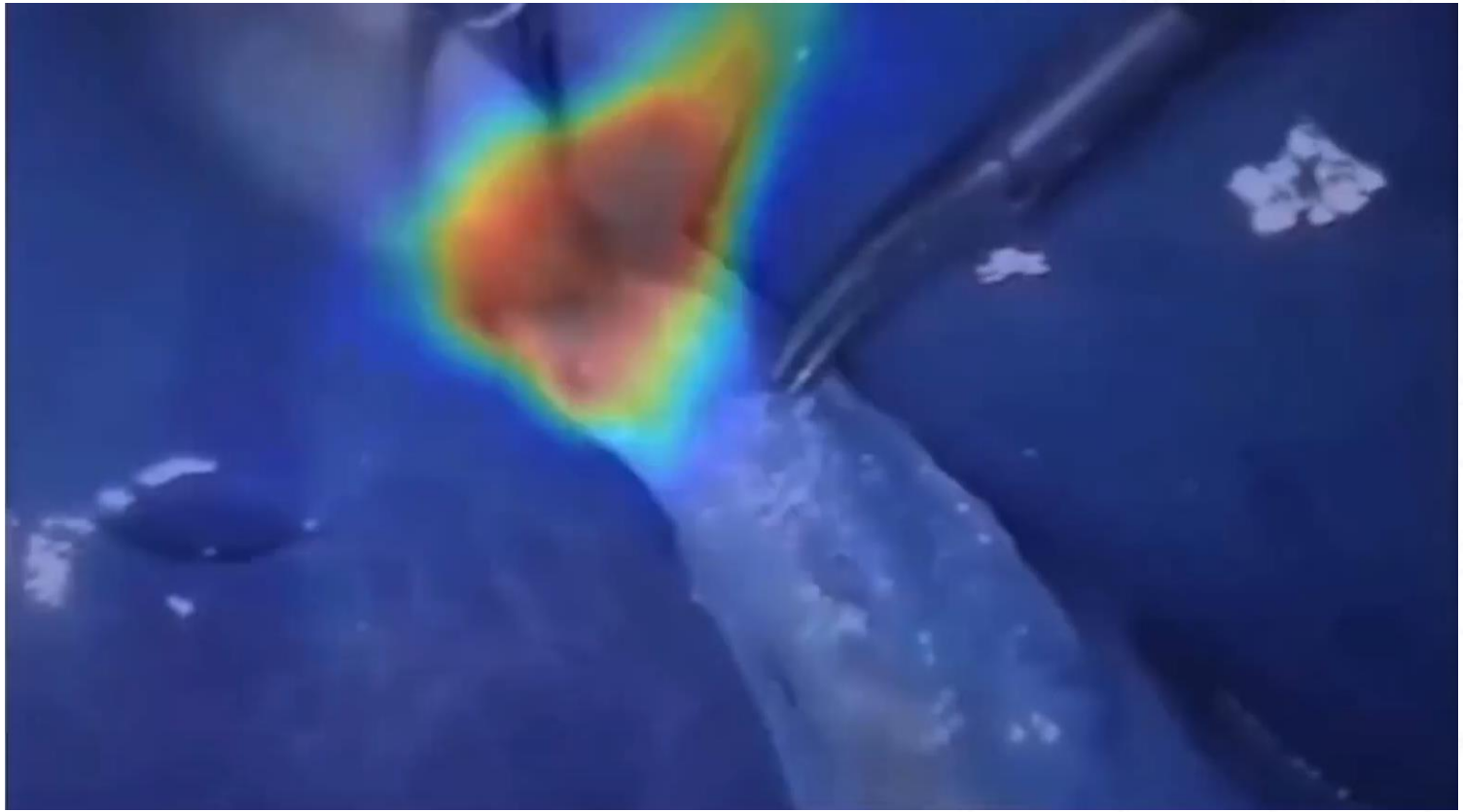
Automatically confirm the Critical View of Safety criteria prior to clipping and transection

Clinical impact

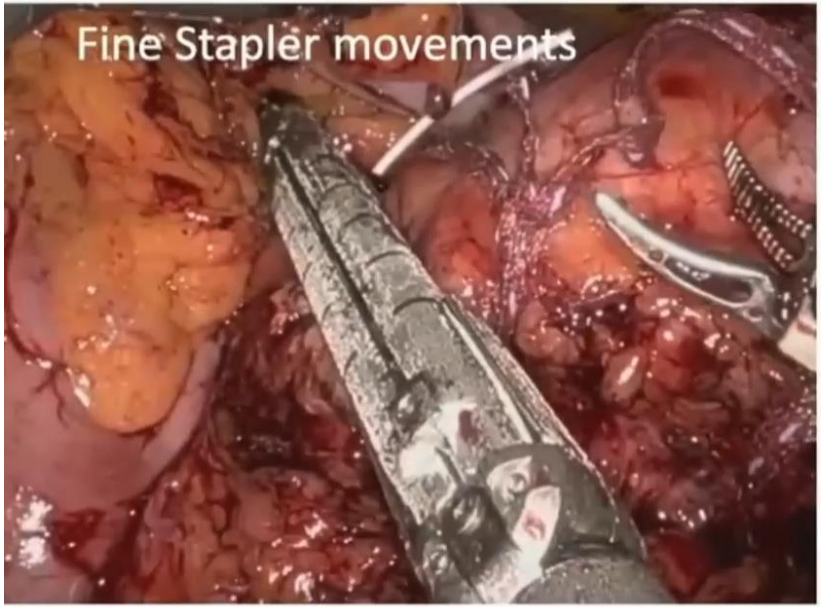
Continuous and objective safety monitor, mitigating the risk of common bile duct injuries

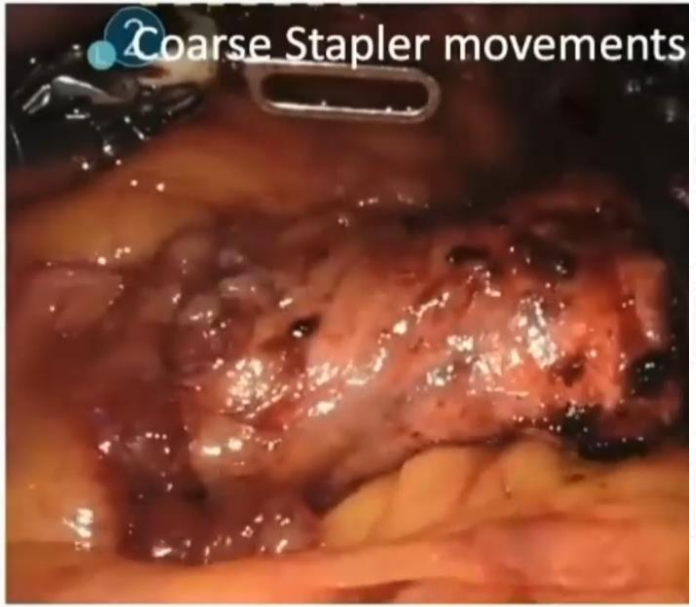
SAGES

Computer Vision in real time



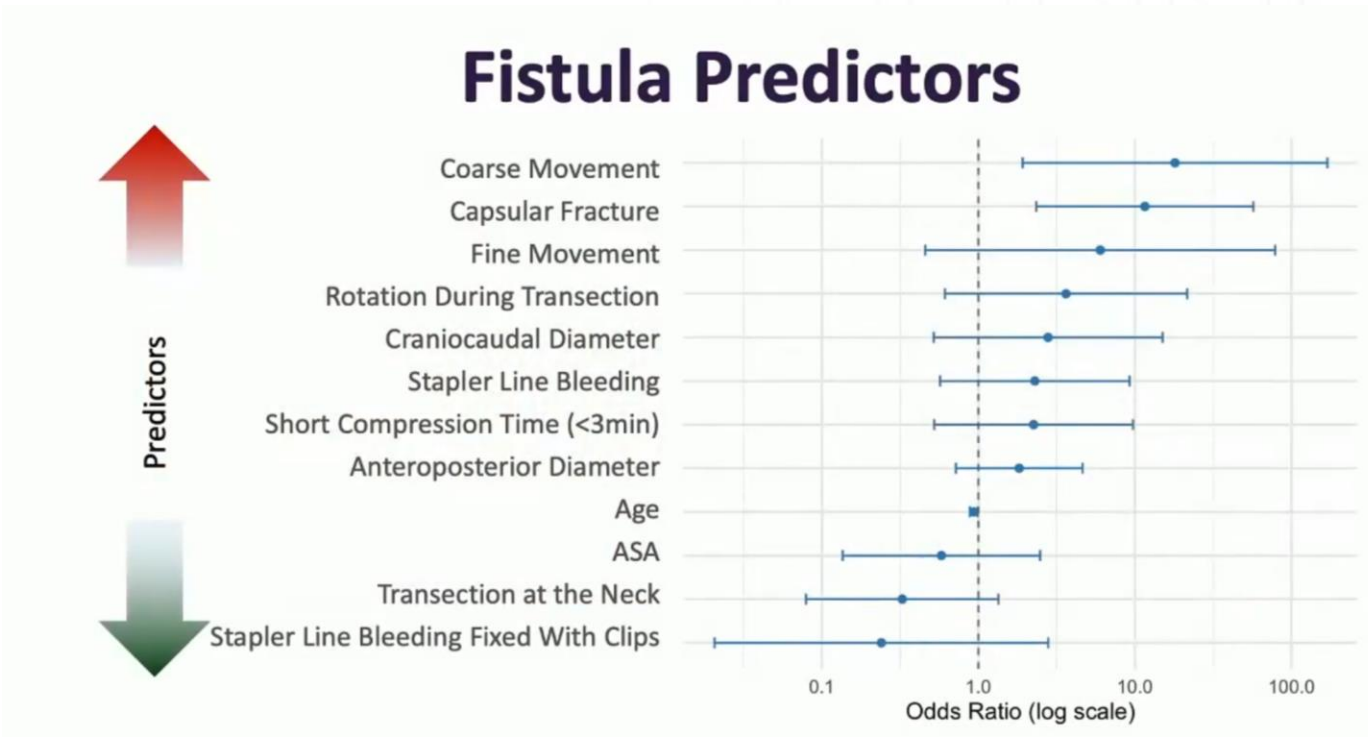
AI Video Analysis and outcomes





UCSF 2026 data

AI Video Analysis and outcomes



UCSF 2026 data

AI video analysis: Training and feedback

AI video analysis: Training and feedback

1. Trainee **trains** a **skill** or **procedure** and **records** her/himself

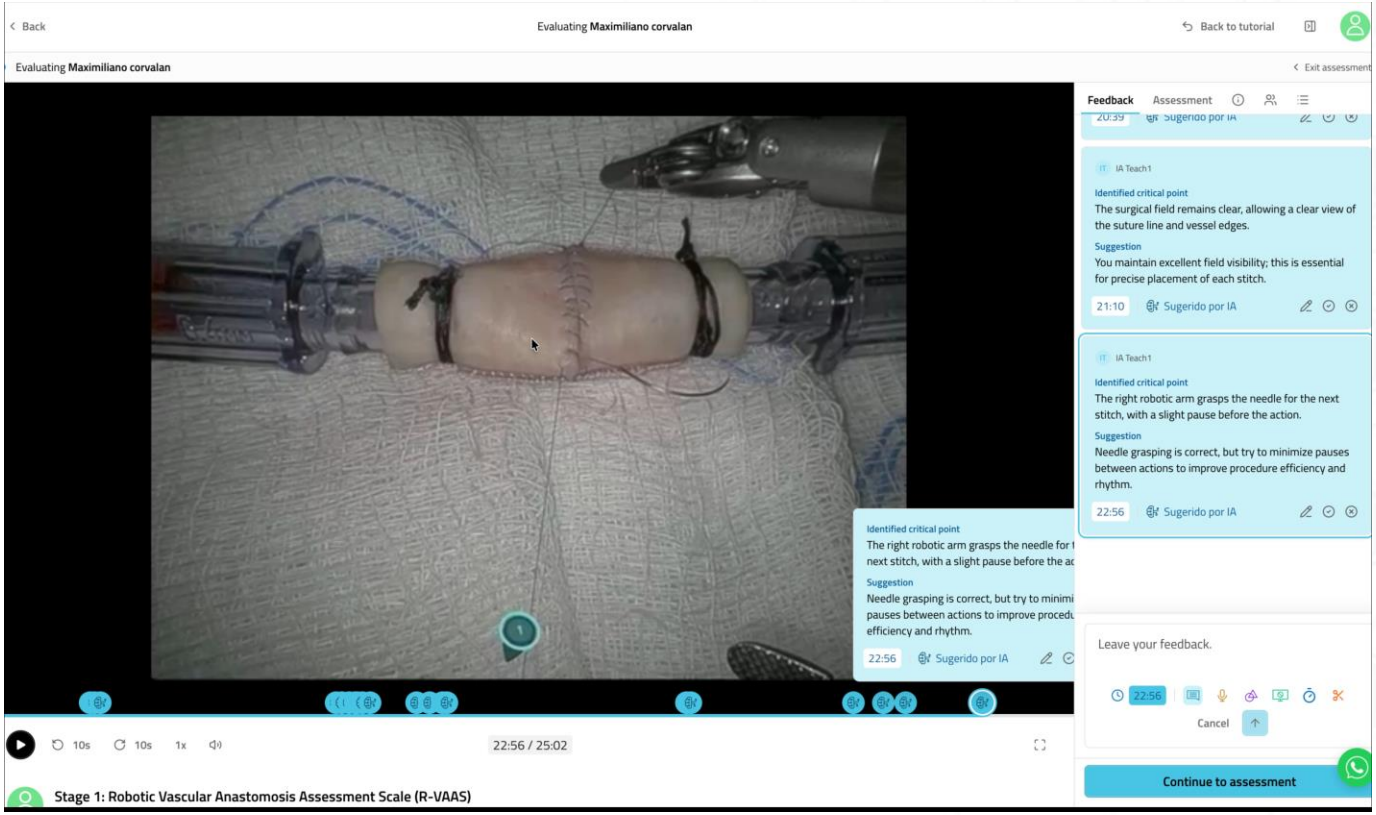
2. Video is **uploaded** into the **C1DO1 Platform.**

Already Collecting data from **80,000 active users.** Optimized courses with **Artificial intelligence.**

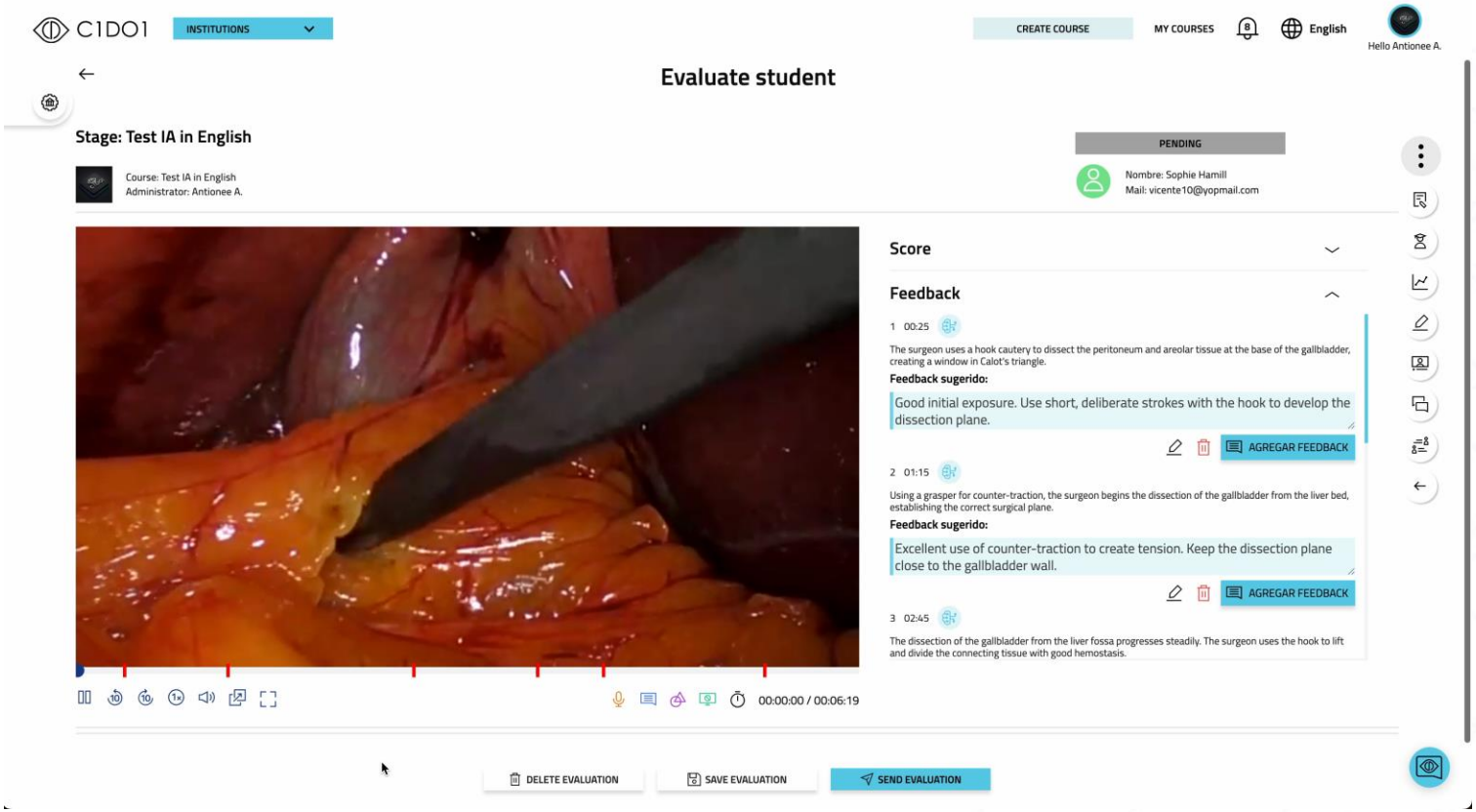
3. An expert **supervises the AI assessment** and delivers **precise feedback**

4. Trainee **receives feedback,** tracks progress, and **trains again**

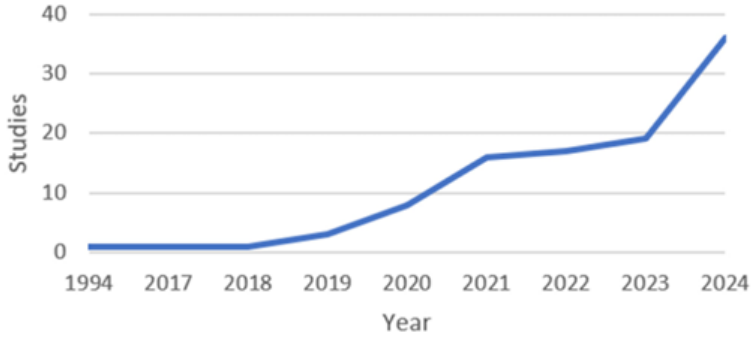
AI video analysis: Training and feedback

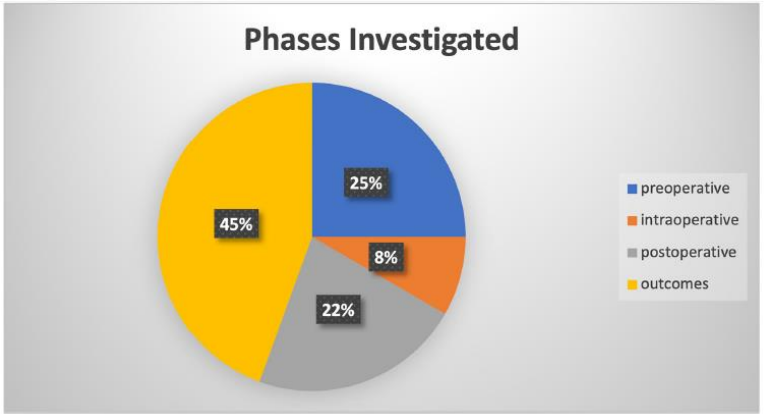


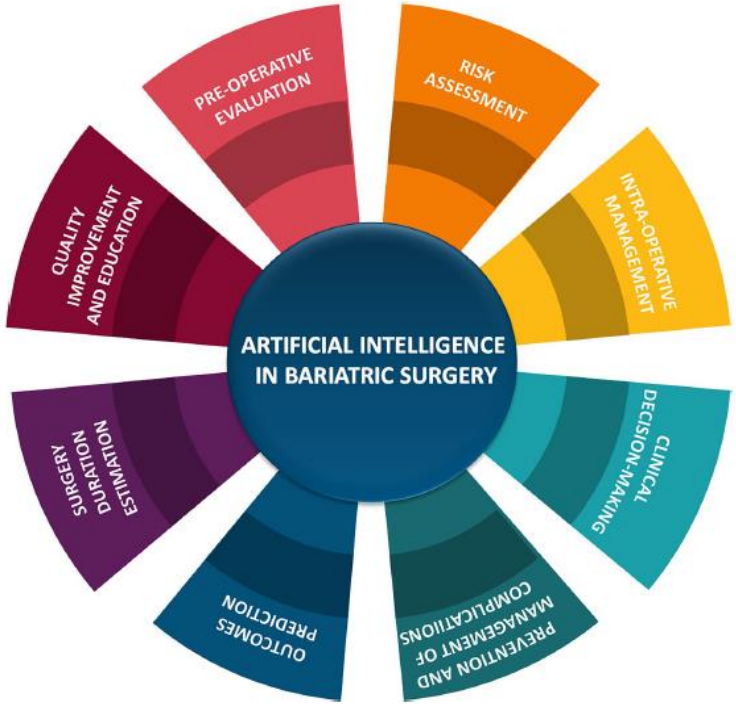
AI video analysis: Training and feedback



AI in Bariatric and Metabolic Surgery

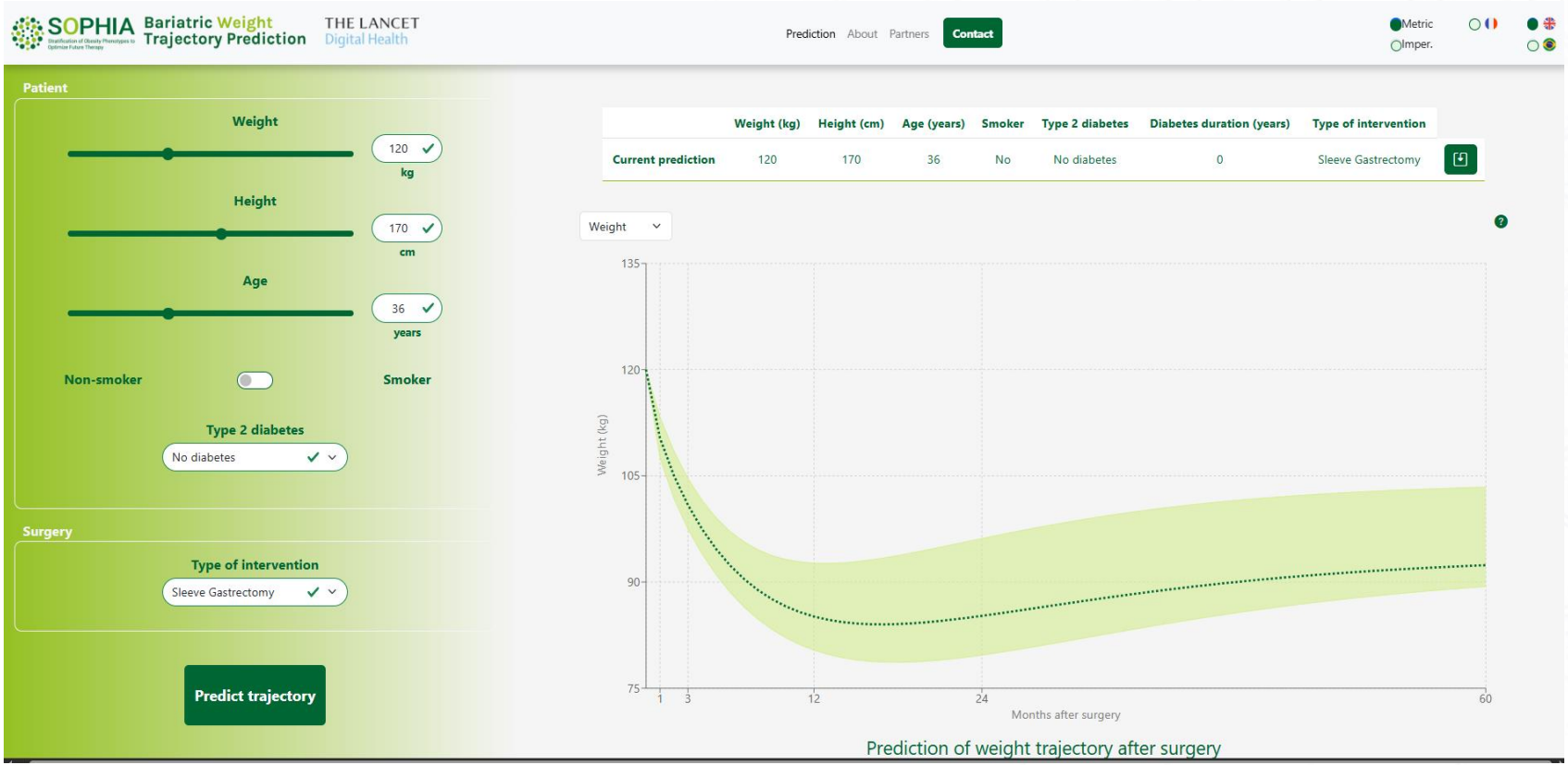






Kenig et al, J Clin Med 2024, Bellini, V et al Obes Surg 2022

AI bariatric weight trajectory prediction

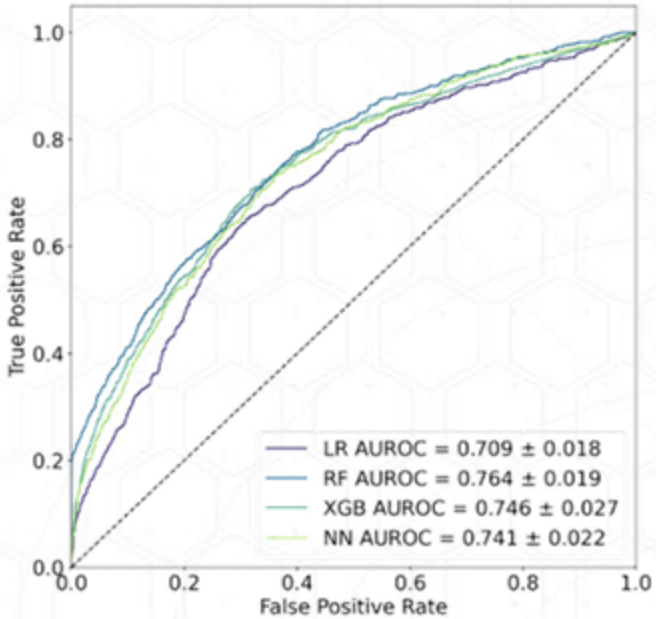


GI bleeding risk models

Application of machine learning to predict postoperative gastrointestinal bleed in bariatric surgery

Justin L. Hsu[1], **Kevin A. Chen**[1], **Logan R. Butler**[2], **Anoosh Bahraini**[1], **Muneera R. Kapadia**[1], **Shawn M. Gomez**[3], **Timothy M. Farrell**[1]

[1]Department of Surgery, University of North Carolina School of Medicine, 4001 Burnett-Womack CB#7050, Chapel Hill, NC 27599, USA

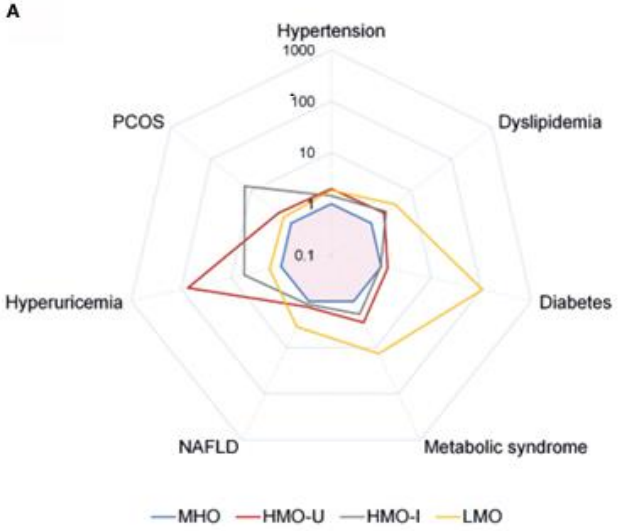


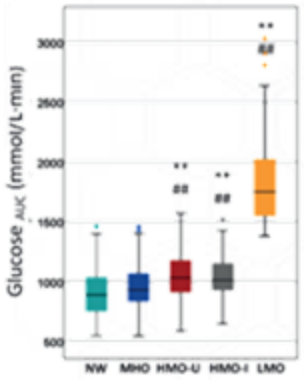
Hsu, Sur Endosc 2023

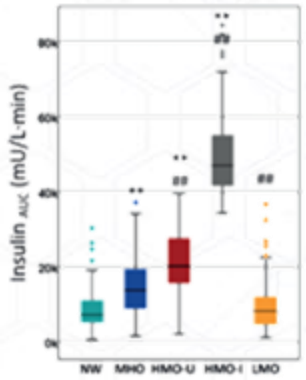
Metabolic outcomes AI Models

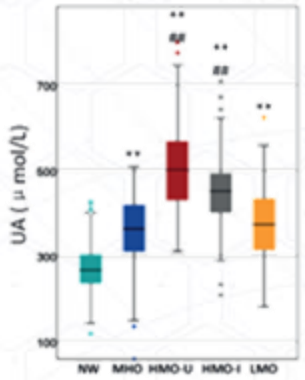
Insulin, Glucose, Uric Acid during OGTT

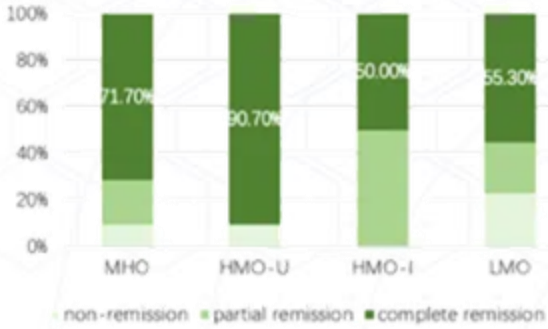
frontiers in Endocrinology





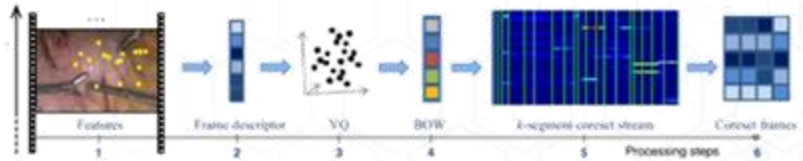


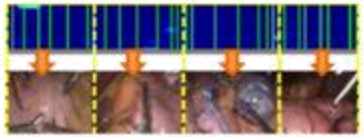




Lin, Z Frontiers in Endocrinology 2021

Surgery Steps Video Analysis





STEP 1
ACCESS TO THE ABDOMINAL CAVITY

Step 2
Dissection of the greater curvature + Hiatal dissection + Introduction/placement of the calibration tube

Step 3
Stapling of the greater curvature

Step 4
Removal of the gastric remnant

Step 5
Oversuture

Step 6
Leak test and final inspection

AI may have high variability

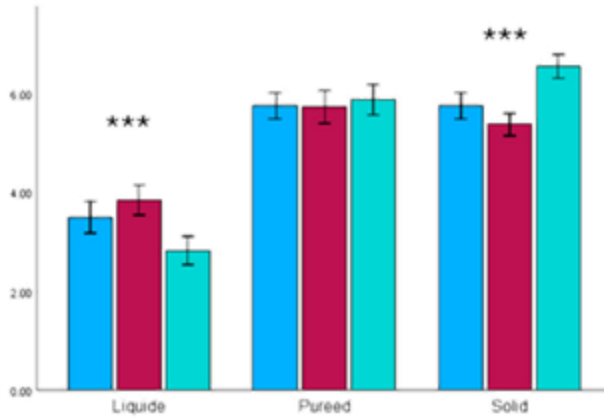
nutrients

MDPI

Article

Guideline Compliance of Artificial Intelligence–Generated Diet Plans After Bariatric Surgery: A Cross-Sectional Simulation Comparing ChatGPT-4o, DeepSeek and Grok-3

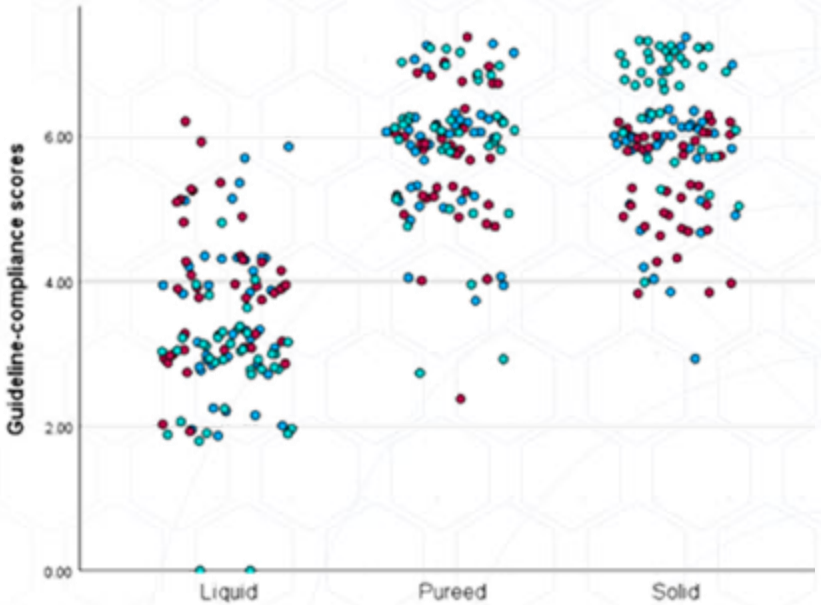
Aylin Bolat Yilmaz [1], Emre Batuhan Kenger [2], Tugce Ozlu Karahan [2], Duygu Saglam [3] and Murat Bas [3,*]



Chat GPT

DeepSeek

Grok



Bolat et al, Nutrients 2025

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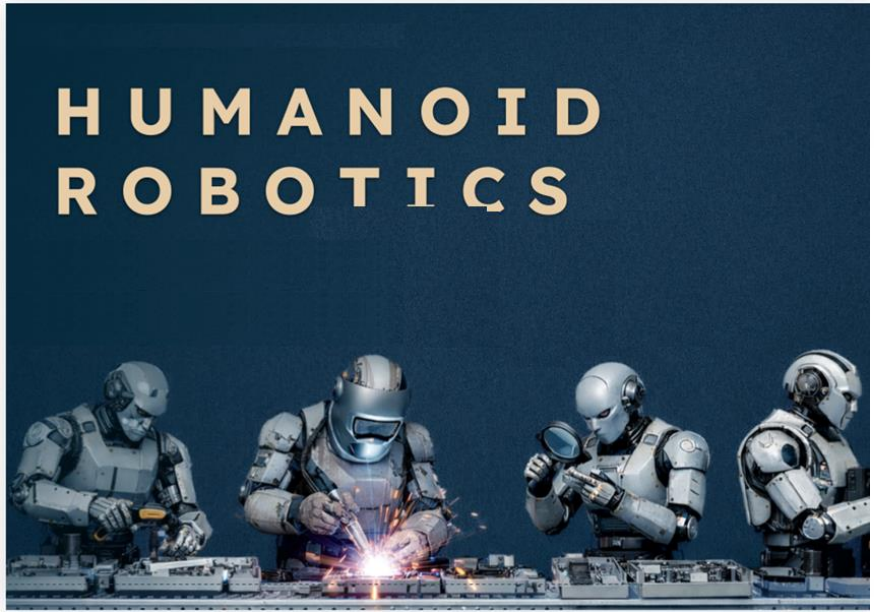
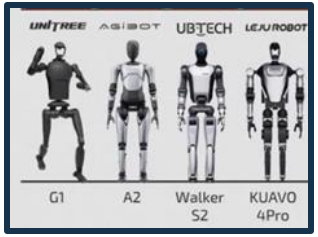
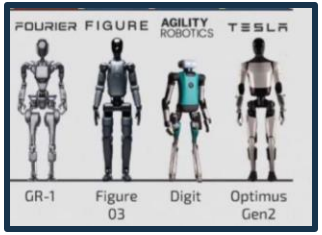
The Future: Robotics

Robots TODAY

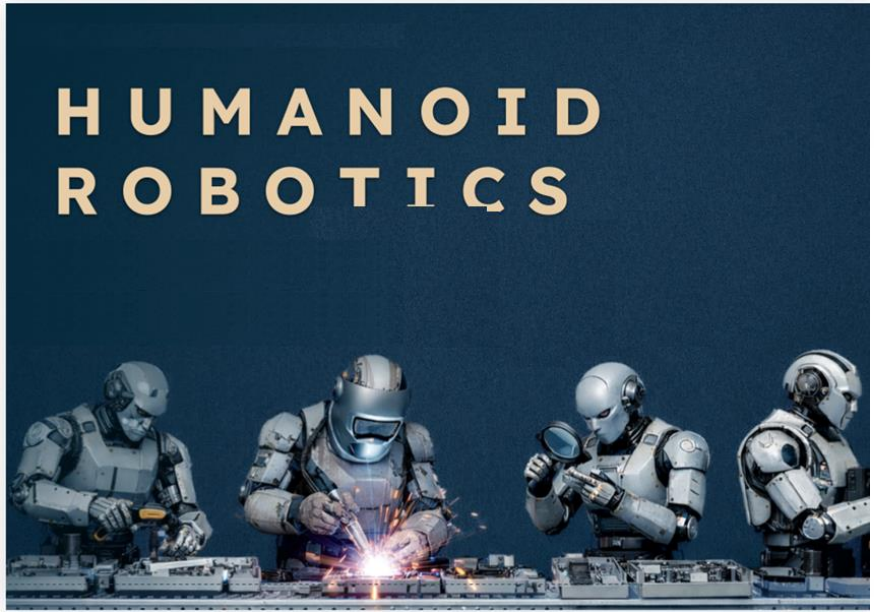
Humanoid Robots

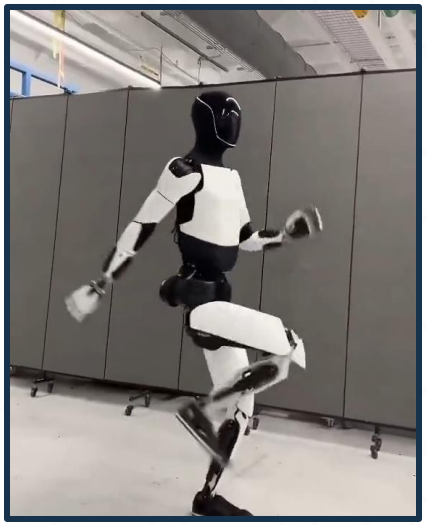


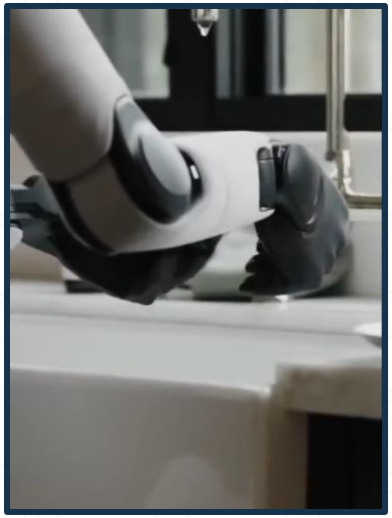


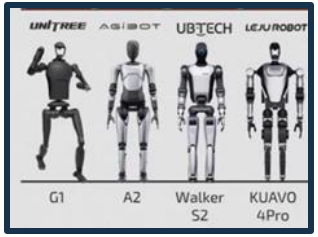


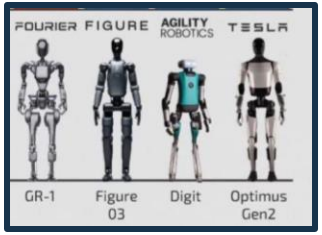
Humanoid Robots







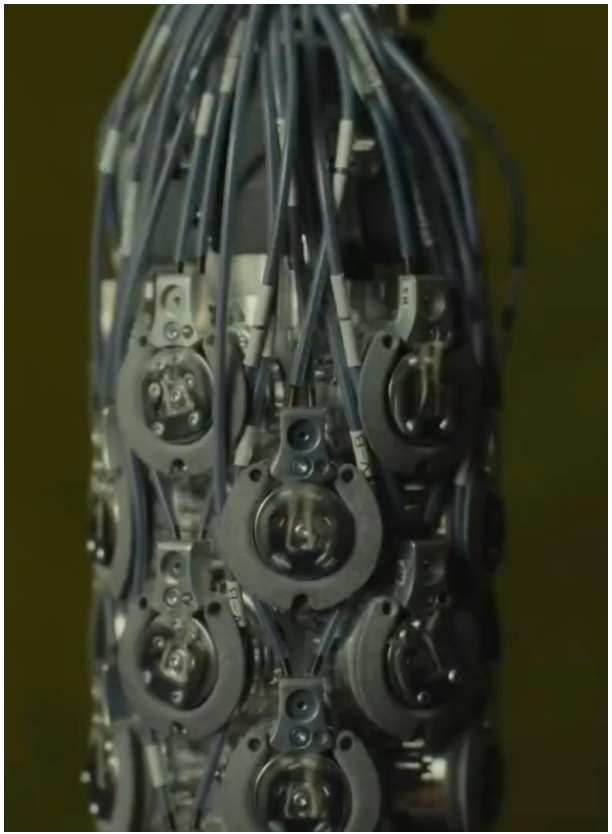




Humanoid Robots

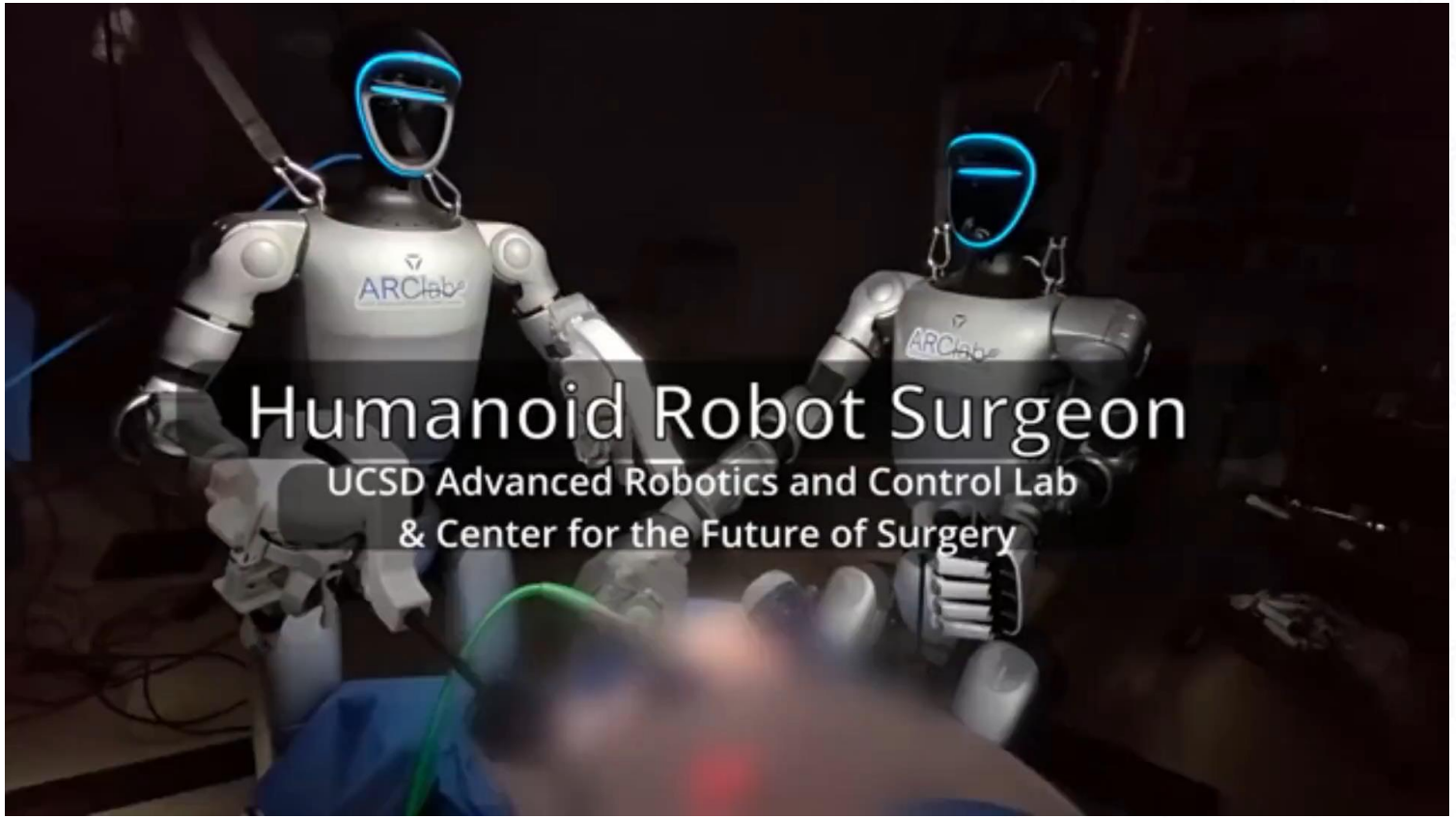
Jan 2026, Moonshots podcast

Humanoid Robots: Hands



Jan 2026, Moonshots podcast

Humanoid Robot Surgeons



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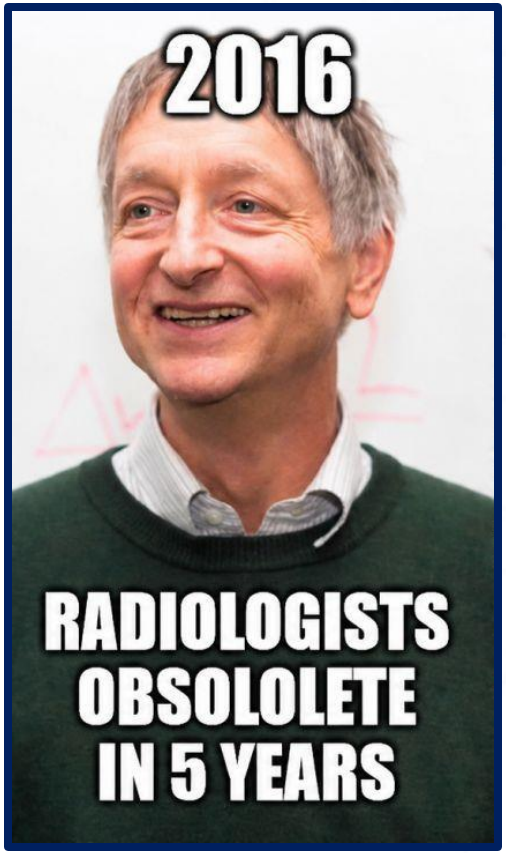
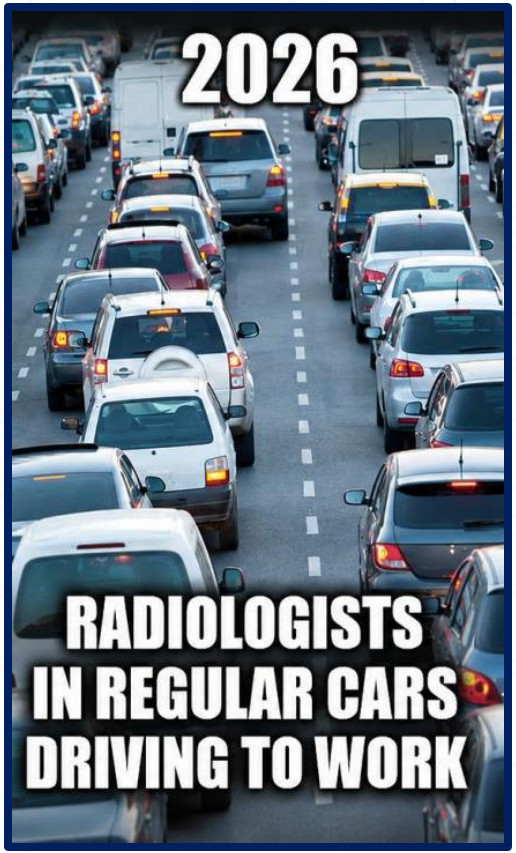
Will AI replace Surgeons?

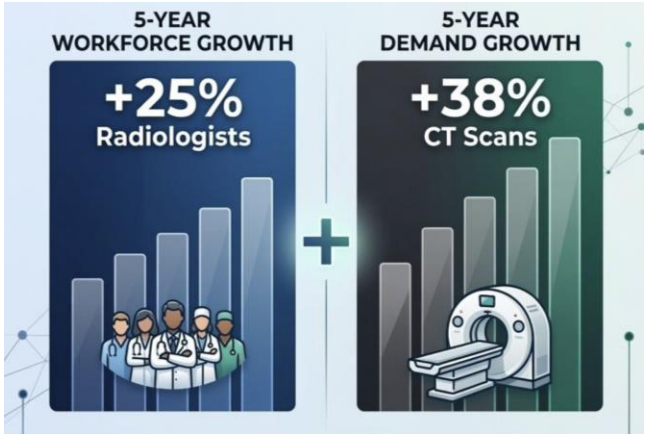
The FUTURE?


2015
SELF-DRIVING CARS IN 2 YEARS
CausalPython.io
imgflip.com


2016
RADIOLOGISTS OBSOLOLETE IN 5 YEARS

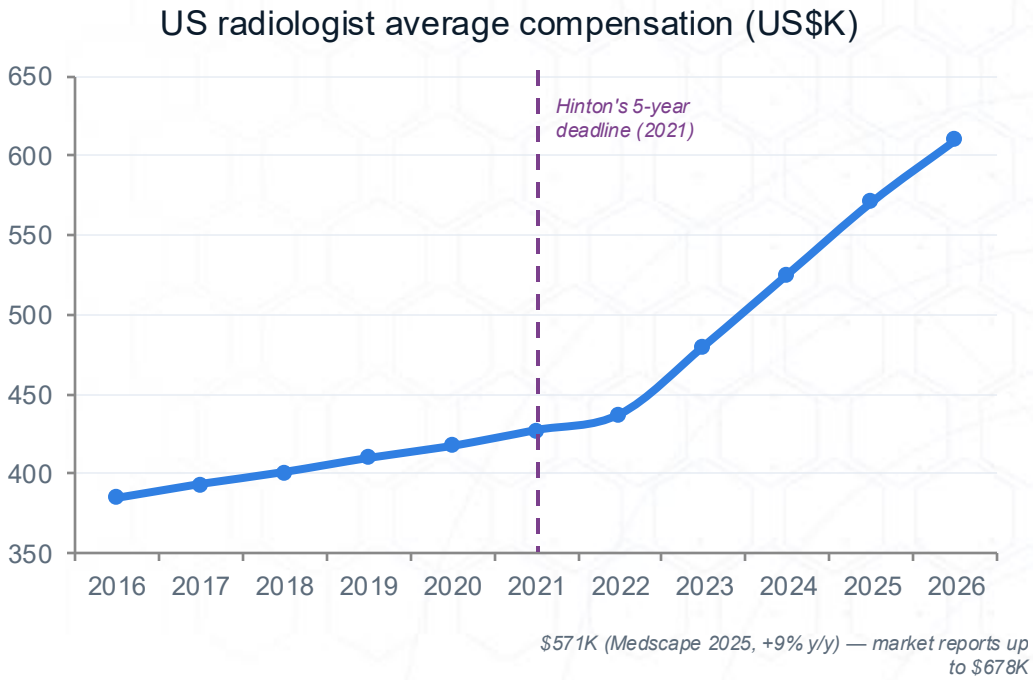

2026
RADIOLOGISTS IN REGULAR CARS DRIVING TO WORK

The Failed Prophecy: Javons Paradox



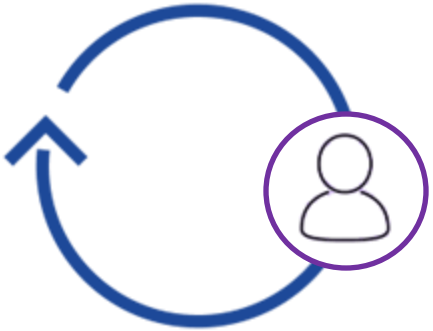
AI efficency lowers costs and increases imaging demand

1/2

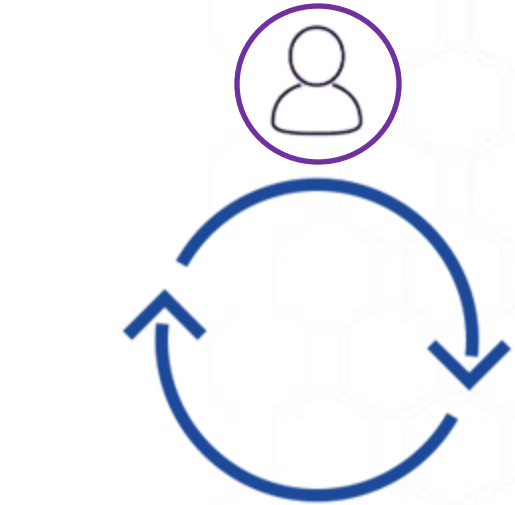


$571K (Medscape 2025, +9% y/y) — market reports up to $678K

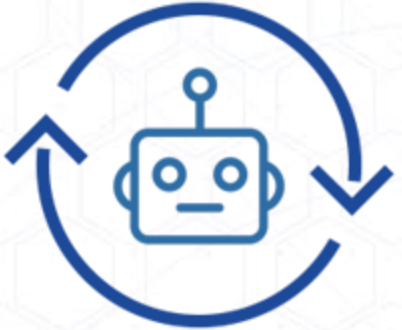
Replacement Ladder



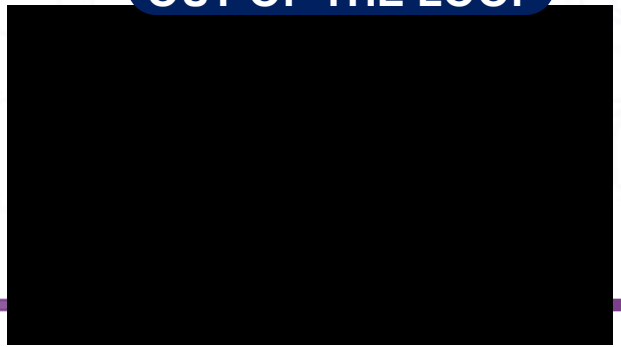
IN THE LOOP



ON THE LOOP

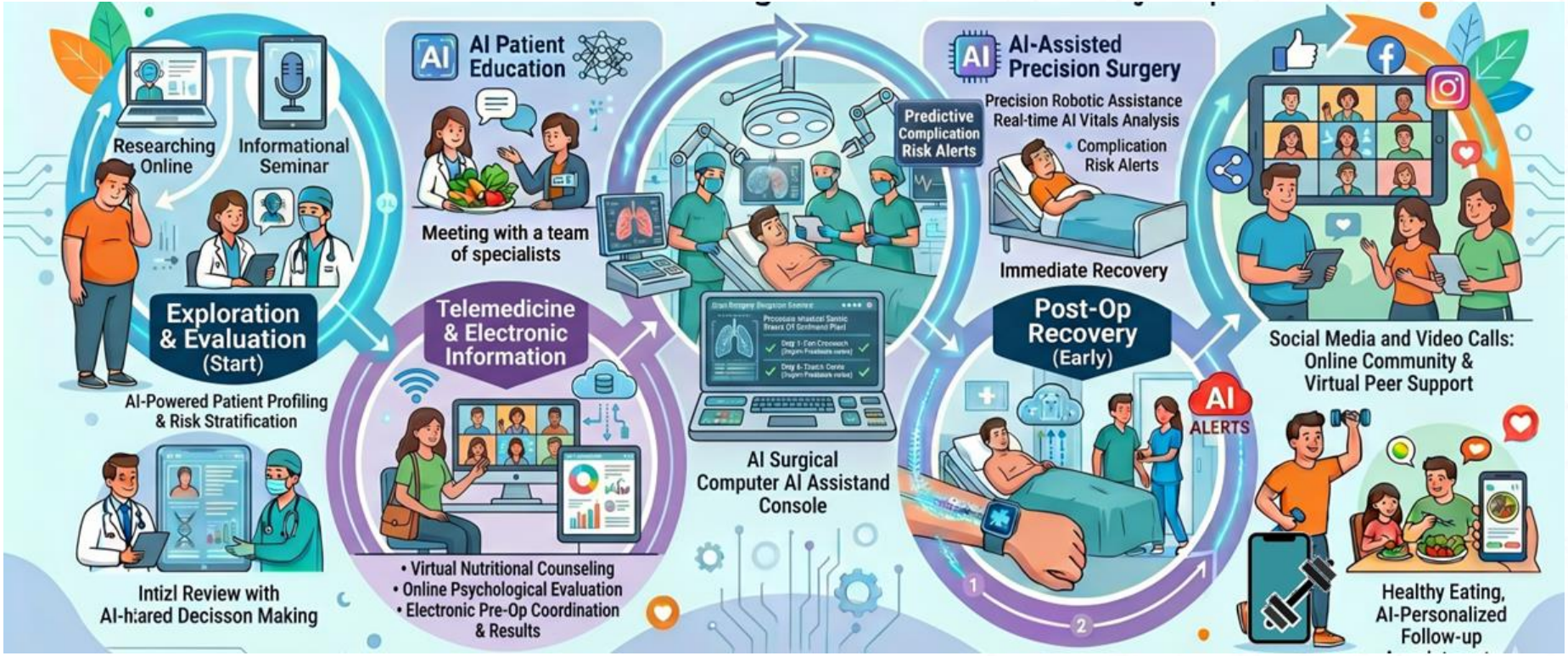


OUT OF THE LOOP



Current Bariatric Path

Future AI Bariatric Path




Delegate
efficiency to AI.
Reserve human talent
for creativity,
innovation, and
judgment.

PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE

AI improving the effectiveness of MBS

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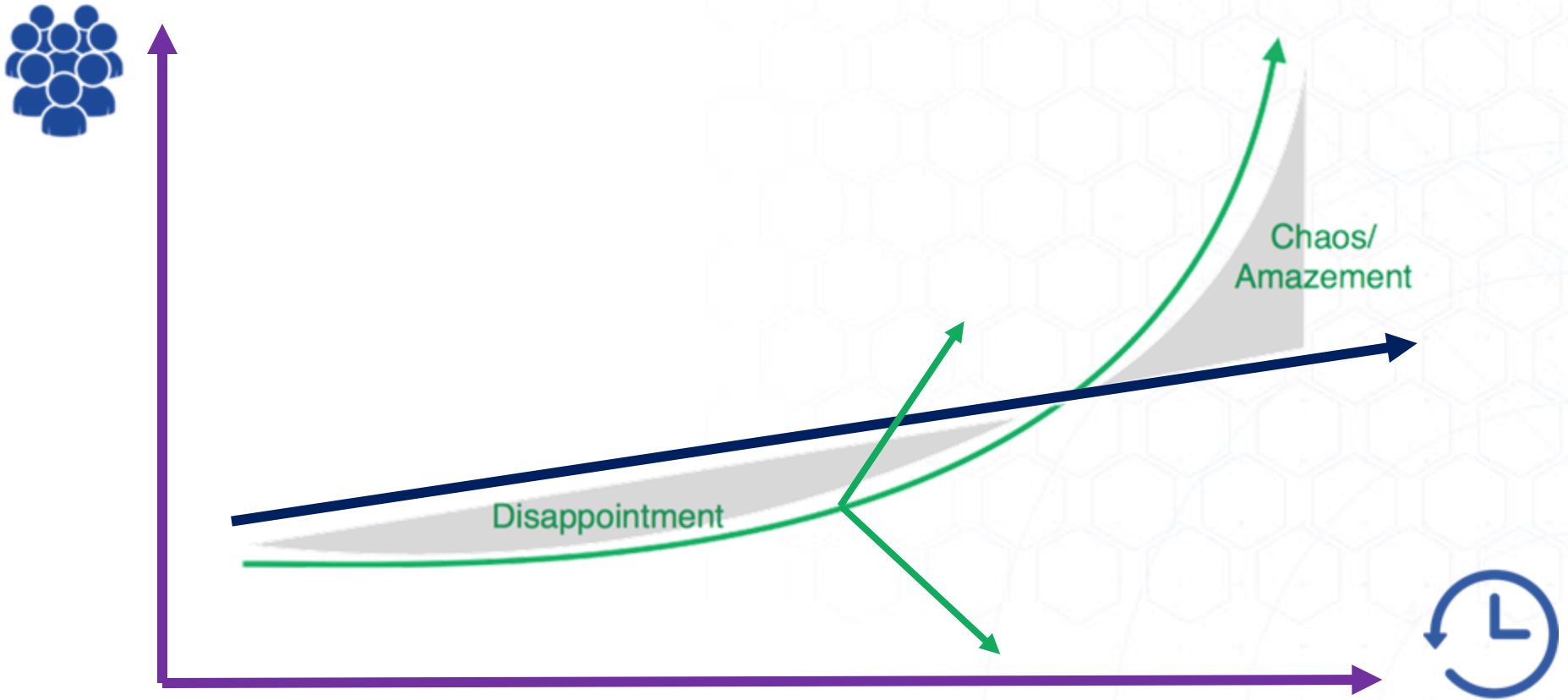
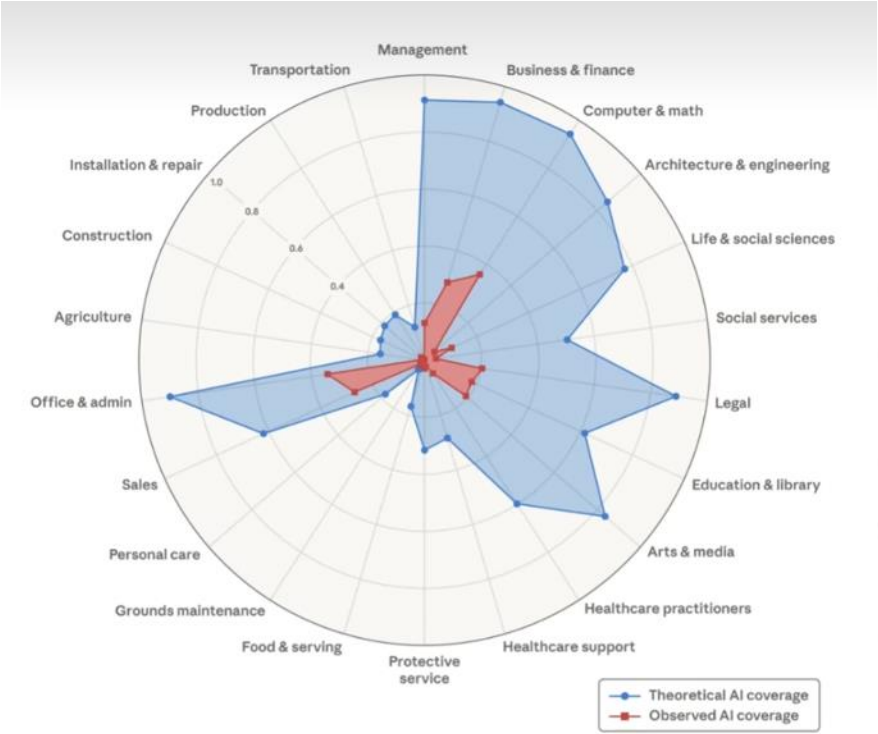
SCCBM Sociedad Chilena de Cirugía Bariátrica y Metabólica

IFSO
XXIX IFSO World Congress
1-4 September 2026 | Toronto, Canada

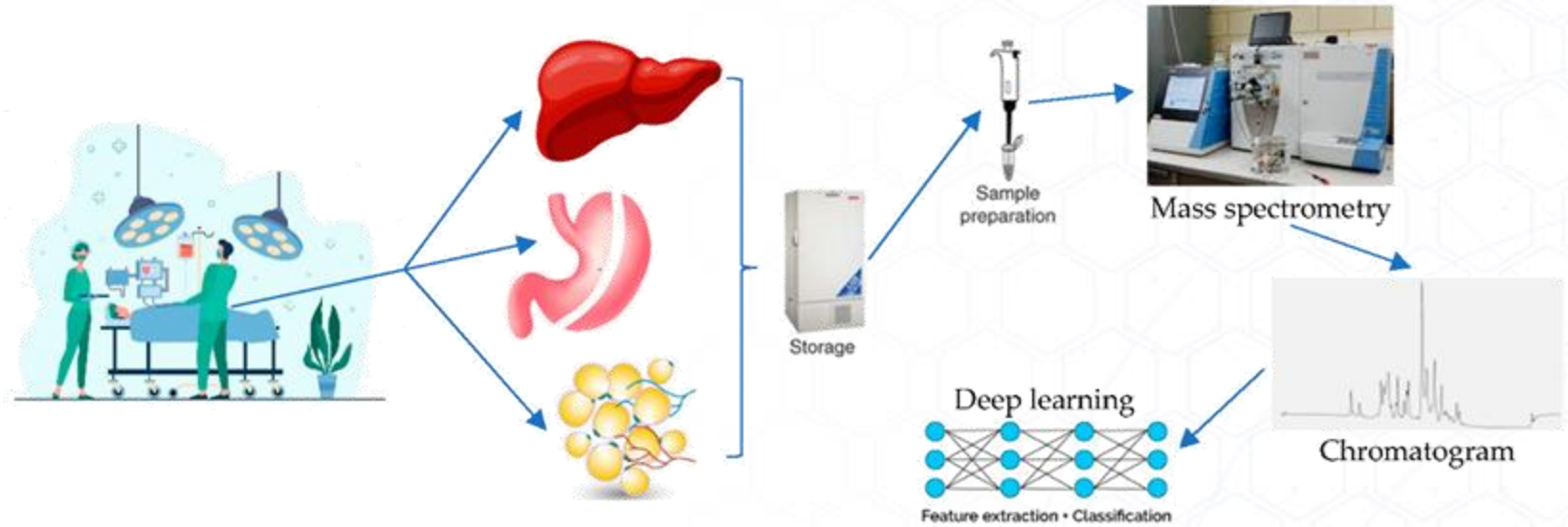
Curva de crecimiento exponencial de nuevas tecnologias



TASKS is not the same as JOBS



Big Data Analysis will help predict more outcomes



Pantelis, A, Metabolites 2022