State of Emerging Technology: Bariatric Medicine & Surgery

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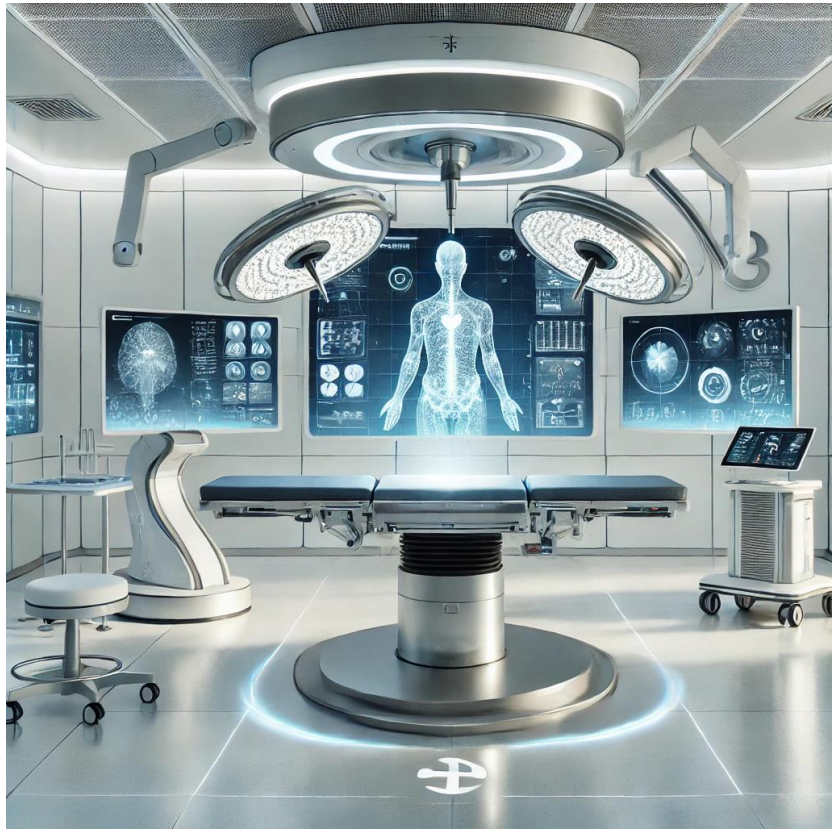
Bariatric & General Surgeon
SURGE, co-founder

CONFLICT OF INTEREST DISCLOSURE

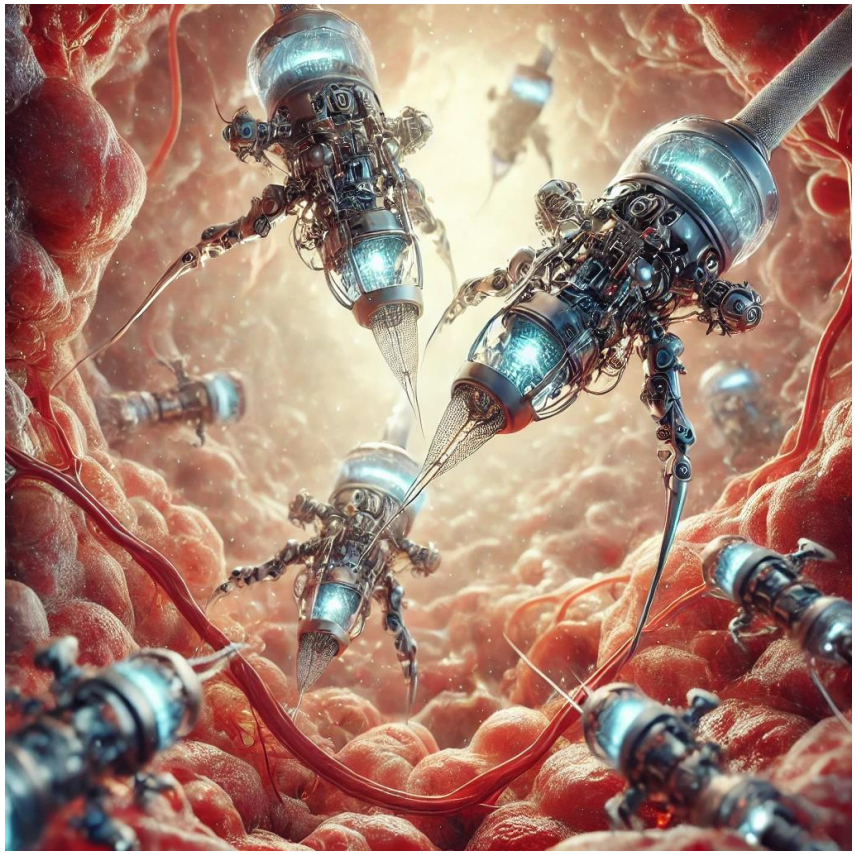
I have served as consultant for Atheneum, GLG, Medtronic, & Ethicon (J&J).

I own and operate Surge Medical Corp.

Emerging technology: what comes to mind?



vs



Where emerging tech is now: ROBOTICS

7,000+ robotic systems in US

1.5M+ cases annually

25+ new entrants in development

Where emerging tech is now: ROBOTICS

MedTech Dive
https://www.medtechdive.com › news › jj-fda-ide-ottav...

J&J targets 2024 for Ottava FDA filing

Nov 7, 2023 — The company expects to file a submission for an investigational device exemption in the second half of 2024 that will allow it to begin ...

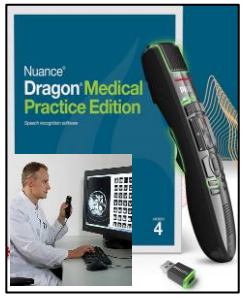
Medtronic Announces Clinical Studies for Hugo™ RAS system

Surgical Robotics Technology 23rd, May 2024 3 min read

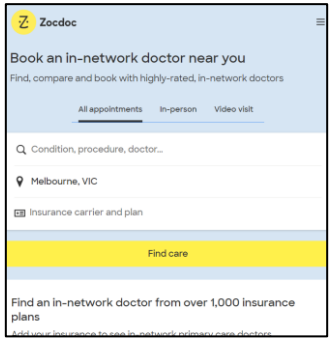
Pending FDA approval: Ottava (J&J), Hugo (Medtronic)

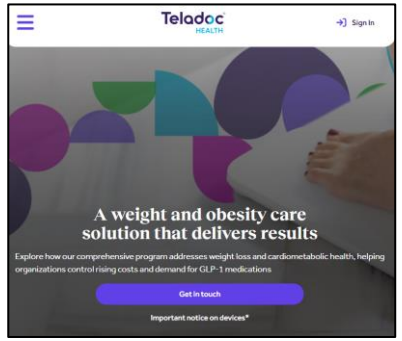
Where our emerging tech is now: ARTIFICIAL INTELLIGENCE

Recognition

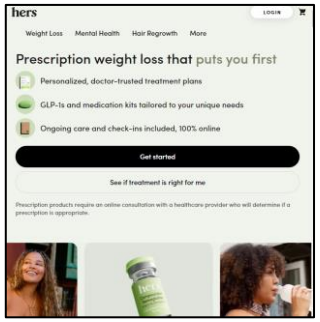


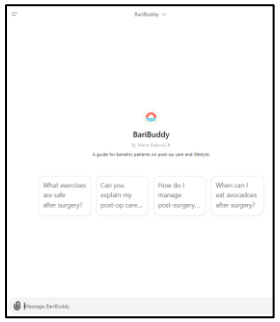
Ranking





Recommendation





Prediction

Precision

Connection

Remote access

Autonomous function

Emerging tech principles: PRECISION

Electronic chromo-endoscopy in Stomach- Gastric Intestinal Metaplasia, dysplasia, and early gastric cancer Go to:

Electronic chromo-endoscopy has its primary utility in diagnosing early gastric cancer and certain premalignant conditions (e.g., gastric intestinal metaplasia) (*Figure 2*, *Table 5*) (45). Most of the studies to date are using NBI systems.

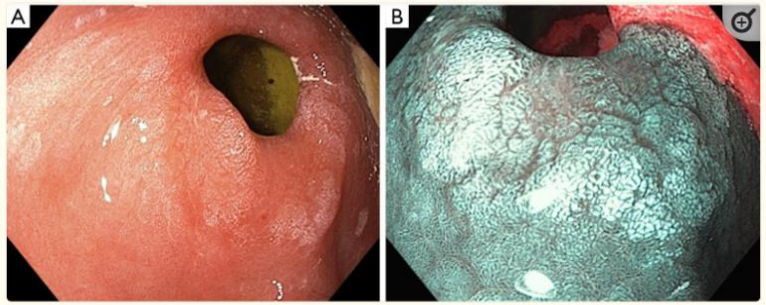


Figure 2

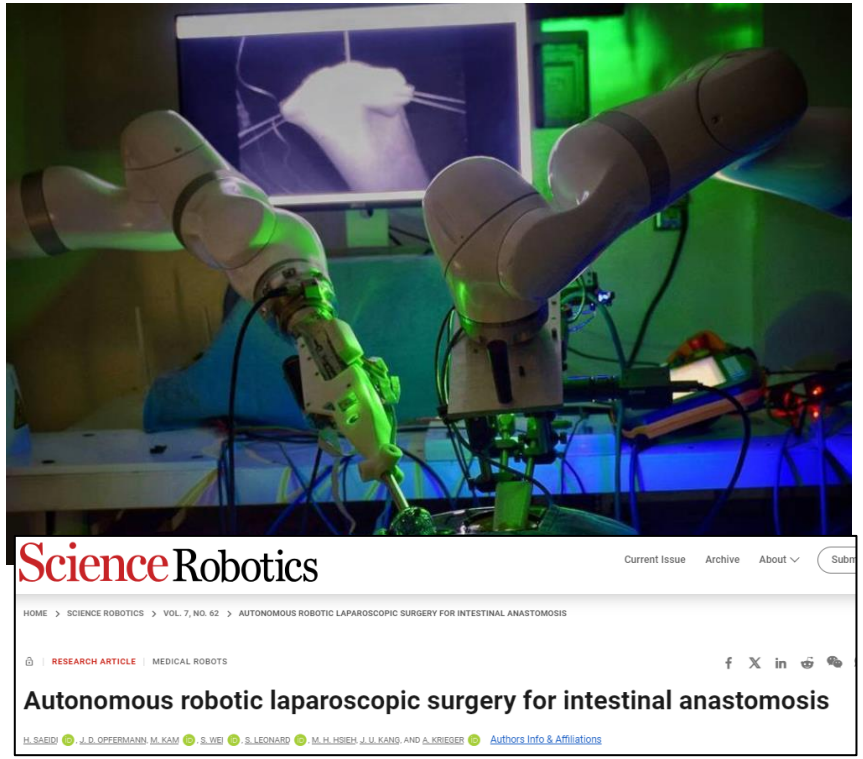
Gastric intestinal metaplasia. (A) White light imaging and (B) narrow band imaging.

Transl Gastroenterol Hepatol. 2022; 7: 6. PMCID: PMC8826039
Published online 2022 Jan 25. doi: 10.21037/tgh-19-373 PMID: 35243115

Electronic chromo-endoscopy: technical details and a clinical perspective

Partha Pal, Aniruddha Pratap Singh, Navya D. Kanuri, and Rupa Banerjee

Precision



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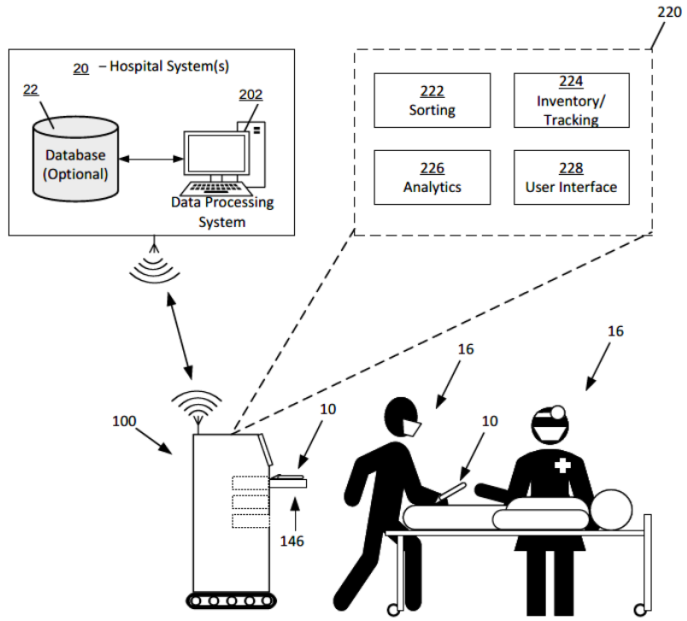
HOME > SCIENCE ROBOTICS > VOL. 7, NO. 62 > AUTONOMOUS ROBOTIC LAPAROSCOPIC SURGERY FOR INTESTINAL ANASTOMOSIS

RESEARCH ARTICLE | MEDICAL ROBOTS

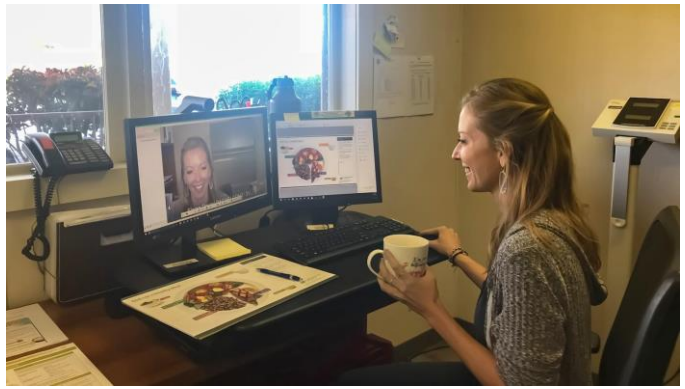
Autonomous robotic laparoscopic surgery for intestinal anastomosis

H. SAEIDI, J. D. OPFERMANN, M. KAM, S. WEI, S. LEONARD, M. H. HSIEH, J. U. KANG, AND A. KRIEGER Authors Info & Affiliations

Emerging tech principles: CONNECTION



Connection

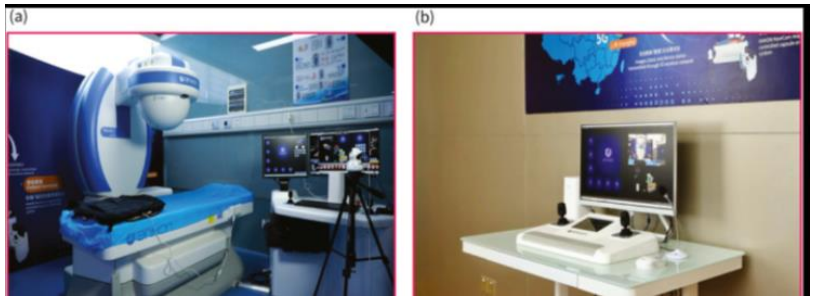


Emerging tech principles: REMOTE ACCESS

United European Gastroenterol J. 2023 Feb;11(1):42-50. doi: 10.1002/ueg2.12339.
Epub 2022 Nov 23.

5G-based remote magnetically controlled capsule endoscopy for examination of the stomach and small bowel

Ting Zhang [1], Yi-Zhi Chen [1], Xi Jiang [1], Chen He [1], Jun Pan [1], Wei Zhou [1], Jian-Ping Hu [2], Zhuan Liao [1], Zhao-Shen Li [1]



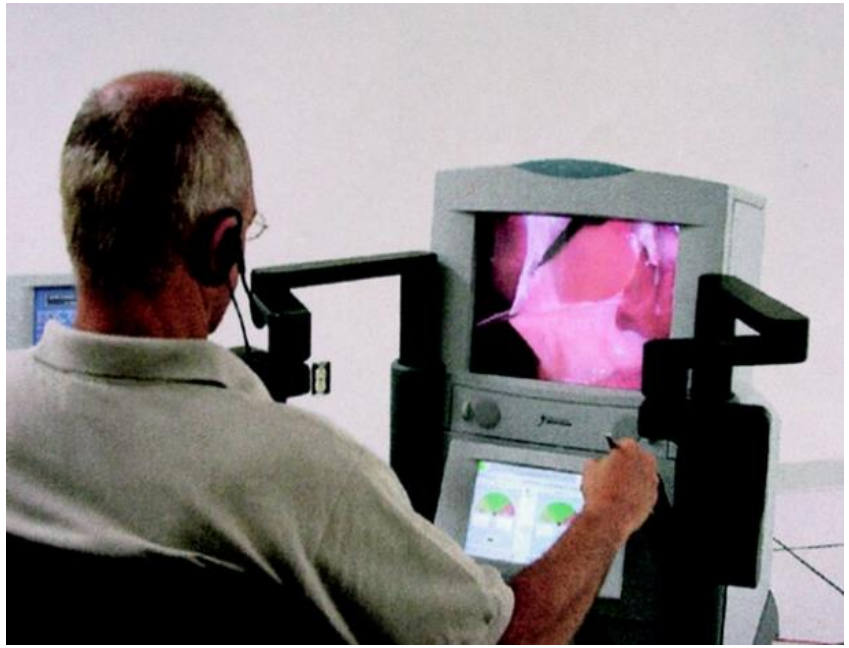
Remote access

ANNALS OF SURGERY
A Monthly Review of Surgical Science Since 1885

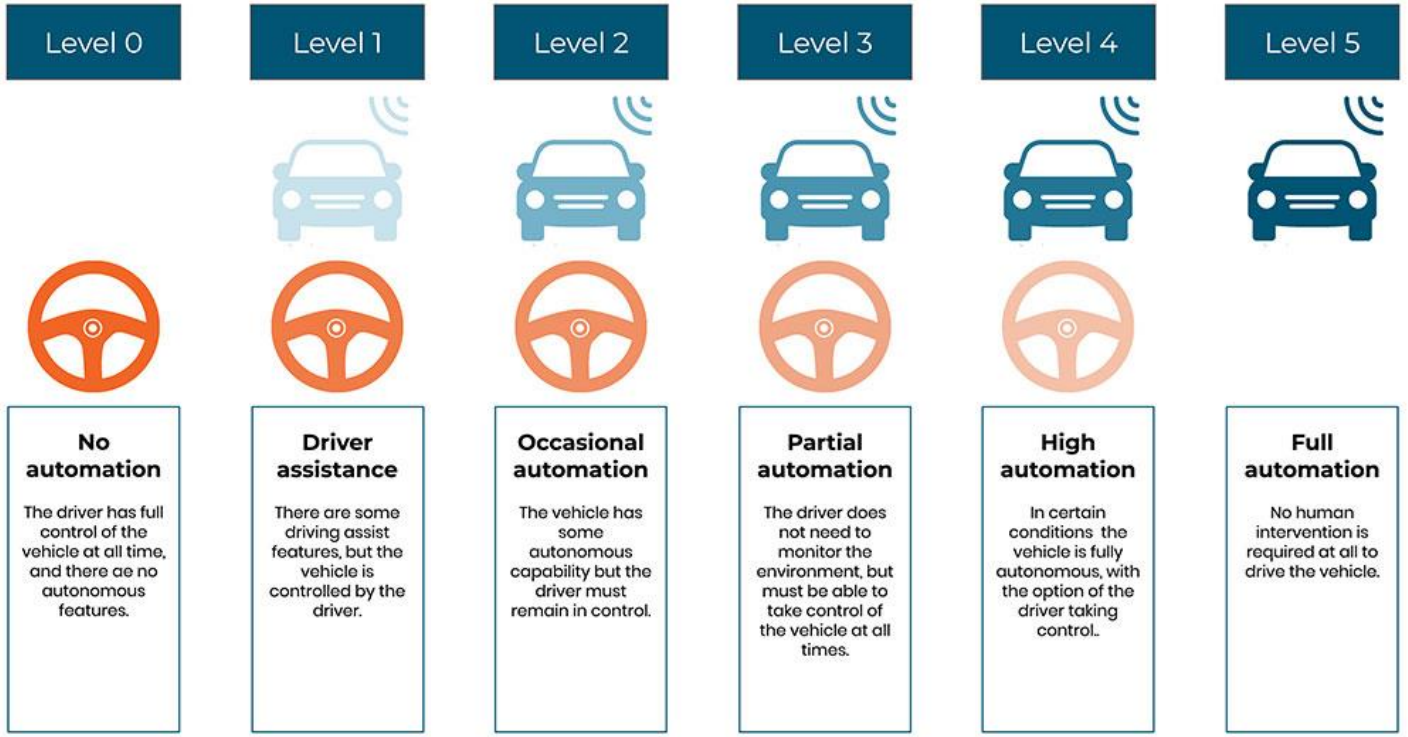
Ann Surg. 2002 Apr; 235(4): 487–492.
doi: 10.1097/00000658-200204000-00005
PMCID: PMC1422462
PMID: 11923603

Transcontinental Robot-Assisted Remote Telesurgery: Feasibility and Potential Applications

Jacques Marescaux, MD, Joel Leroy, MD, Francesco Rubino, MD, Michelle Smith, MD, Michel Vix, MD, Michele Simone, MD, and Didier Mutter, MD

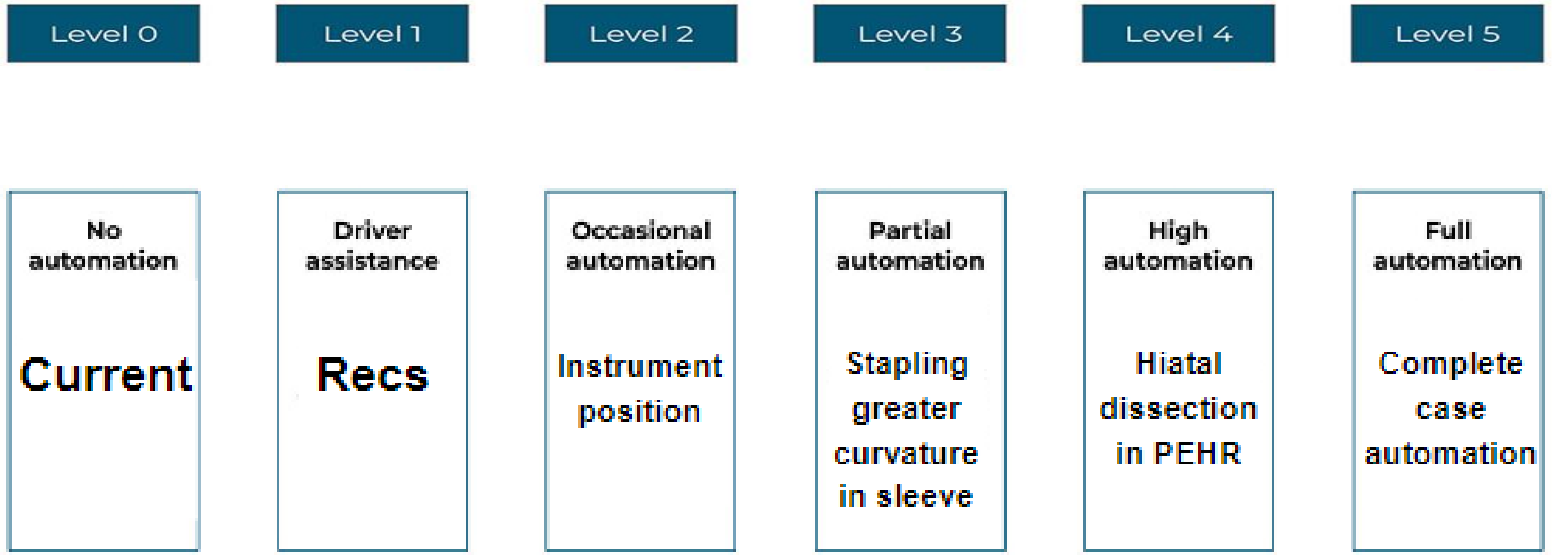


Autonomous function



Emerging tech principles: AUTONOMOUS FUNCTION

Autonomous function



Considerations: Accuracy | Limitations | Liability | Risk

Types of AI: descriptive and generative

INFORMATION

DESCRIPTIVE AI

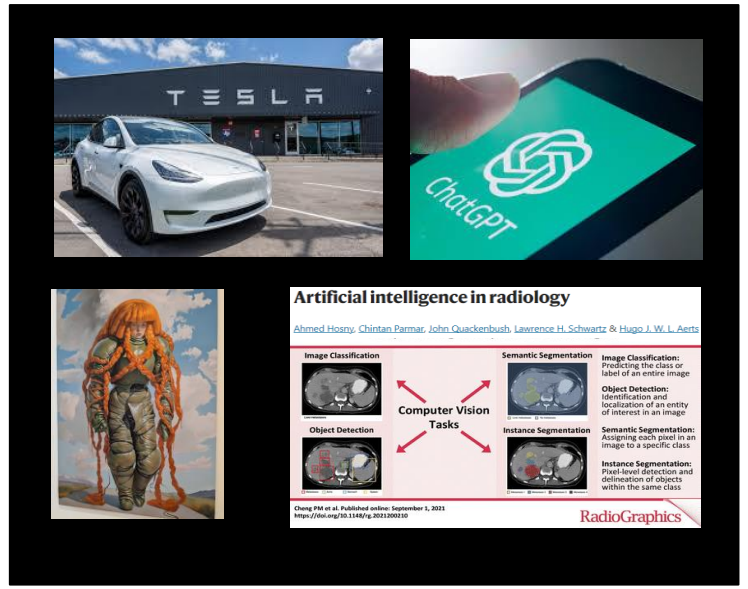
Spotify

amazon

DRAGON NATURALLYSPEAKING

+ Training

GENERATIVE AI



AI: Recognition | Ranking | Recommendation | Prediction

How can AI improve existing workflows?

Patient workflow

Referral →
Insurance validation + Onboarding →
Evaluations + Workup: Consults + Procedures + Labs →
PA →
OR →
Follow-up + Maintenance

OR workflow

OR scheduling request (elective vs urgent) →
Schedule: staff + room + tools →
Pre-op: protocol + meds + staff + check-in + consent →
OR: staff + tools + room + turnover →
Post-op: protocol + meds + staff + orders + notes + transfer

Admin workflow

Physician recruitment →
Credentialing + Onboarding →
Scheduling →
Tracking work product →
Billing + Monitoring

Using AI to improve existing workflows

RECOGNITION

Intraoperative detection
Ambient voice & video capture
Digital navigation: Endoscopy
Remote evaluations & procedures

RANKING

Patient treatment option ranking
Physician/ program selection ranking
Referral ranking

RECOMMENDATION

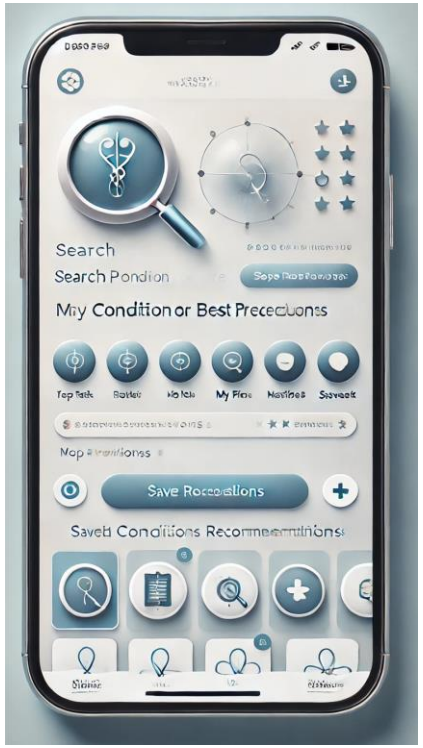
Surgical automation
Patient treatment recommendations
Remote evaluations & procedures
Dynamic staffing

PREDICTION

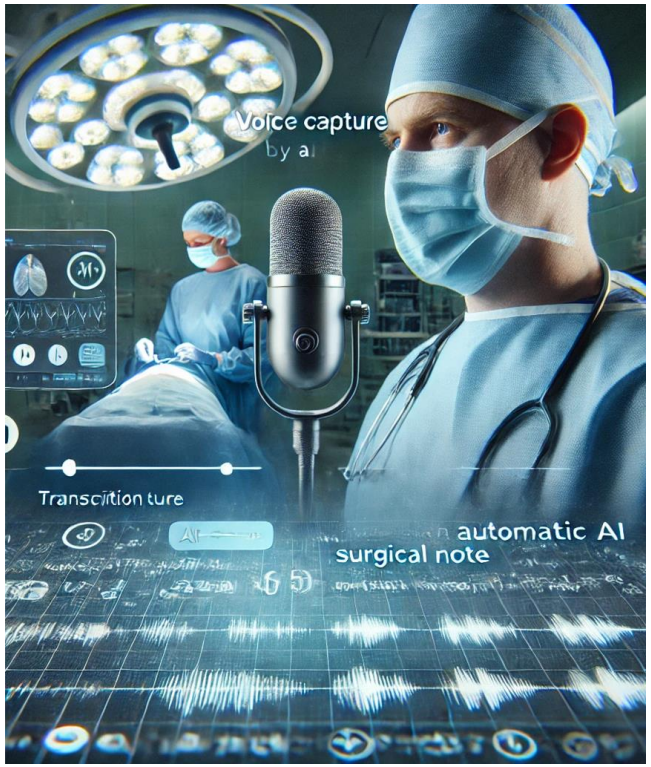
Prior authorization evaluation
Patient cost analytics
Hospital cost vs revenue analytics
Patient outcomes prediction
Hospital resource allocation

Future AI applications in bariatric medicine & surgery

Ranking

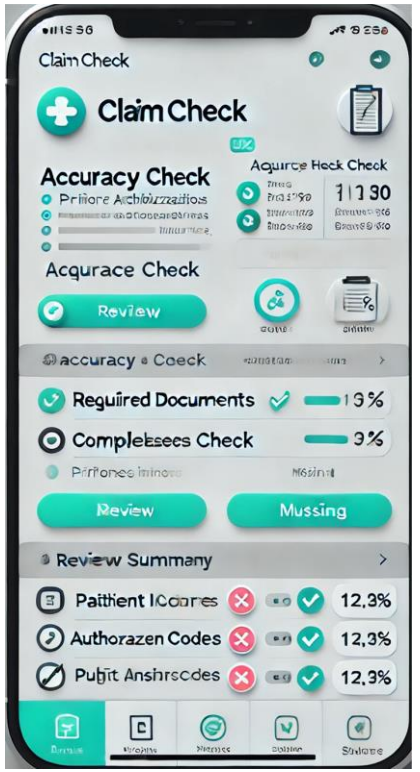


Recognition



Recommendation

Prediction



Thank you!

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http://surgephysicians.com

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