



Utilidad de la Inteligencia Artificial en el Síndrome Coronario Agudo



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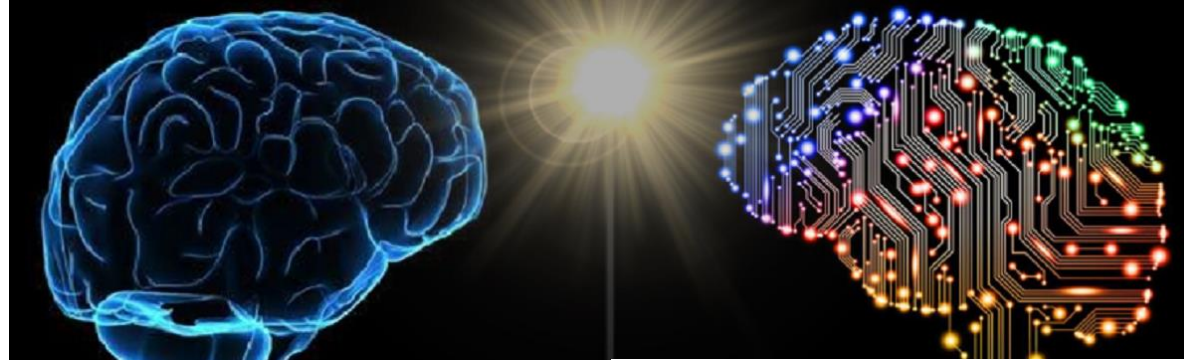
PhDc. Strategic Management with a focus on Business Management

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Investigador e Inventor RENACYT



La Inteligencia Artificial es un sistema que aprende de la Inteligencia Humana



Rapidez
Gestión de lo inesperado
Complejidad
Creatividad
Conciencia
Compasión



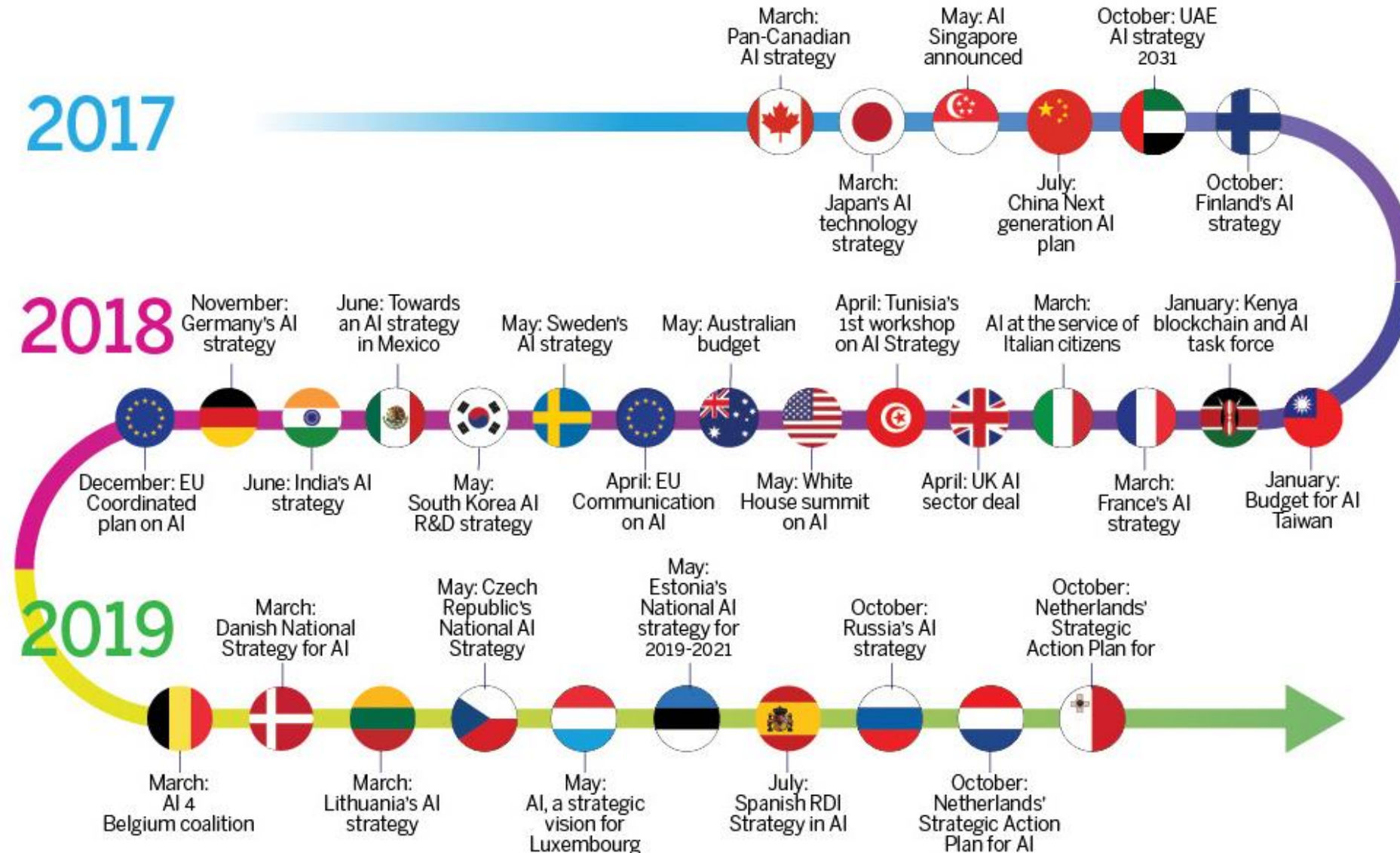
Puede aumentar drásticamente la eficiencia

Puede abaratar costos

Puede aportar valor

Puede revolucionar muchos sectores

Reconocimiento mundial de la importancia de la Inteligencia artificial como motor del crecimiento económico



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Organización de las Naciones Unidas
para la Educación, la Ciencia y la Cultura



El Peruano / Miércoles 5 de julio de 2023

LEY N° 31814

LA PRESIDENTA DE LA REPÚBLICA

POR CUANTO:

EL CONGRESO DE LA REPÚBLICA;

Ha dado la Ley siguiente:

**LEY QUE PROMUEVE EL USO DE LA INTELIGENCIA
ARTIFICIAL EN FAVOR DEL DESARROLLO
ECONÓMICO Y SOCIAL DEL PAÍS**

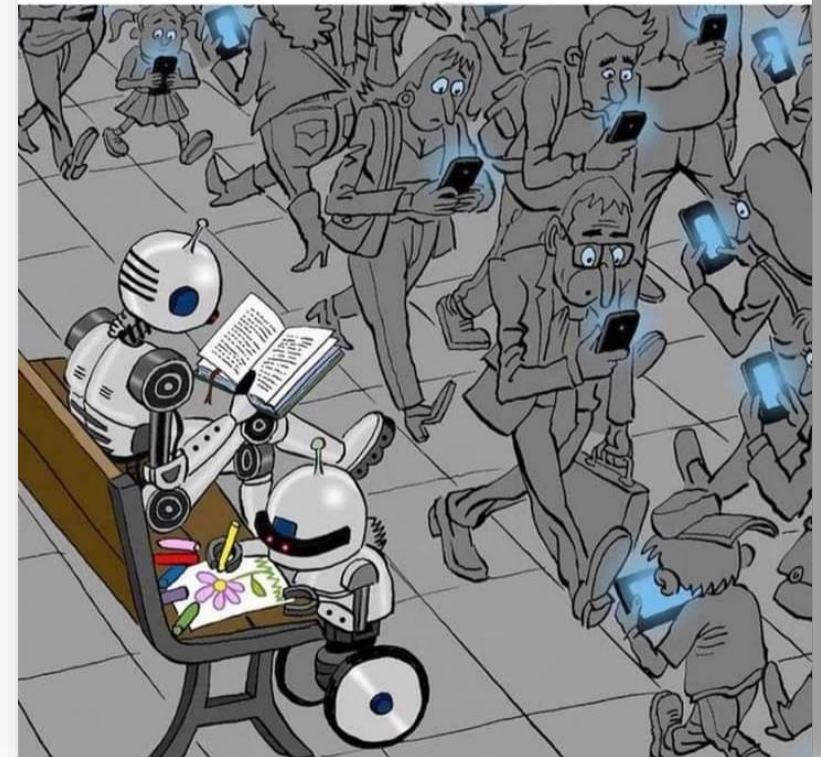
Inteligencia Artificial

INTELIGENCIA ARTIFICIAL

Es una técnica que permite a las máquinas imitar el comportamiento humano

**LA INTELIGENCIA ARTIFICIAL
NOS ESTA SACANDO VENTAJA.**

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Inteligencia Artificial

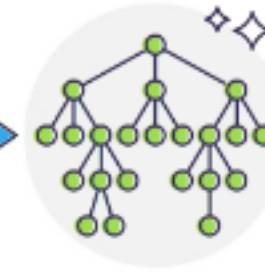
Machine Learning



Input



Extracción de
características



Clasificación

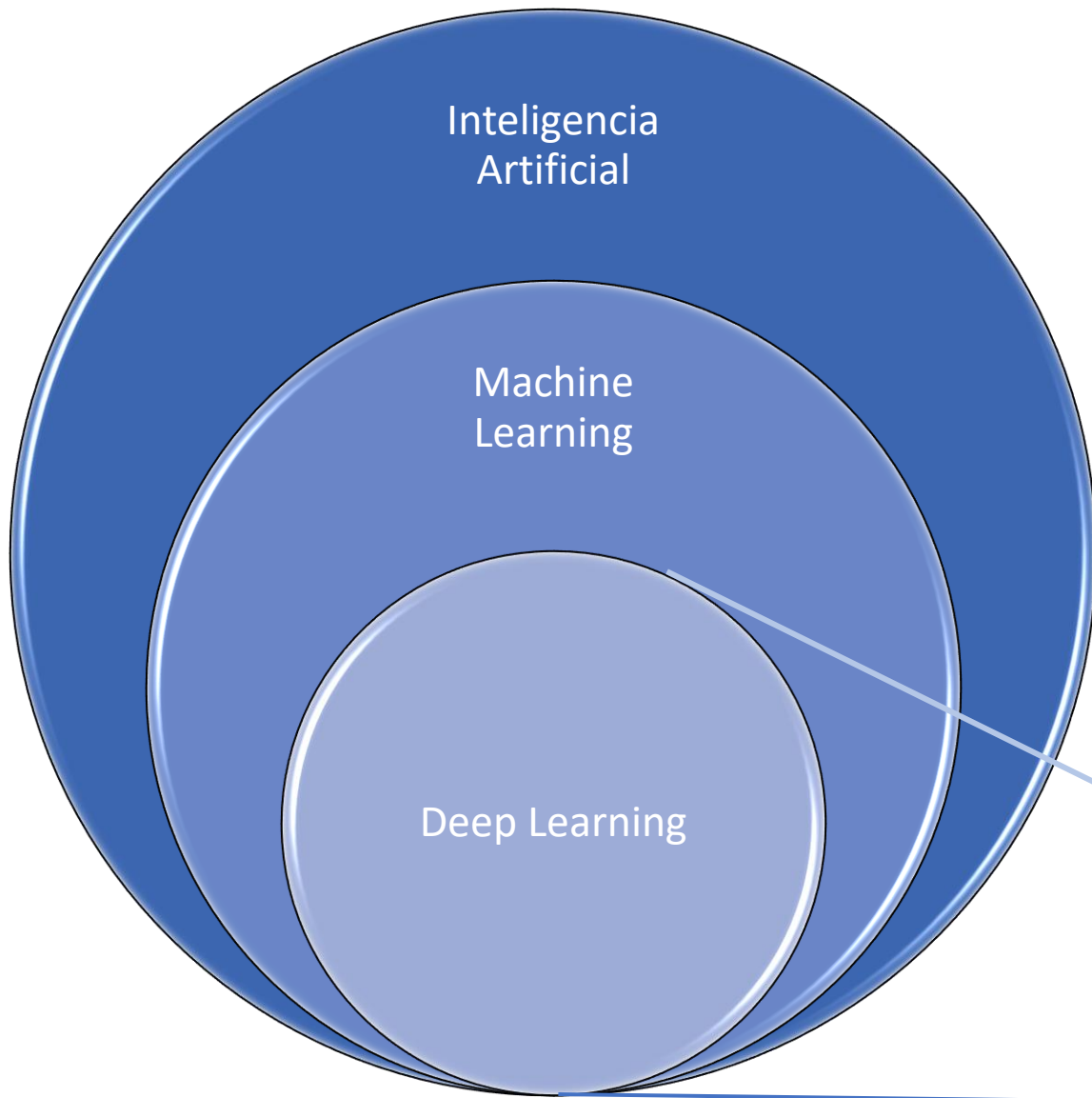


Output

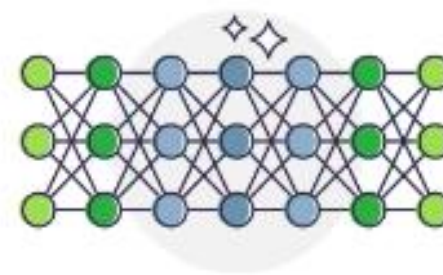
APRENDIZAJE AUTOMÁTICO

Subconjunto de la IA que utiliza métodos estadísticos para permitir que las máquinas mejoren con la experiencia





Input



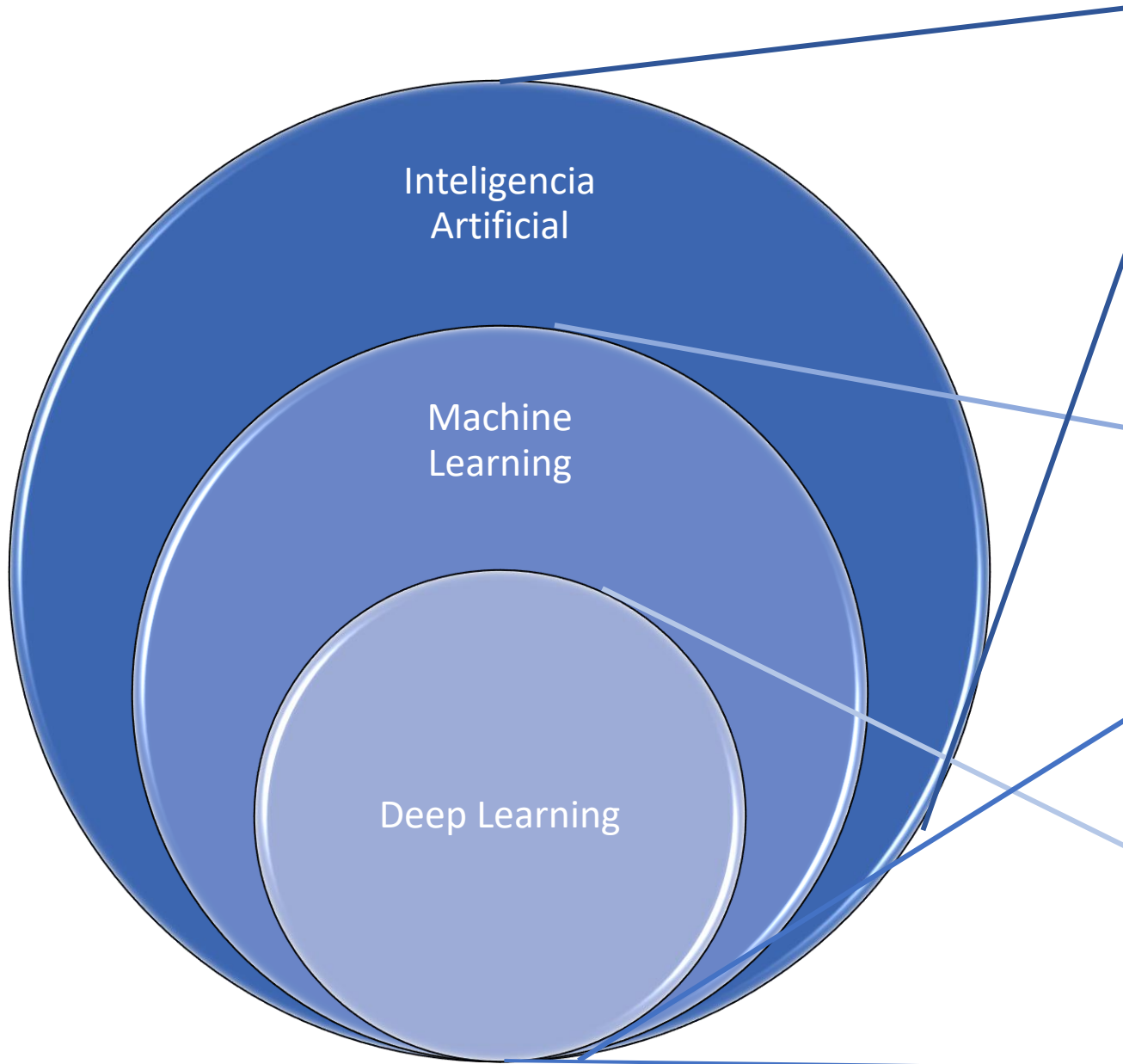
Extracción de
características
+
Clasificación



Output

APRENDIZAJE PROFUNDO

Subconjunto de ML que hace factible el cálculo de redes neuronales multicapa



INTELIGENCIA ARTIFICIAL

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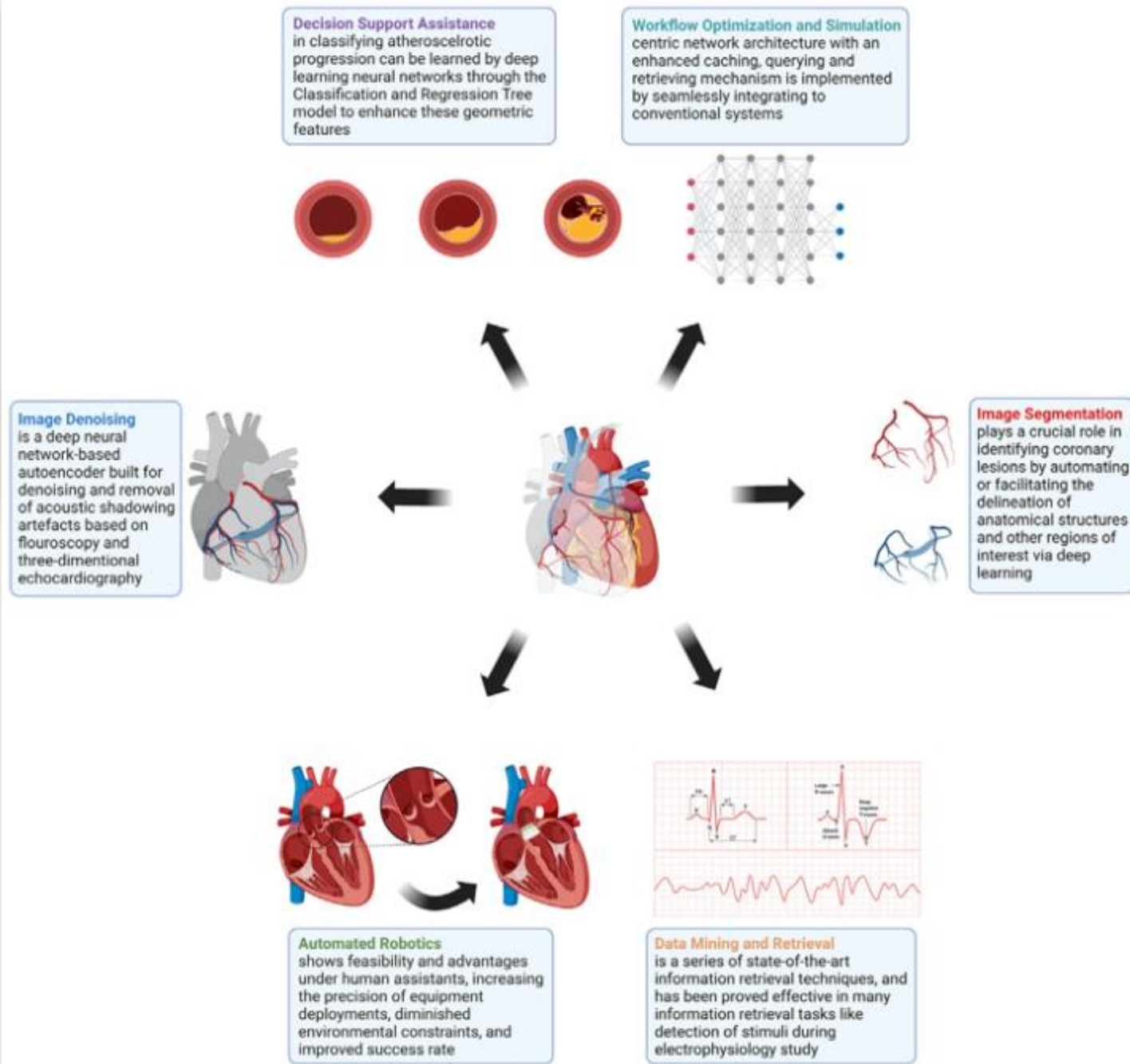
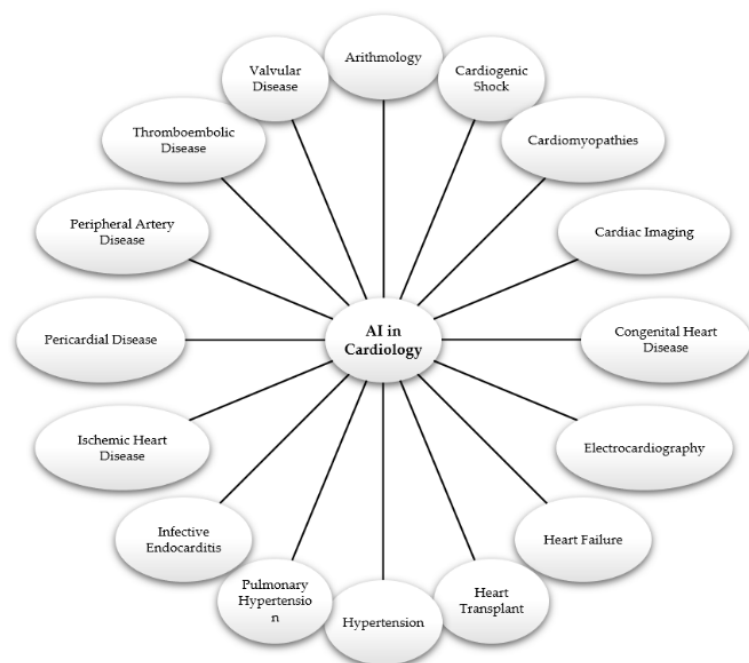
APRENDIZAJE PROFUNDO

Subconjunto de ML que hace factible el cálculo de redes neuronales multicapa



Role of Artificial Intelligence and Machine Learning in Interventional Cardiology

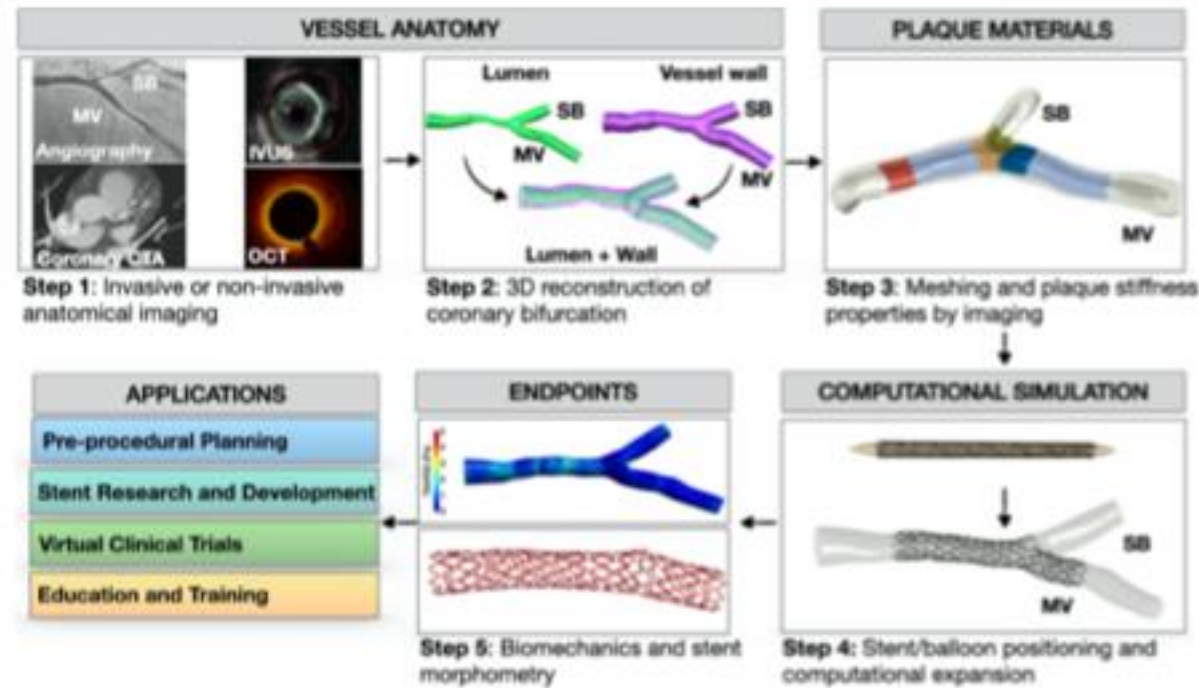
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Artificial Intelligence, Computational Simulations, and Extended Reality in Cardiovascular Interventions



FIGURE 1 Workflow and Applications of the Computational Simulations of Coronary Artery Stenting



<http://creativecommons.org/licenses/by/4.0/>. Modified with permission from Zhao et al.¹⁸ CTA = computed tomography angiography; IVUS = intravascular ultrasound; MV = main vessel; OCT = optical coherence tomography; SB = side branch; TAWSS = time-averaged wall shear stress.

FIGURE 2 Preprocedural Computational Planning Using Patient-Specific Coronary Anatomies

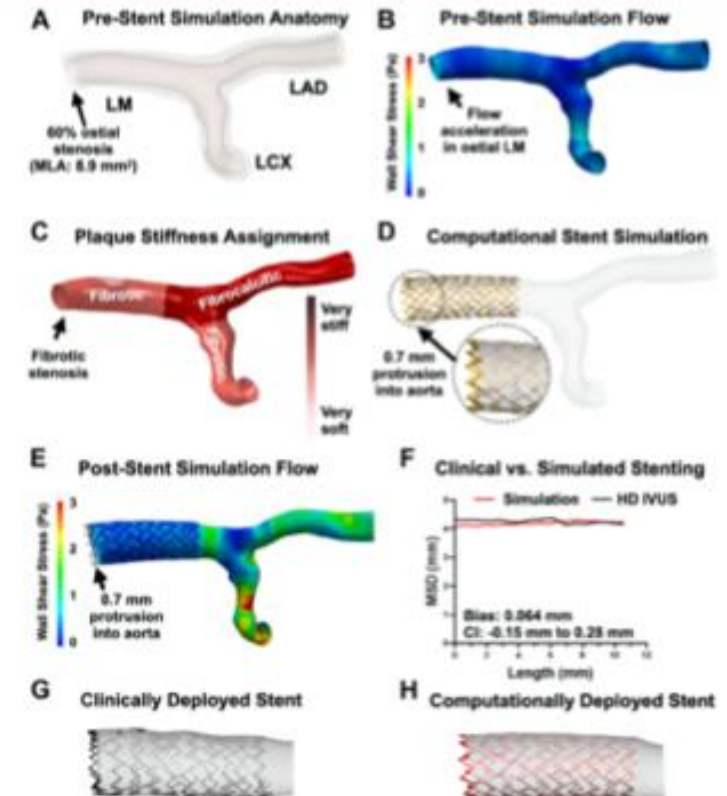


FIGURE 3 Patient-Specific Computational Stent Simulations

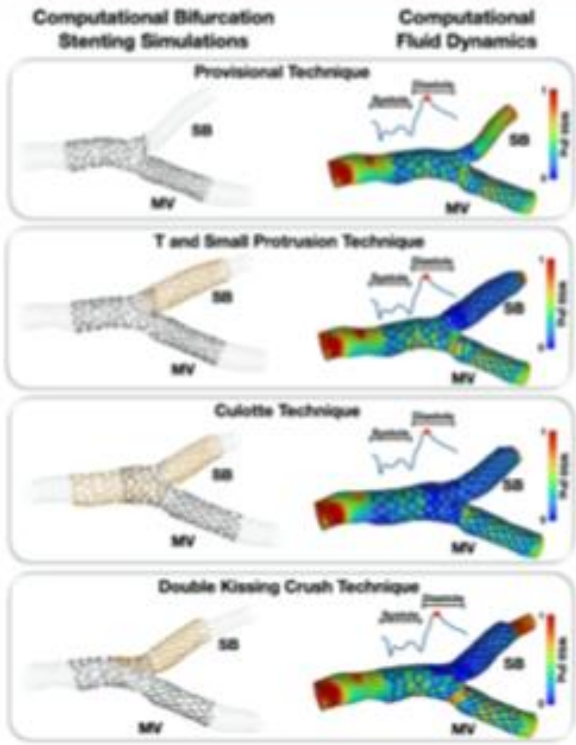
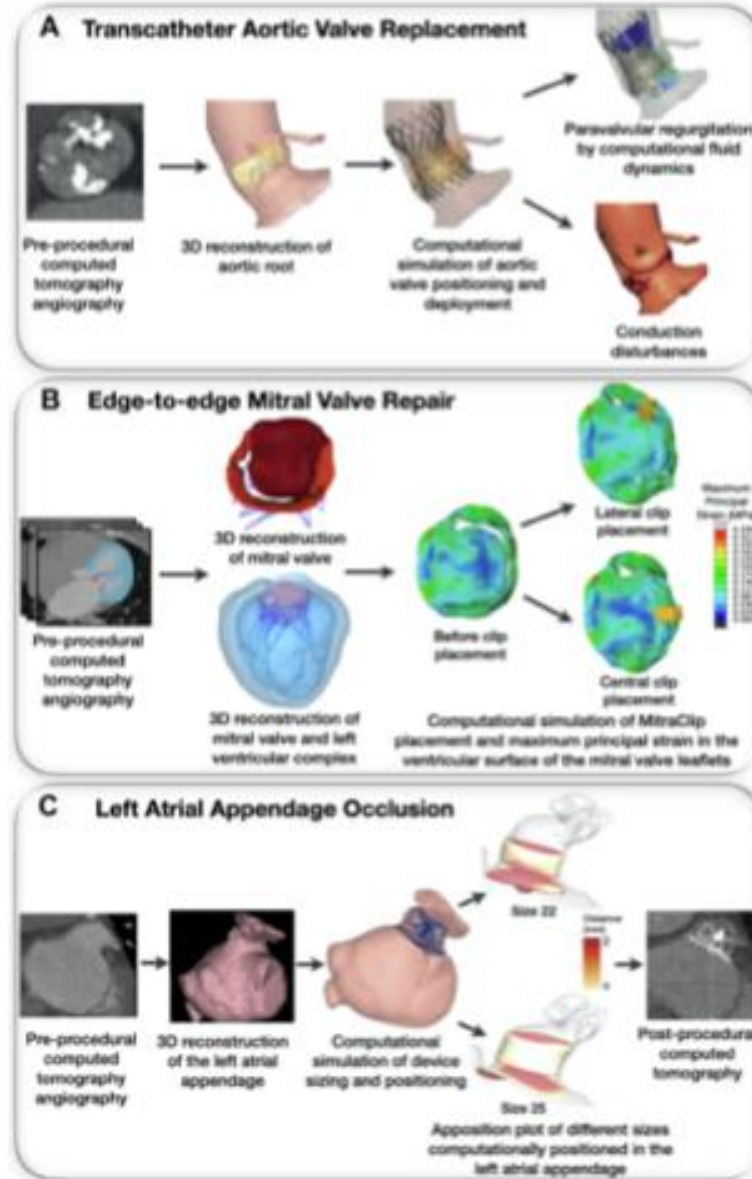
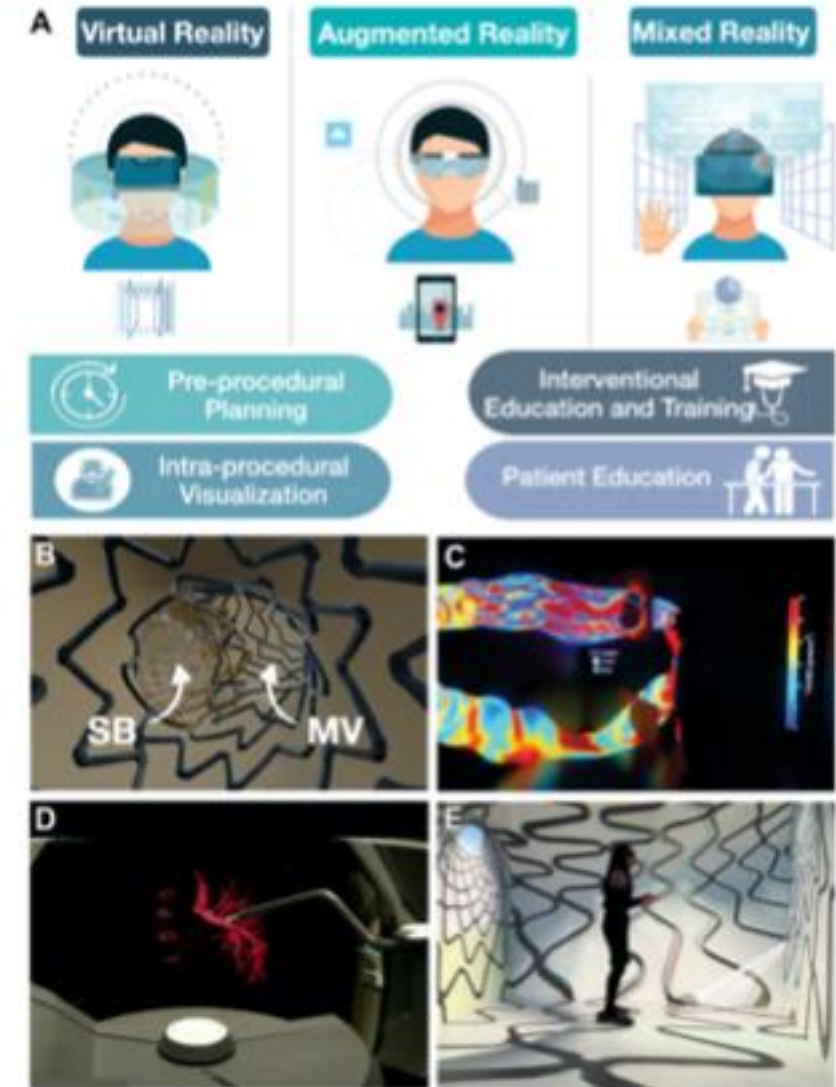


FIGURE 4 Patient-Specific Computational Simulations of Structural Heart Interventions



Spectrum of Extended Reality and Its Applications in Cardiovascular Interventions



Automated detection of myocardial infarction using ECG-based artificial intelligence models: a systematic review

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PUBMED, WOS, SCOPUS, IEEE XPLORE Y EMBASE

71% usarin Métodos de Deep Learning y 29% Machinelearning



Expert Review of Cardiovascular Therapy

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Robotics in percutaneous cardiovascular interventions

Ali Pourdjabbar, Lawrence Ang, Omid Behnamfar, Mitul P. Patel, Ryan R. Reeves, Paul T Campbell, Ryan D Madder & Ehtisham Mahmud

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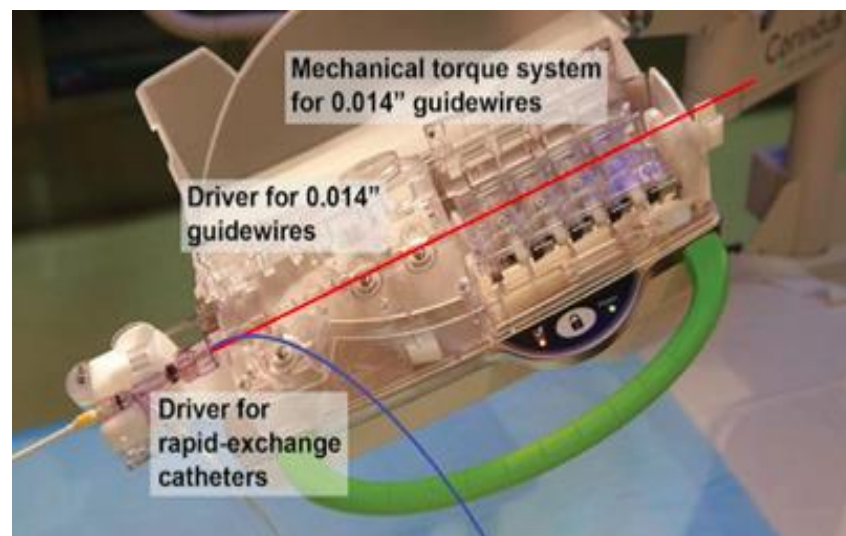
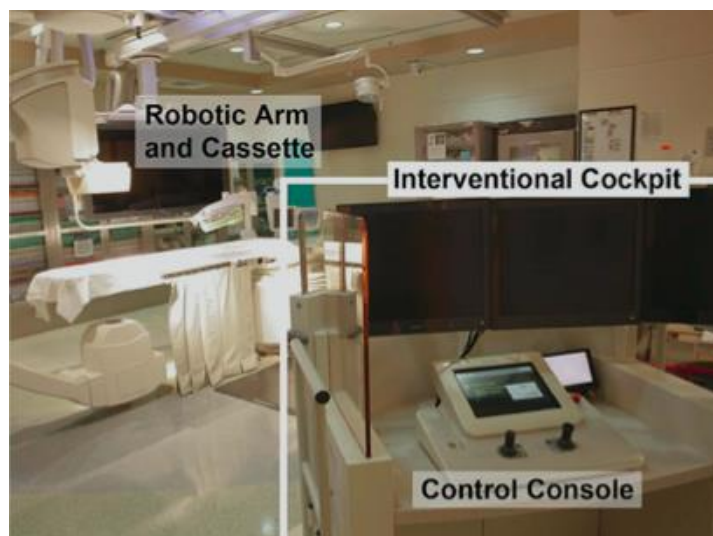
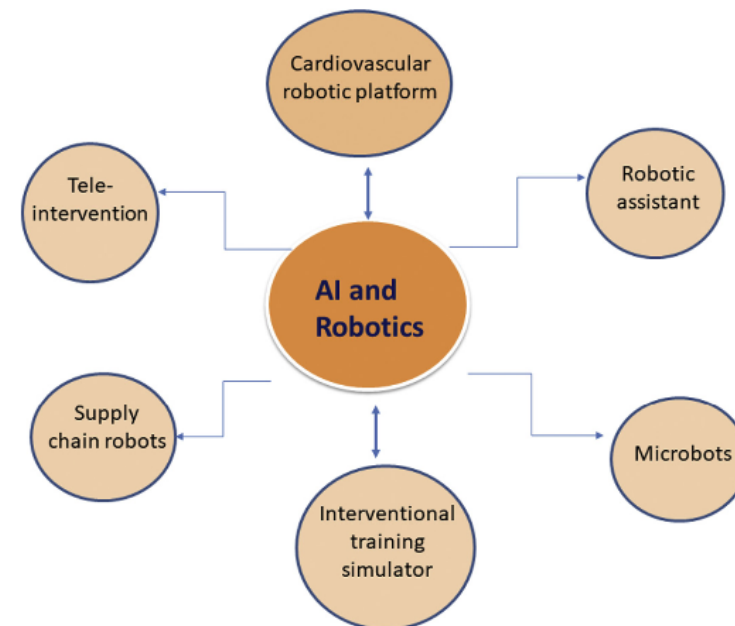
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Robotic-assisted percutaneous coronary intervention: experience in Switzerland

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FIGURE 4 Applications of Robotics in IC



Impact of Artificial Intelligence on Interventional Cardiology



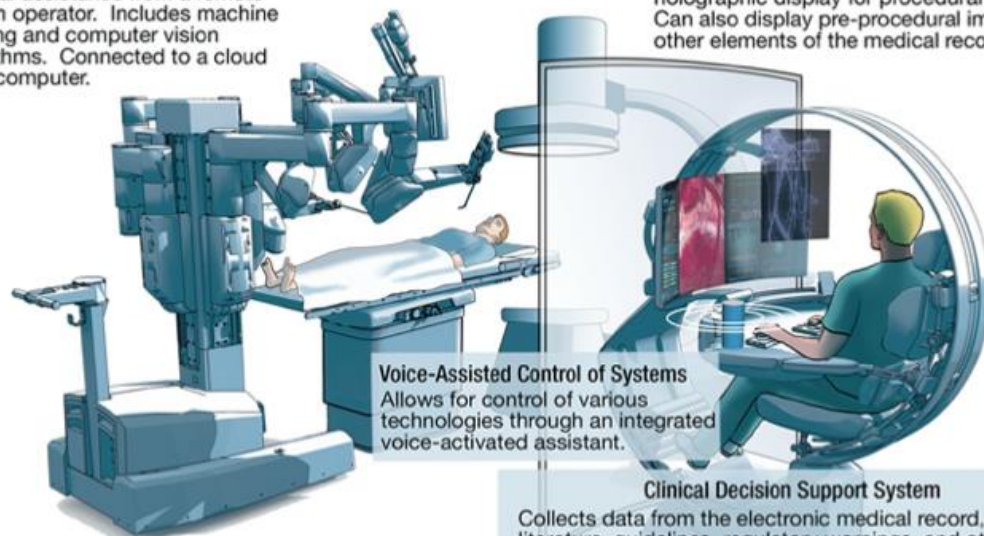
From Decision-Making Aid to Advanced Interventional Procedure Assistance

Partha Sarder, MD,^a J. Dawn Abbott, MD,^a Amartya Kundu, MD,^b Herbert D. Aronow, MD,^a Juan F. Granada, MD,^c Jay Giri, MD, MPH^{a,c}

FIGURE 2 Future Catheterization Laboratory With Artificial Intelligence-Enabled Technologies

Semi-autonomous Vascular Robotic System

Performs many procedural steps with minimal assistance from a remote human operator. Includes machine learning and computer vision algorithms. Connected to a cloud supercomputer.



Augmented Reality System

Real-time viewing, measurement, and manipulation of patient anatomy in a holographic display for procedural guidance. Can also display pre-procedural images and other elements of the medical record.

Voice-Assisted Control of Systems

Allows for control of various technologies through an integrated voice-activated assistant.

Clinical Decision Support System

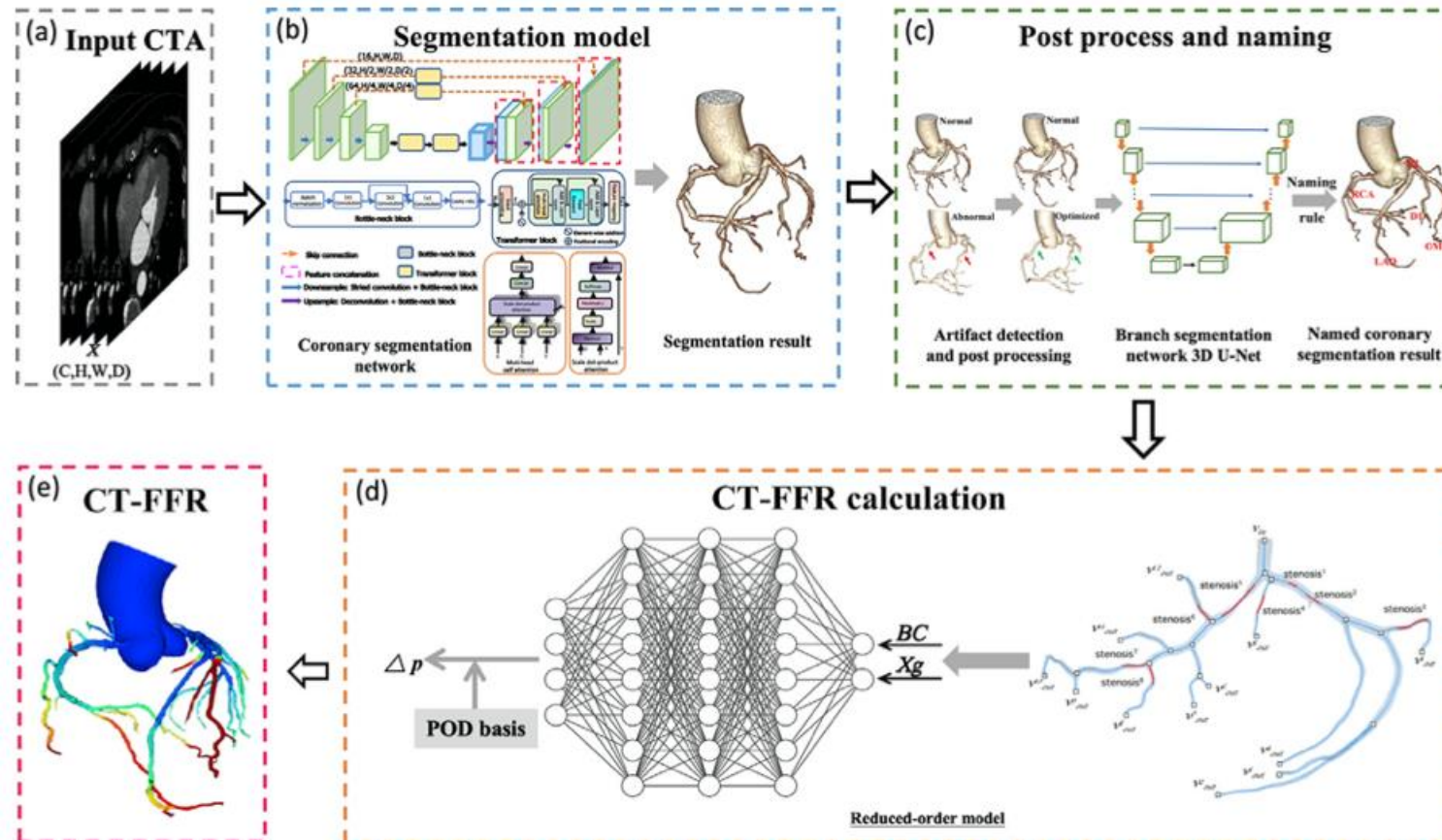
Collects data from the electronic medical record, medical literature, guidelines, regulatory warnings, and other internet-based public information. Provides analysis of intra-procedural progress that integrates this data with procedural imaging and patient status. Includes predictive analytics with the use of cognitive computing to support optimal clinical decision making.

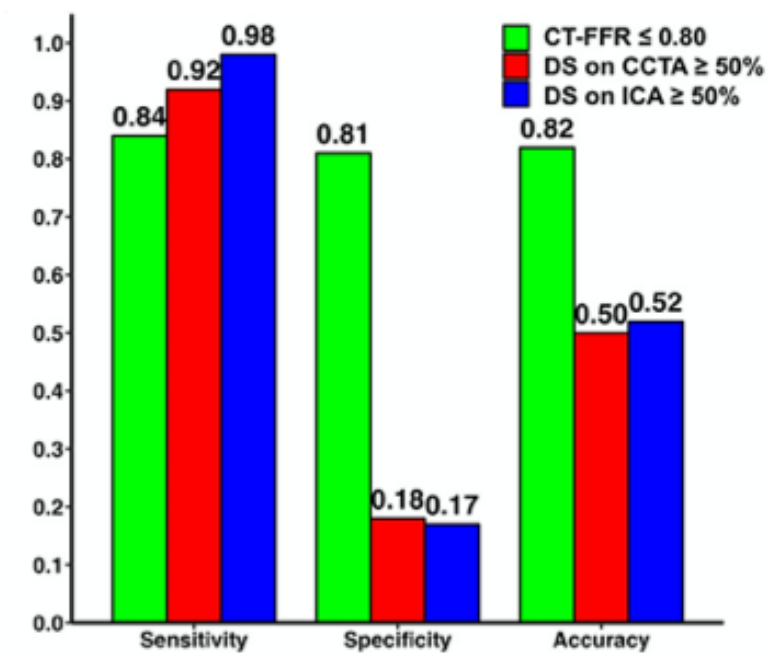
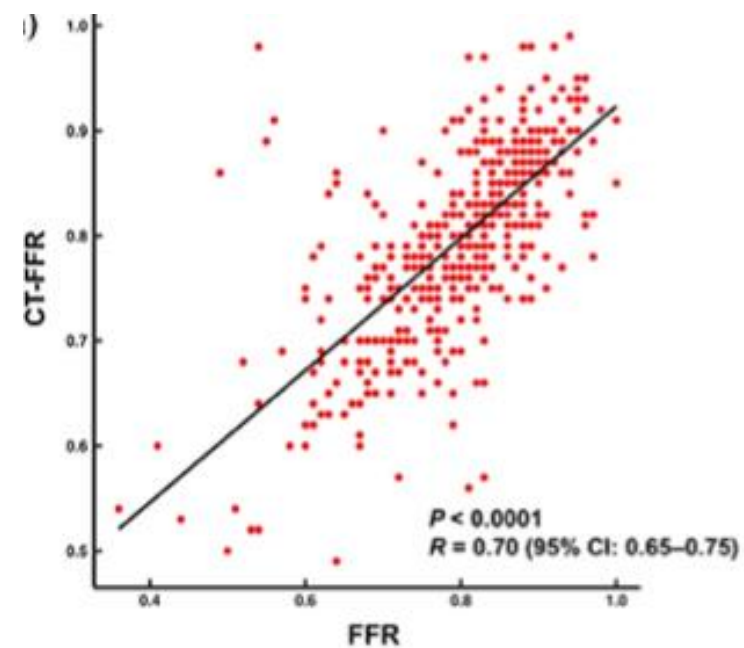
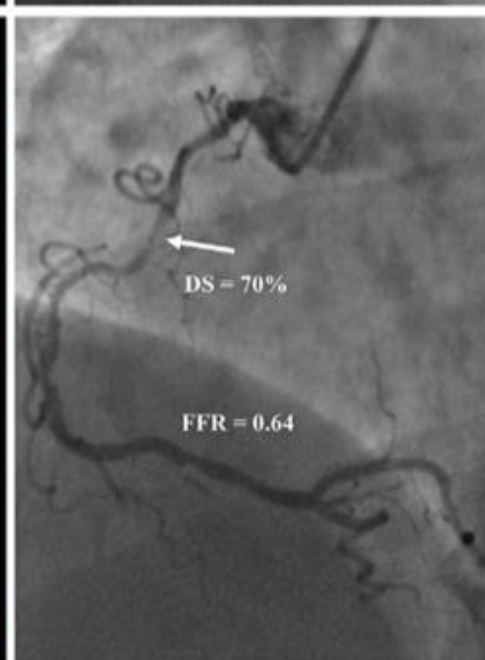
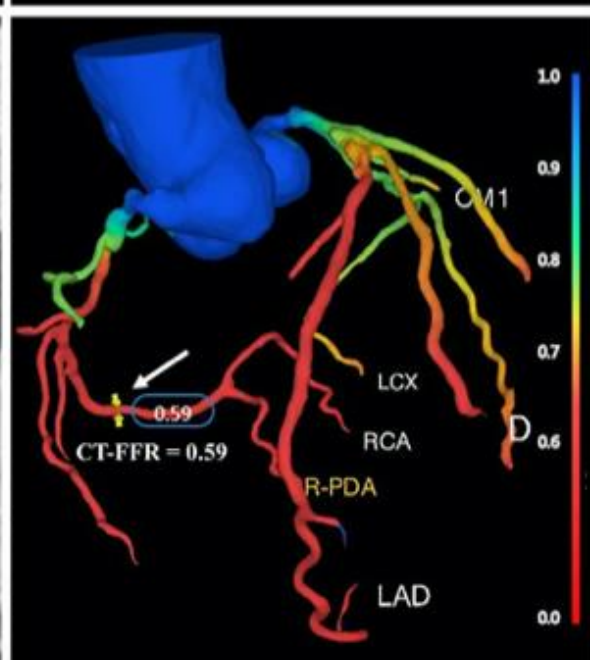
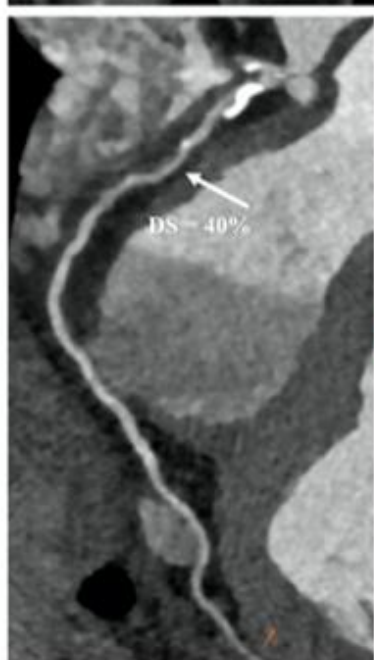
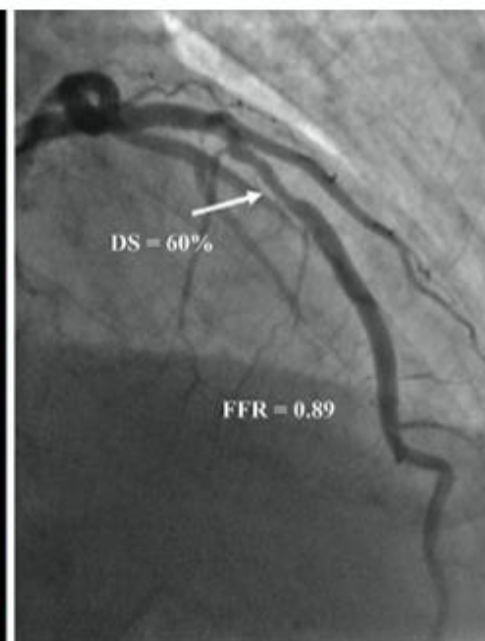
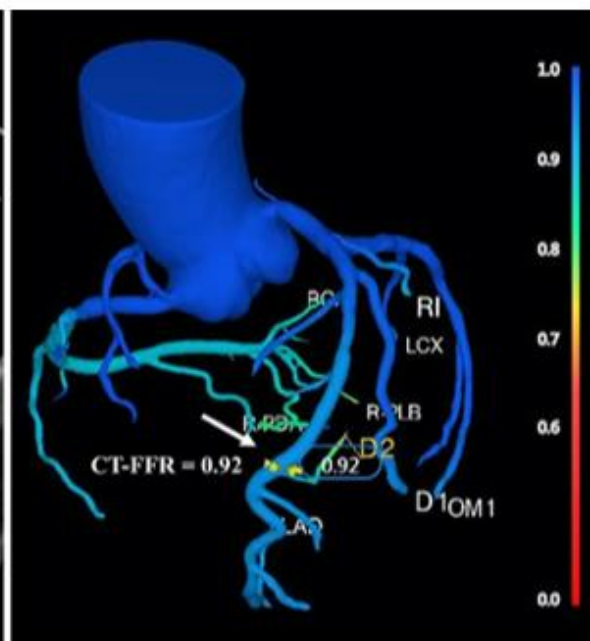
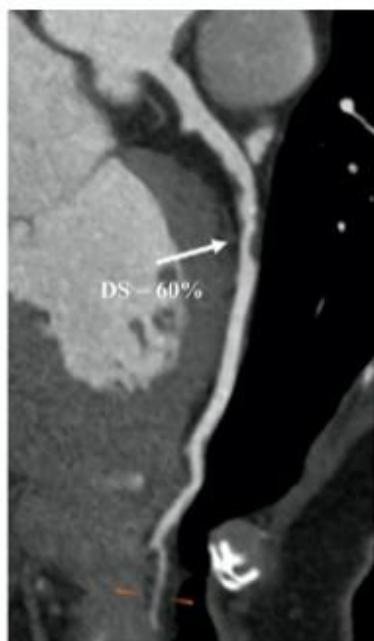
FIGURE 3 Augmented Reality Cardiac Holographic Display for Procedural Guidance



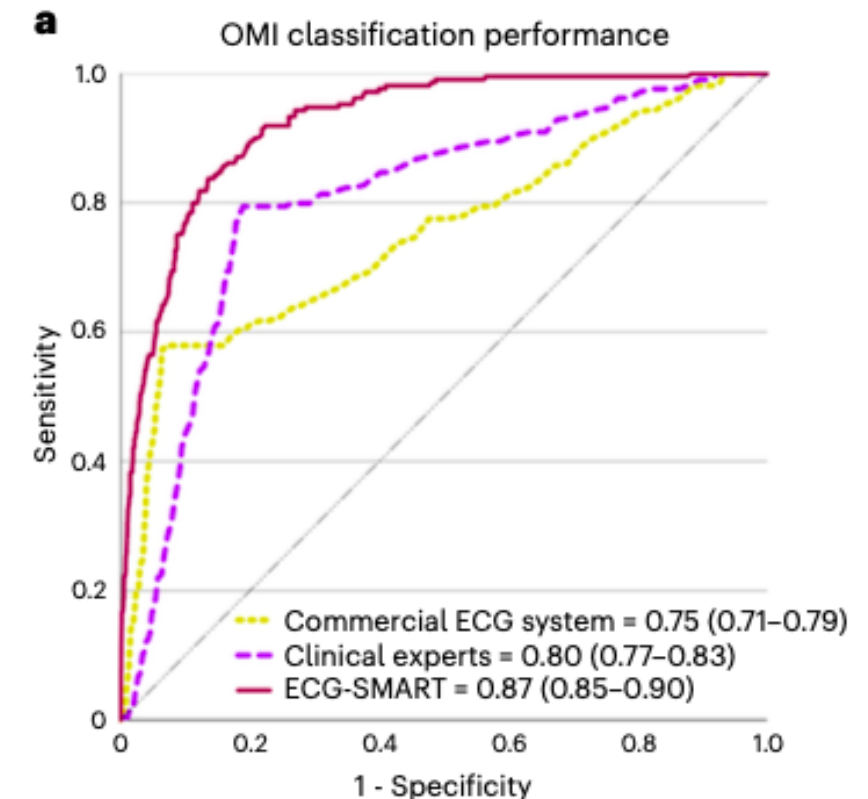
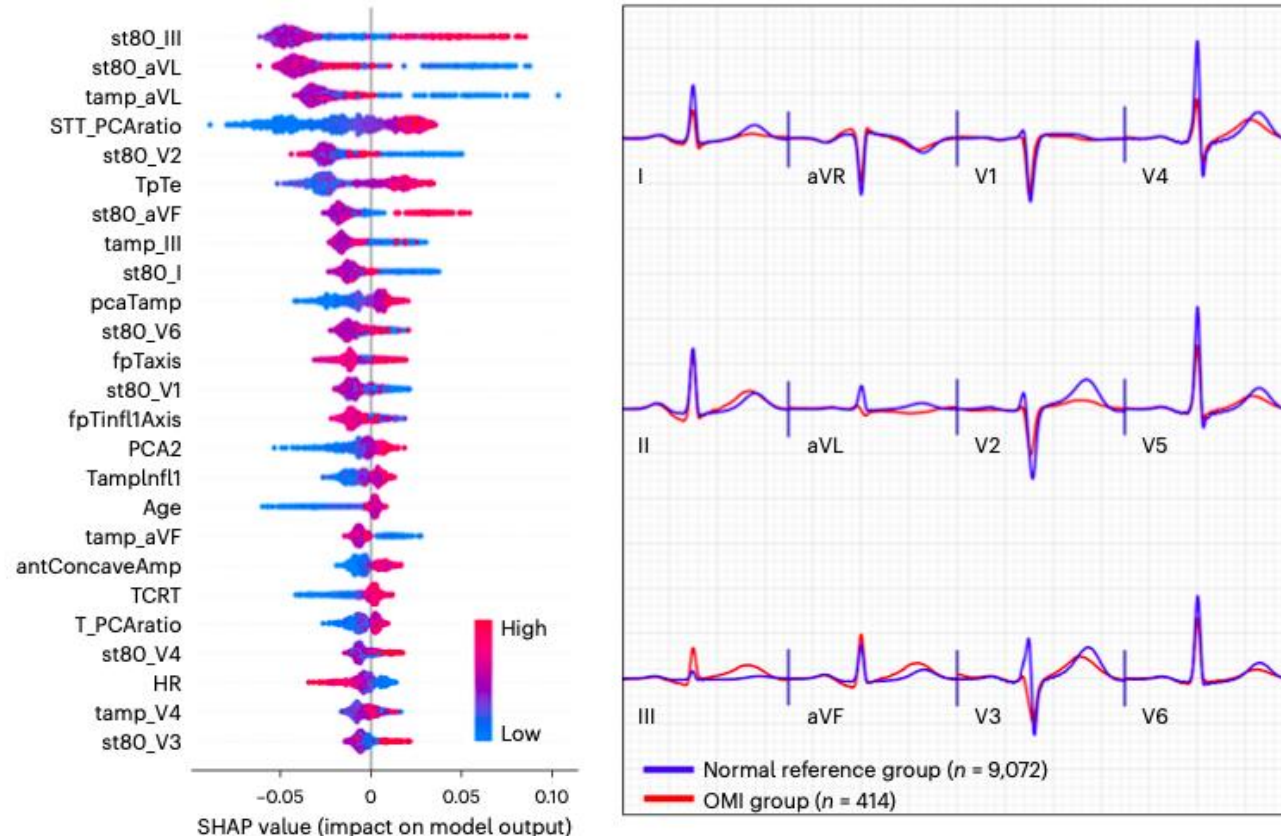
Article

Diagnostic and prognostic performance of artificial intelligence-based fully-automated on-site CT-FFR in patients with CAD





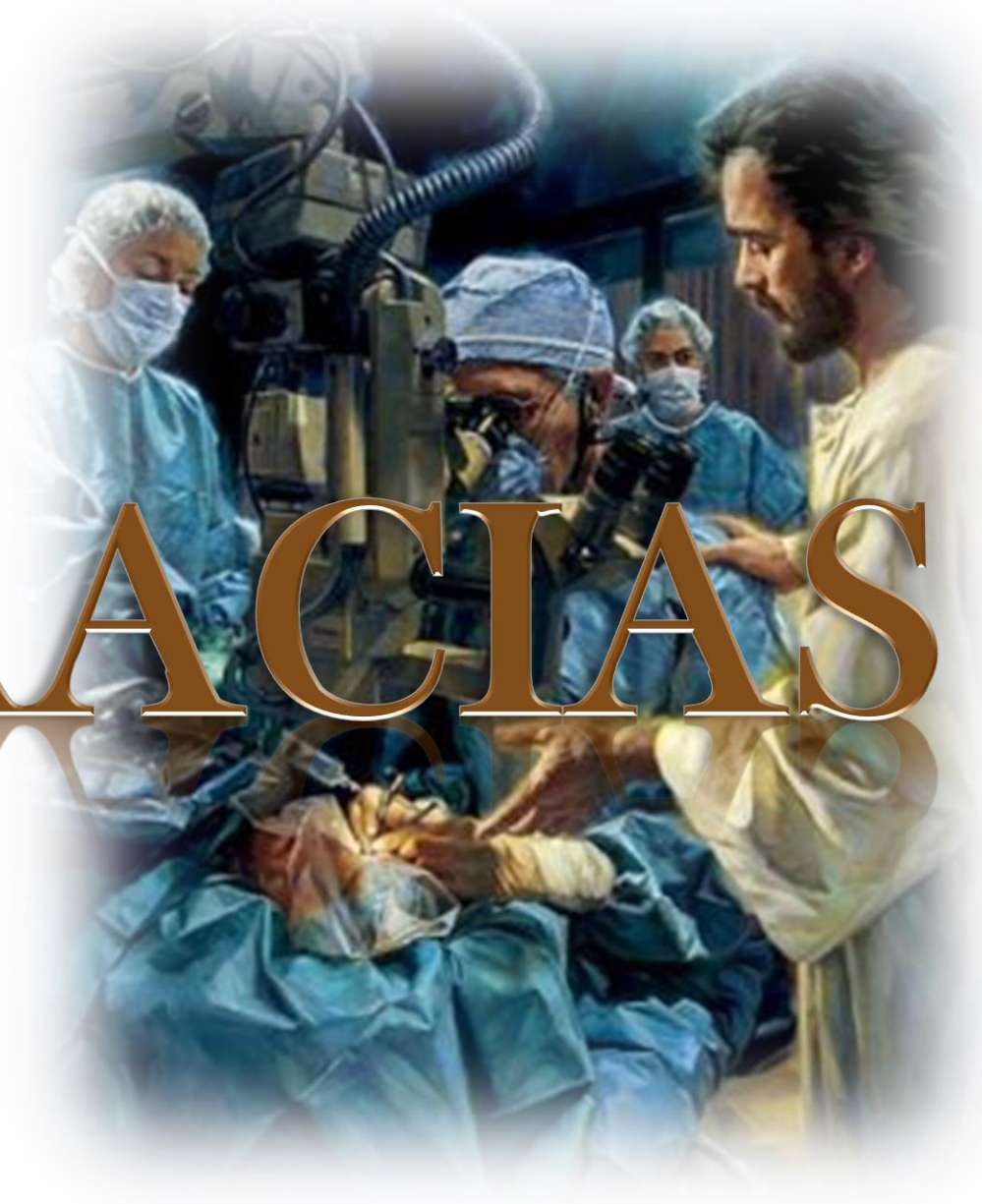
Machine learning for ECG diagnosis and risk stratification of occlusion myocardial infarction



Conclusiones

- La Inteligencia Artificial (IA) es una tecnología que puede servir de herramienta para optimizar los resultados en los síndromes coronarios agudos y enfermedad coronaria en general
- La IA nos permite mejorar nuestro diagnóstico electrocardiográfico en presentaciones inusuales del ECG
- La IA está ganando terreno en Cardiología Intervencionista
- La IA está reforzando la precisión de la Robótica en el Intervencionismo cardiaco

Inteligencia Artificial en
Síndrome Coronario Agudo



GRACIAS

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