Synthetic Data in Medical Imaging

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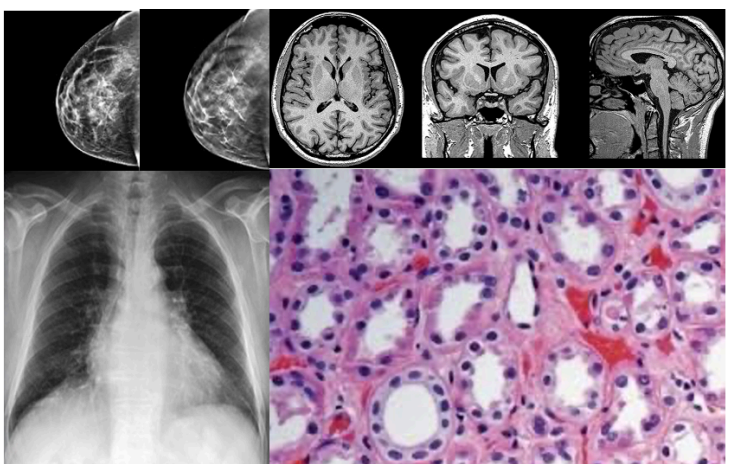
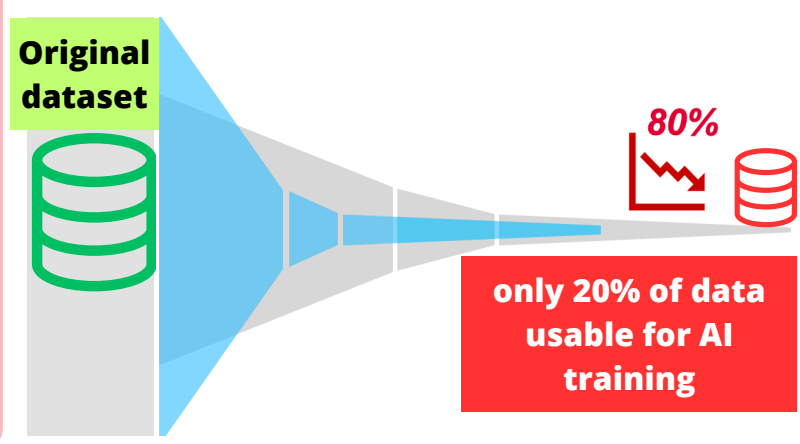


Advancing Healthcare Through the Evolution of Medical Imaging

From transforming diagnostics with X-rays to empowering radiologists with AI, medical imaging continues to advance healthcare, reducing workloads, enhancing accuracy, and saving lives.

Data Challenge: Barrier to Opportunity

Data scarcity and quality remain the greatest hurdle and opportunity in AI-driven medical imaging, where access to high-quality datasets is critical to unlocking transformative innovation and market success.



The $50M movie "Here" used Generative AI to de-age Tom Hanks

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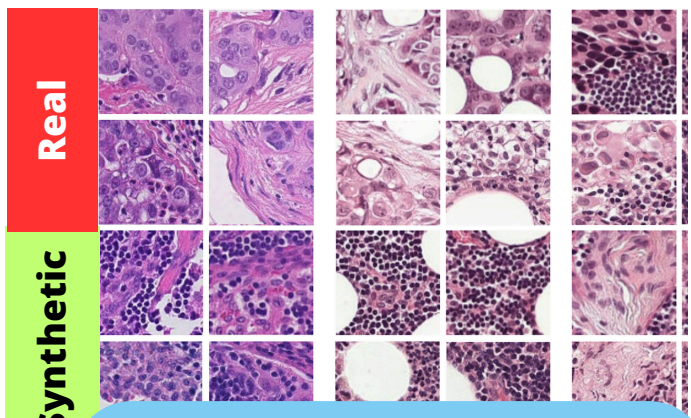
Generative AI and Diffusion Models: Redefining Image Creation

Generative AI, powered by *diffusion models*, transforms image creation by turning text prompts into hyper-realistic visuals. Its applications span art, film, and the cutting-edge realm of medical imaging.

Redefining Realism in Histopathology with Diffusion Models

Powered by diffusion models, synthetic histopathology images, achieved expert-level realism, blurring the line between real and artificial.



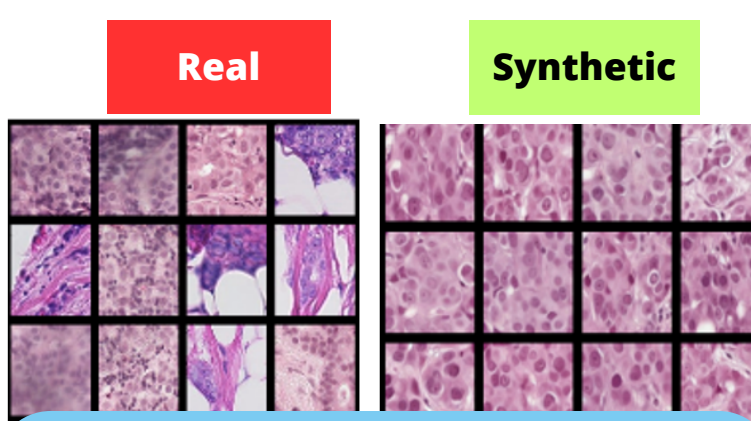
Synthetic Images resemble real ones

Maximizing Opportunities with Synthetic Medical Imaging

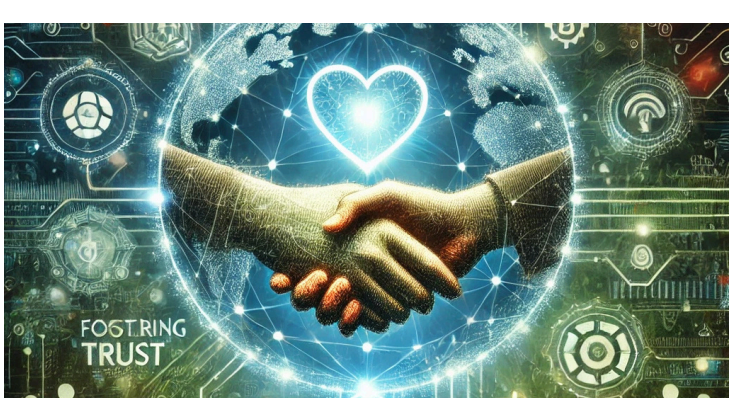
Synthetic medical imaging unlocks opportunities for cost-effective data acquisition, training radiologists on rare diseases, and accelerating collaborations through anonymized, shareable datasets.

Risks of Generative AI in Healthcare

Generative AI faces technical challenges like model collapse and hallucination, and ethical risks like deepfakes, which threaten diagnostic accuracy, data diversity, and trust in healthcare systems.



Model Collapse: Model producing output with limited diversity



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Collaboration: The Key to Advancing Synthetic Medical Imaging

Collaboration among experts, data scientists, and regulators is essential to overcome challenges and unlock the full potential of synthetic medical imaging in healthcare.