

AAP District VIII Section on Neonatal-Perinatal Medicine, 48th Annual Conference

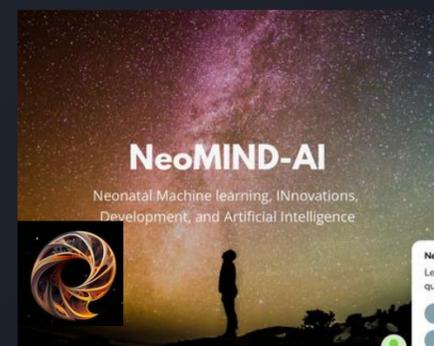


James Barry, MD, MBA

Professor of Pediatrics, Section of Neonatology
University of Colorado School of Medicine,
June 8, 2025

Disclosures

- I have no financial disclosures directly related to this talk
- I may mention different companies or products during this talk, but they are being used as examples and are not being endorsed by me and I have no financial relationship with any of them
- I was a paid site investigator for a Phase 2b clinical trial for Aerogen Inc as part of the **Aerofact clinical trial**.
- I am co-founder of **NeoMINDAI** which is a non-revenue generating learning collaborative
- I have had financial support from the **AAP as District 8 Rep of the Executive Council for the SoNPM** for conference attendance



AI Disclosures

~50% of the figures in this talk have been generated using generative AI tools from **OpenAI (Dalle 3)**, **Gemini (Imagen 3)**, and **Napkin AI**

-Various topic summaries have been supported using **Notebook LM** which is able to create folders (notebooks) on various topics which you can create a briefing document and query as if it was a textbook and also create **Podcasts** from articles .

-All Content and Presentation is from **me**



Outline



- Artificial Intelligence- Technology

- Artificial Intelligence- Do We Even Need it?

- Artificial Intelligence- How Can We Use it?

- Artificial Intelligence- How Can It Be Used To Improve Care?



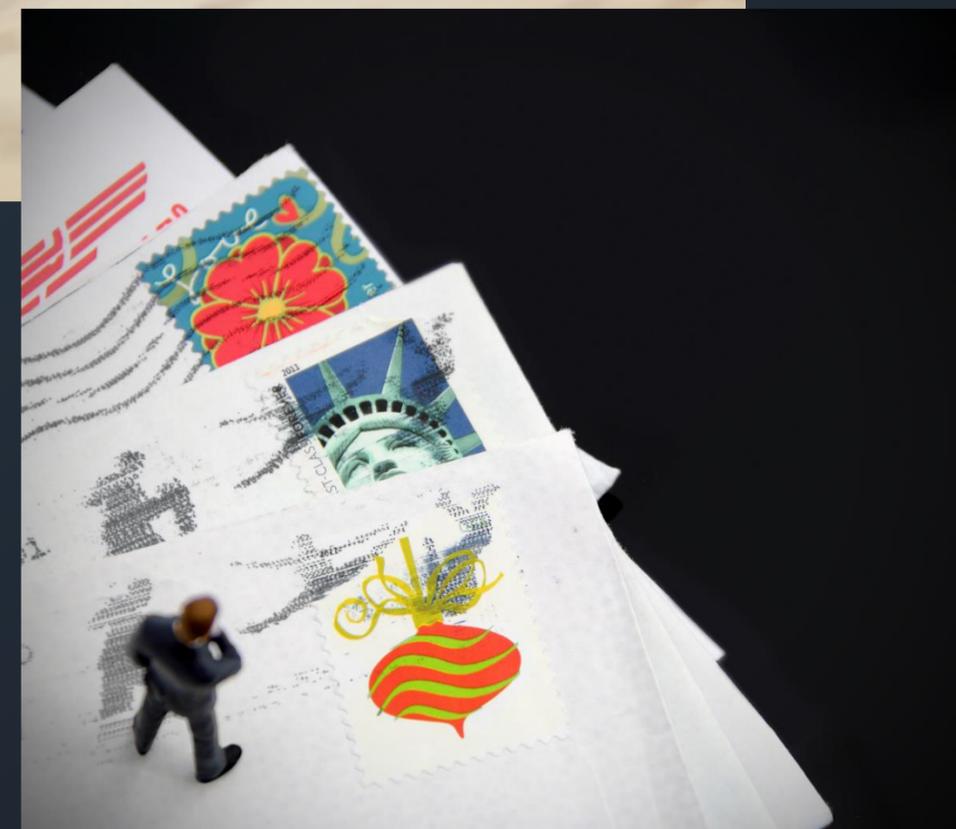
I Only Use the Encyclopedia and Books to Learn



I only use a rotary phone to call my son in DC



I Use The US Postal Service to Communicate With My Mom In Florida



I Only Solve Math Problems By Hand



$$\begin{array}{r} 691 \\ 389 \times \\ \hline 6219 \\ 55280 \\ 207300 \\ \hline 268799 \end{array}$$

I Only Use A Stethoscope To Detect Congenital Heart Disease

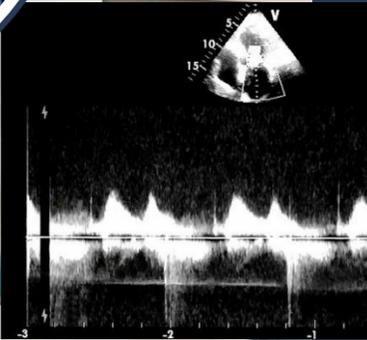


Do You Do This as Well?



I DON'T,

And Neither Do YOU,
It is No Longer 1989



AI is a Disruptive Technology

Much Like:



Light bulb

Changed Lighting

Candle



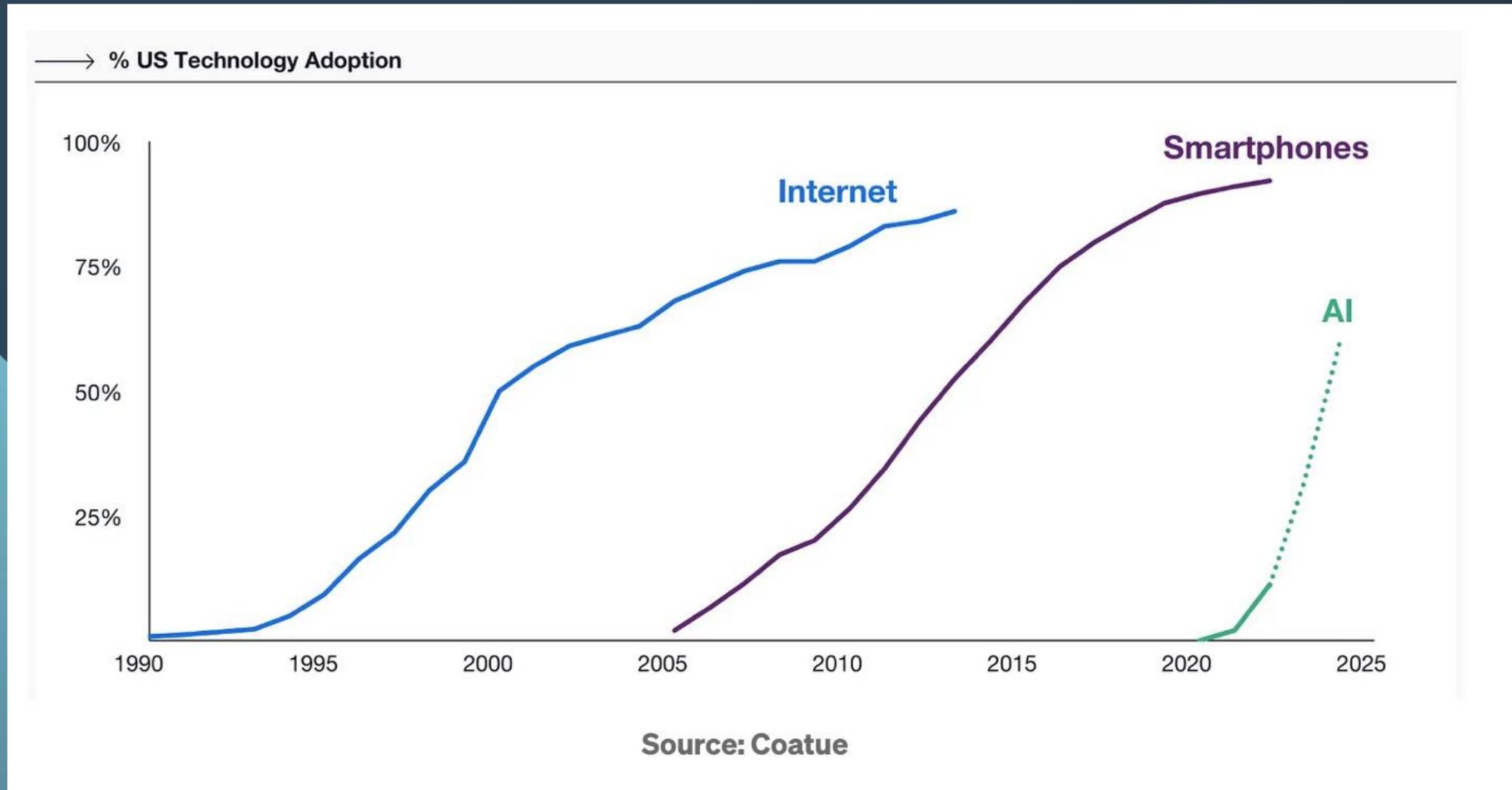
Ford Model T

Changed Travel

Horses



Rapid AI Advancement



Amara's law: “We over estimate the immediate impact of technology, but under estimate the long term impact”

Do you use an Encyclopedia?



**Wikipedia and the
internet has almost
eliminated
Encyclopedias**

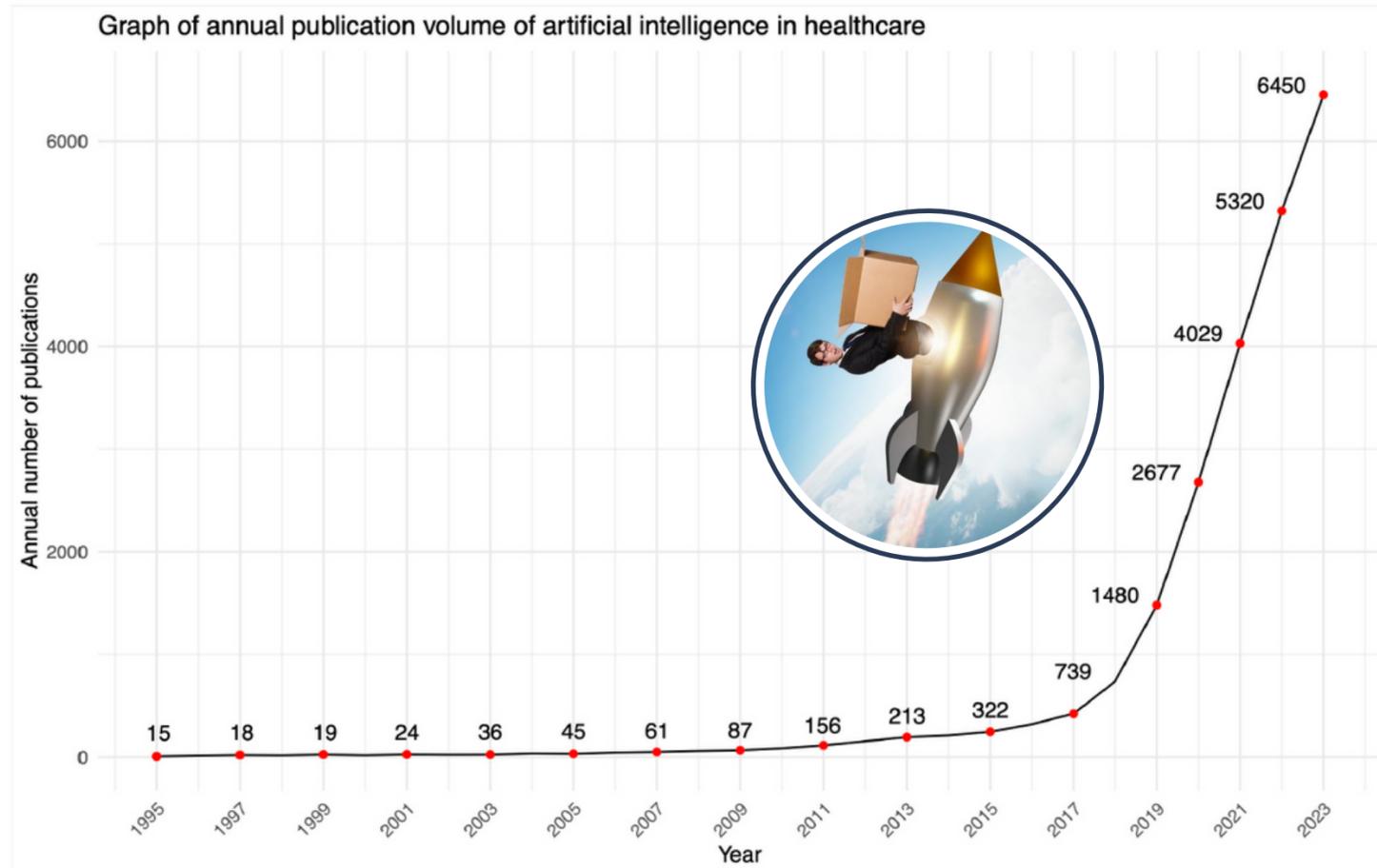
High Tech, But Also Old-School



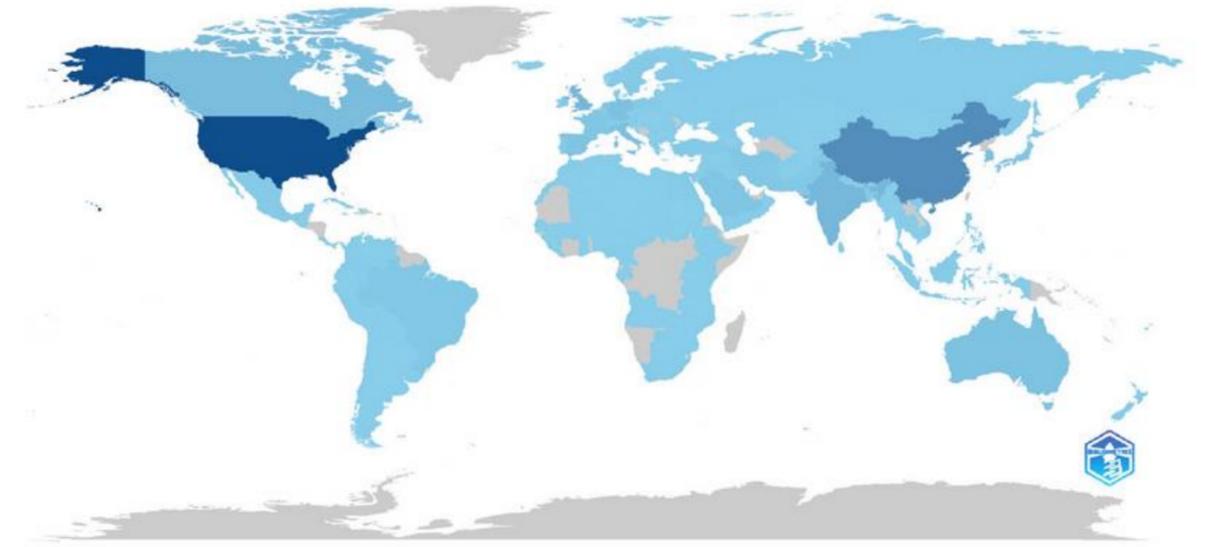
Healthcare and Technology
is a Paradox

We remain the only industry
still using Fax machines

AI in Healthcare Publications



Country Scientific Production



Country	Number of publications	Country	Number of publications
USA	28663	SAUDI ARABIA	1764
CHINA	12740	FRANCE	1594
INDIA	4926	FRANCE	1463
UK	4821	JAPAN	1294
CANADA	3567	IRAN	1246
SOUTH KOREA	2842	BRAZIL	1115
GERMANY	2644	SINGAPORE	895
ITALY	2582	PAKISTAN	846
AUSTRALIA	2459	SWITZERLAND	694
SPAIN	1850	MALAYSIA	656

Evolution of artificial intelligence in healthcare: a 30-year bibliometric study

Yaojue Xie¹, Yuansheng Zhai^{2,3*} and Guihua Lu^{2,3*}

frontiers | Frontiers in **Medicine**

TYPE Systematic Review
 PUBLISHED 15 January 2025
 DOI 10.3389/fmed.2024.1505692

Wait, WHAT?

Recent News

March 29, 2025

Bill Gates Says AI Will Replace Doctors, Teachers and More in Next 10 Years, Making Humans Unnecessary 'for Most Things'

"So I love the way it'll drive innovation forward, but I think it's a little bit unknown," the billionaire said of artificial intelligence

By [Bailey Richards](#) | Published on March 29, 2025 02:10PM EDT



Wait, WHAT?

Recent News April 22, 2025

THE ECONOMIC TIMES | tech

English Edition | Today's ePaper

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Business News > Tech > AI > AI can be 'end of disease' within next decade, says Google DeepMind CEO Demis Hassabis

Pahalgam Terror Attack > 26 killed in Kashmir's deadliest attack in years; Amit Shah holds meet with high-level...

Powered by **Lenovo**

AI can be 'end of disease' within next decade, says Google DeepMind CEO Demis Hassabis

Ttech • Last Updated: Apr 22, 2025, 01:35:00 PM IST

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Wait, WHAT?

Recent News

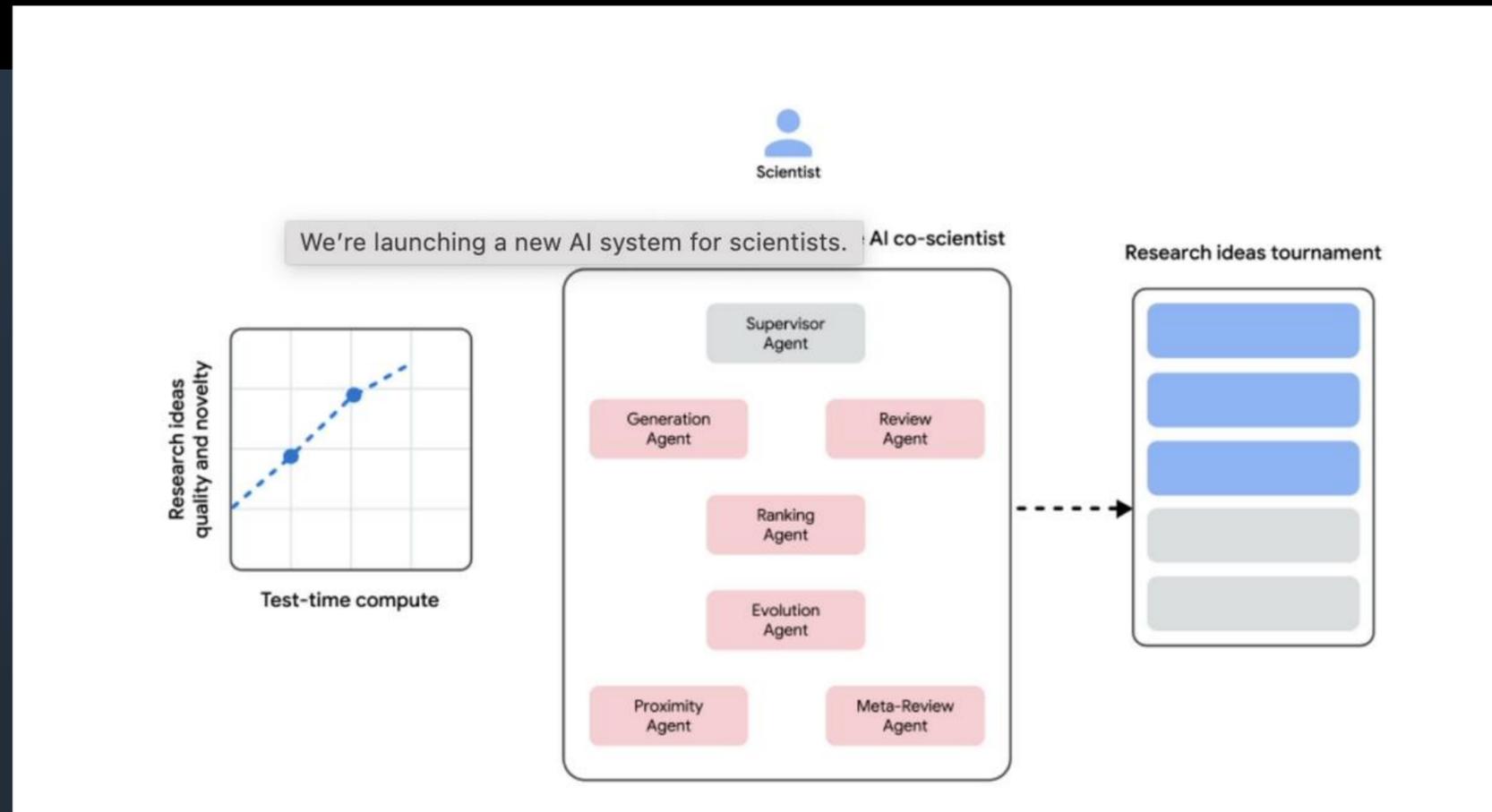
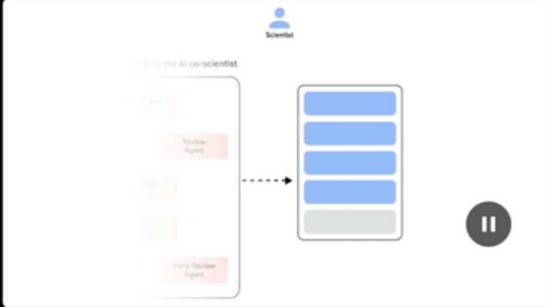
February 19, 2025

Google Research Who we are ▾ Research areas ▾ Our work ▾ Programs & events ▾ Careers Blog

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Accelerating scientific breakthroughs with an AI co-scientist

February 19, 2025 · Juraj Gottweis, Google Fellow, and Vivek Natarajan, Research Lead



THE AI SCIENTIST- August 2024

WOW! it can act like a researcher

- **The AI Scientist;** generates novel research ideas, writes code, executes experiments, visualizes results, describes its findings by writing a full scientific paper, and then runs a simulated review process for evaluation. In principle, this process can be repeated to iteratively develop ideas in an open-ended fashion, acting like the human scientific community.

<https://sakana.ai/ai-scientist/>

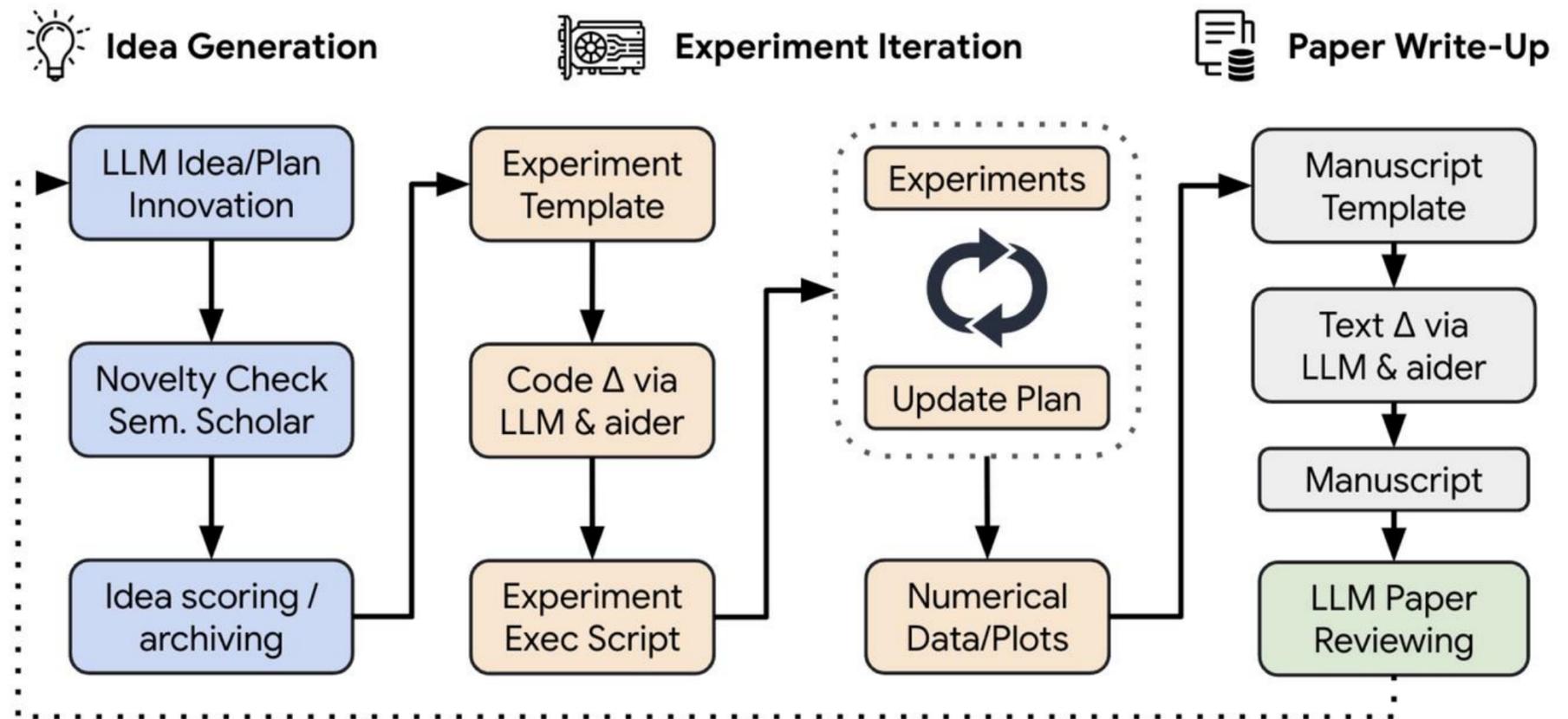
arXiv > cs > arXiv:2408.06292

Computer Science > Artificial Intelligence

[Submitted on 12 Aug 2024 (v1), last revised 1 Sep 2024 (this version, v3)]

The AI Scientist: Towards Fully Automated Open-Ended Scientific Discovery

Chris Lu, Cong Lu, Robert Tjarko Lange, Jakob Foerster, Jeff Clune, David Ha



THE AI SCIENTIST- April 2025

The AI Scientist-v2: Workshop-Level Automated Scientific Discovery via Agentic Tree Search

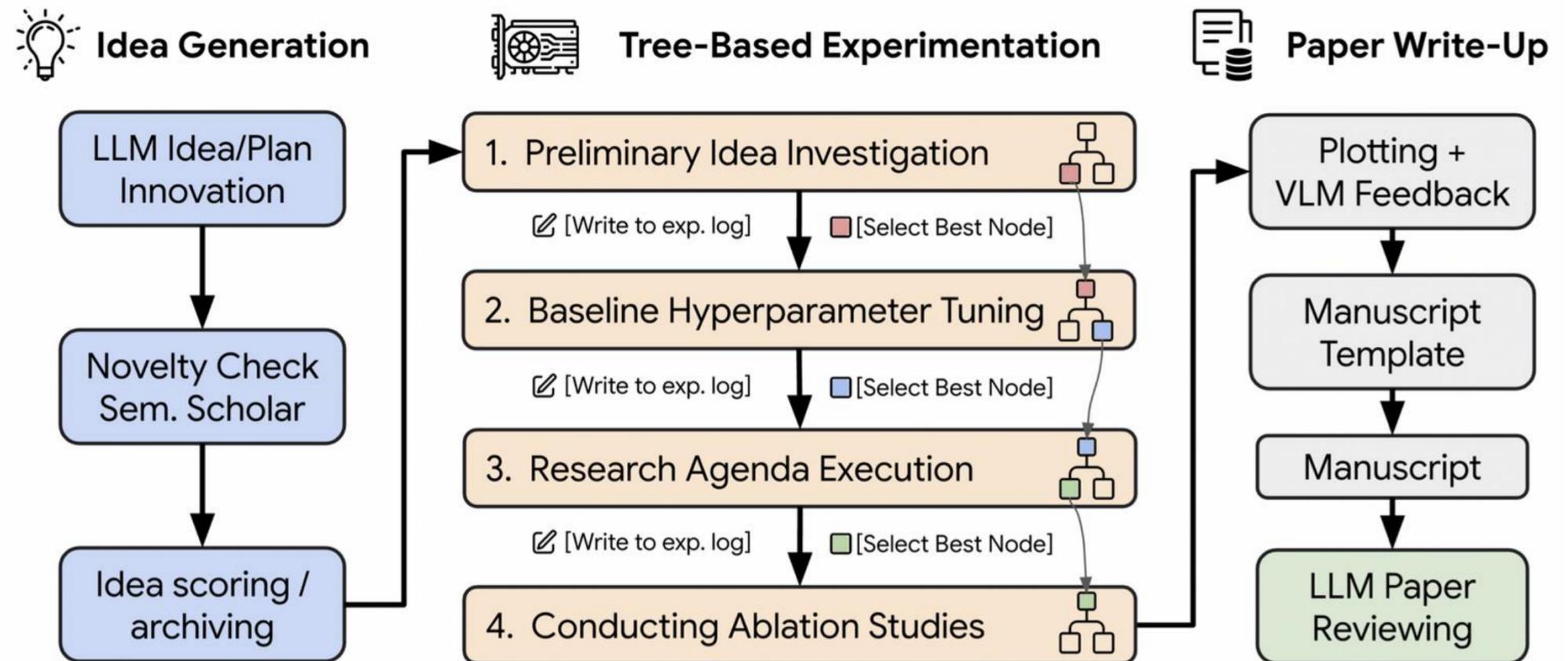
Yutaro Yamada, Robert Tjarko Lange, Cong Lu, Shengran Hu, Chris Lu, Jakob Foerster, Jeff Clune, David Ha

WOW! it can publish

arXiv > cs > arXiv:2504.08066

- **The AI Scientist;** We evaluated The AI Scientist-v2 by submitting three fully autonomous manuscripts to a peer-reviewed ICLR workshop. Notably, one manuscript achieved high enough scores to exceed the average human acceptance threshold, marking the first instance of a fully AI-generated paper successfully navigating a peer review.

<https://sakana.ai/ai-scientist/>



THE AI SCIENTIST- April 2025

The AI Scientist-v2: Workshop-Level Automated Scientific Discovery via Agentic Tree Search

Yutaro Yamada, Robert Tjarko Lange, Cong Lu, Shengran Hu, Chris Lu, Jakob Foerster, Jeff Clune, David Ha



Reviewer #1: A good paper analyzing the effectiveness of a compositional regularization term for LSTMs

Conclusion:
Overall, I would accept this paper to the workshop, since it proposes a simple and interesting

Figure 3 | Peer-reviewed ICBINB workshop paper generated by THE AI SCIENTIST-v2. The



DO WE EVEN NEED AI IN HEALTHCARE?

Dangerous?

Not Trustworthy?

Not Accurate?

We are trying to make sense of the data

IN

A

DATA

TSUNAMI

Healthcare information is doubling every 28 days

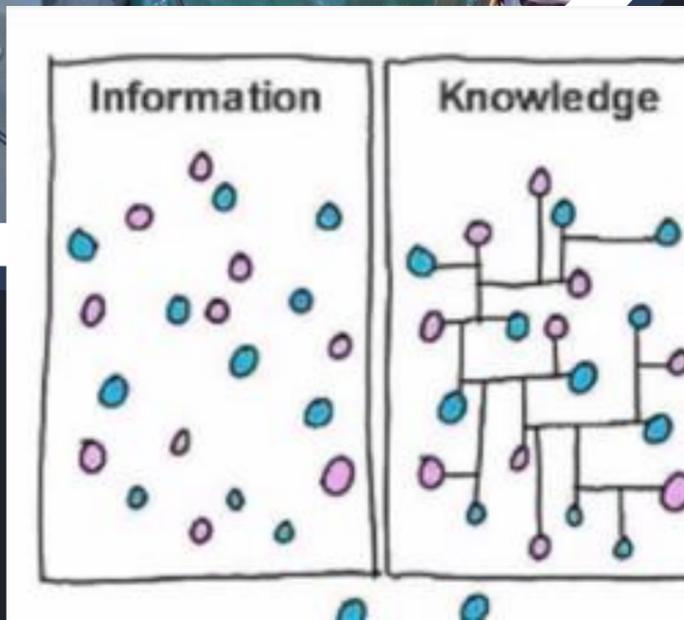


Healthcare Information

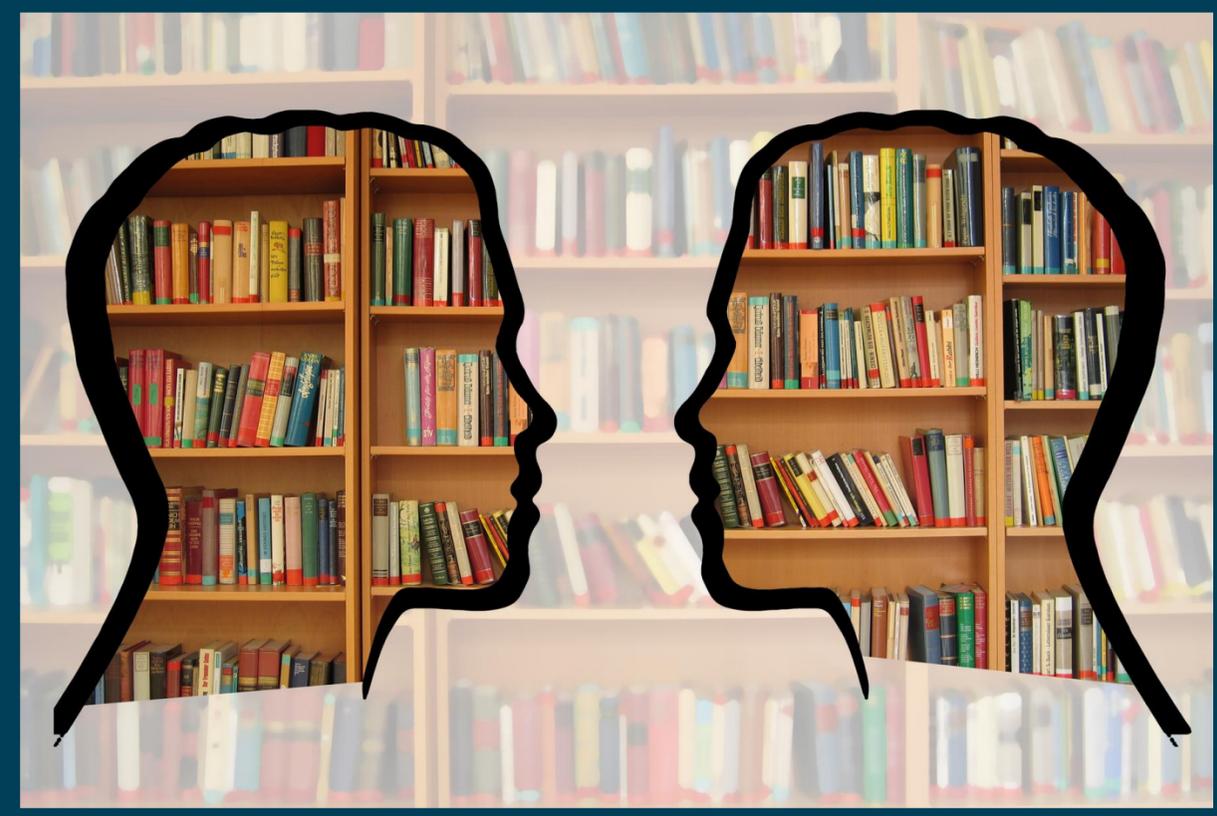
- Looks a lot like my garage

Healthcare Data

- 20% Structured and Usable
- 80% Unstructured and Before Now, NOT Usable



A B C D E F G
H I J K L M N
O P Q R S T U
V W X Y Z



Too Much Data To Wrap Our Minds Around

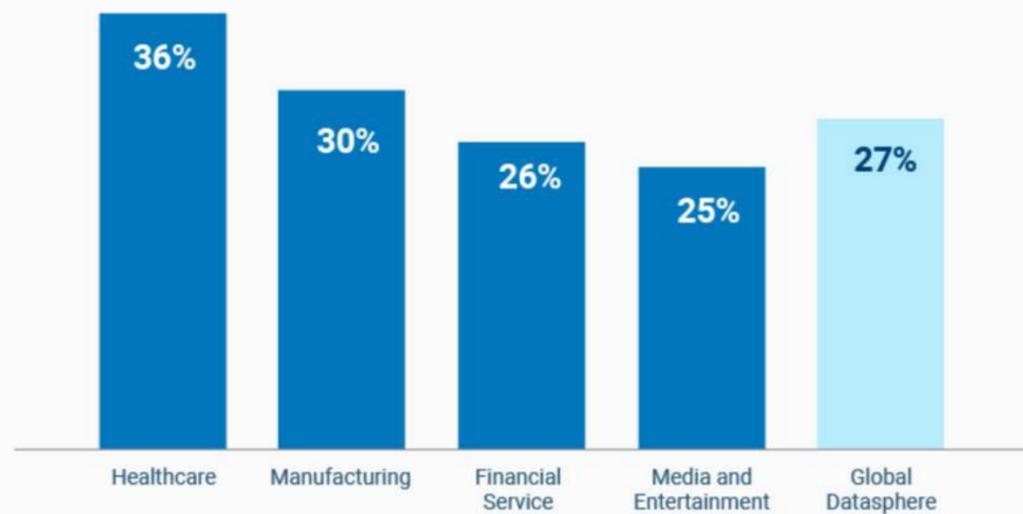
>800,000 medical publications per year

>5,600 medical journals

48,000 publications in NEJM alone

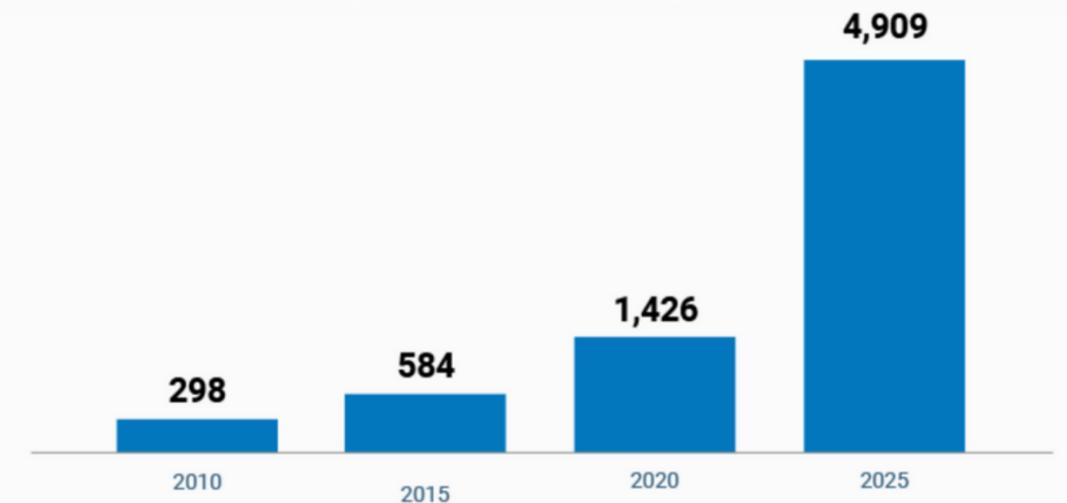


2018-2025 Data – Compound Annual Growth Rate (CAGR)



Source: Coughlin et al Internal Medicine Journal article "Looking to tomorrow's healthcare today: a participatory health perspective". IDC White Paper, Doc# US44413318, November 2018: The Digitization of the World – From Edge to Core".

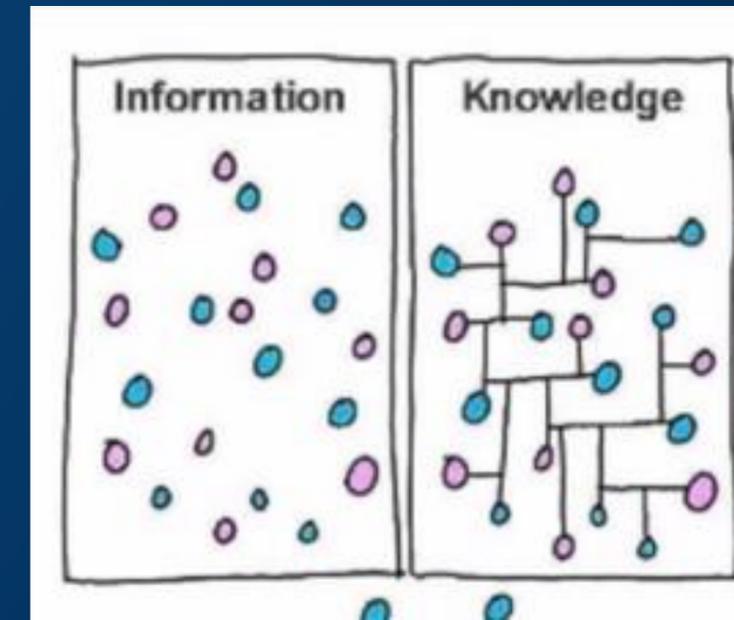
The Number of Digital Device Interactions / Capita / Day



Source: Coughlin et al Internal Medicine Journal article "Looking to tomorrow's healthcare today: a participatory health perspective". IDC White Paper, Doc# US44413318, November 2018: The Digitization of the World – From Edge to Core".



Only 3-5% of
EHR data is
used in Clinical
Care



Machine Learning and Deep
Learning Models are GREAT for

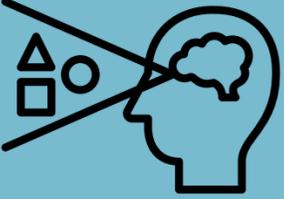


PATTERN RECOGNITION

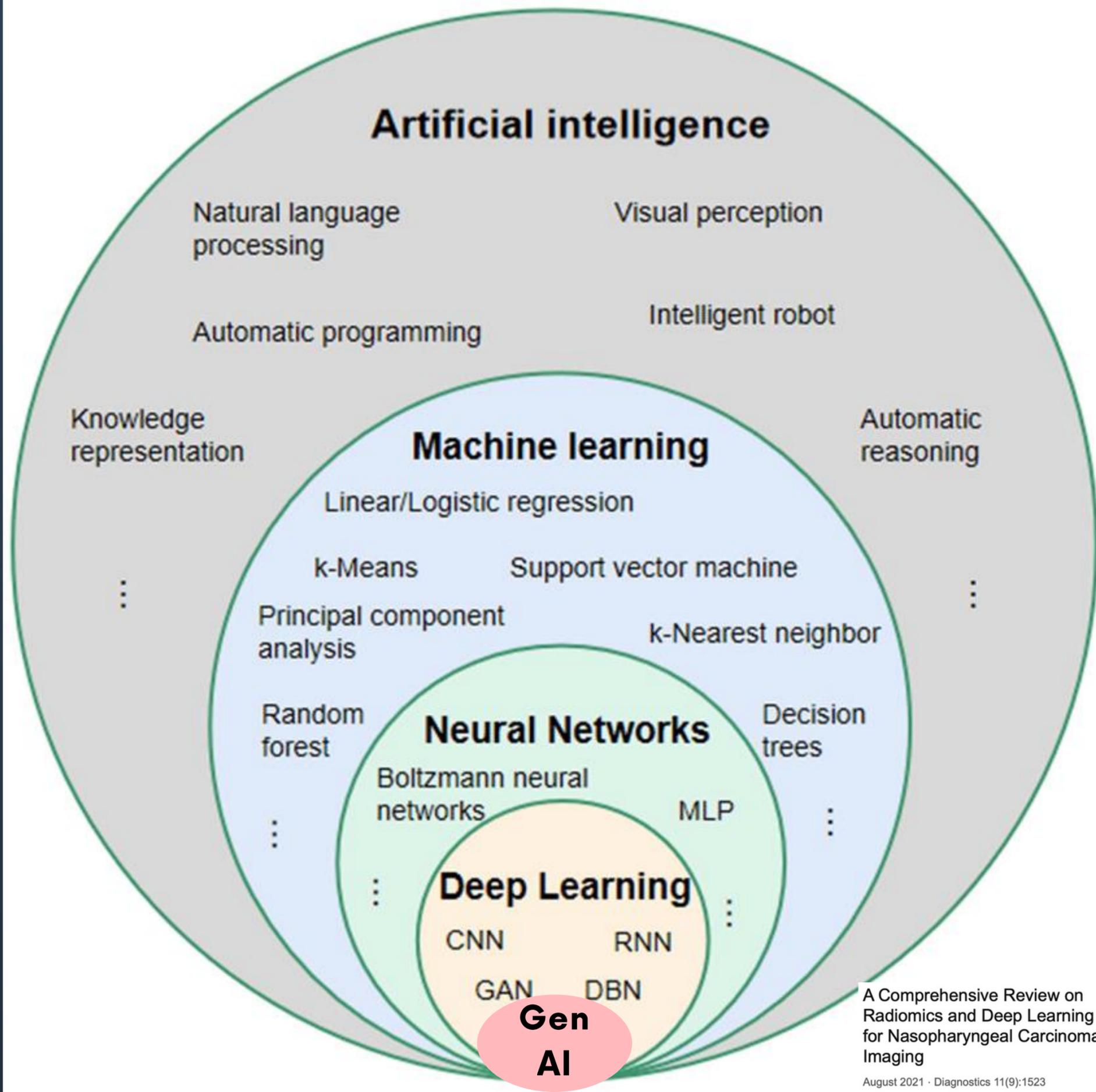
From Large Data Sets

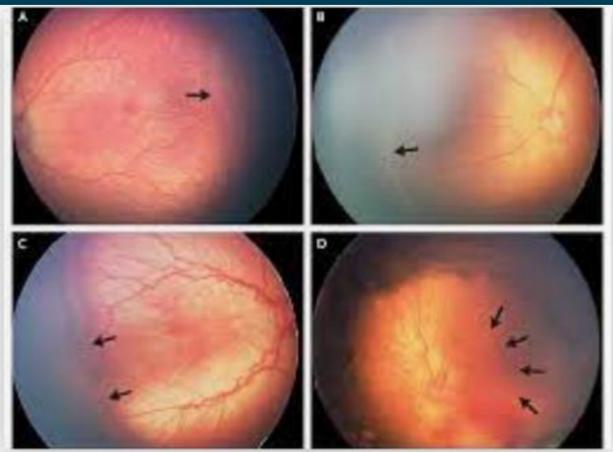
Artificial Intelligence- AI

Definition- AI is a branch of computer science that focuses on creating systems (algorithms and software) capable of performing tasks that typically require human intelligence:

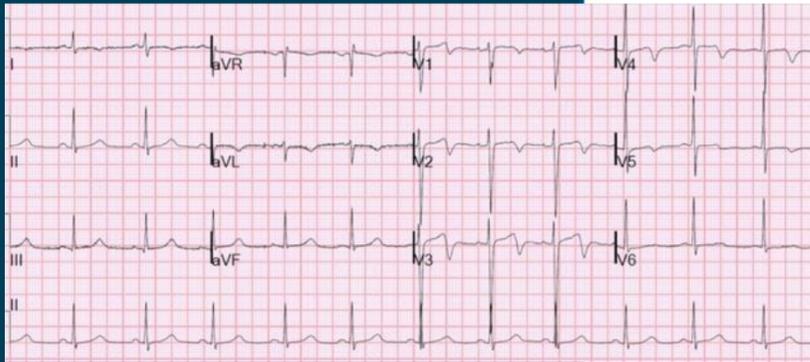
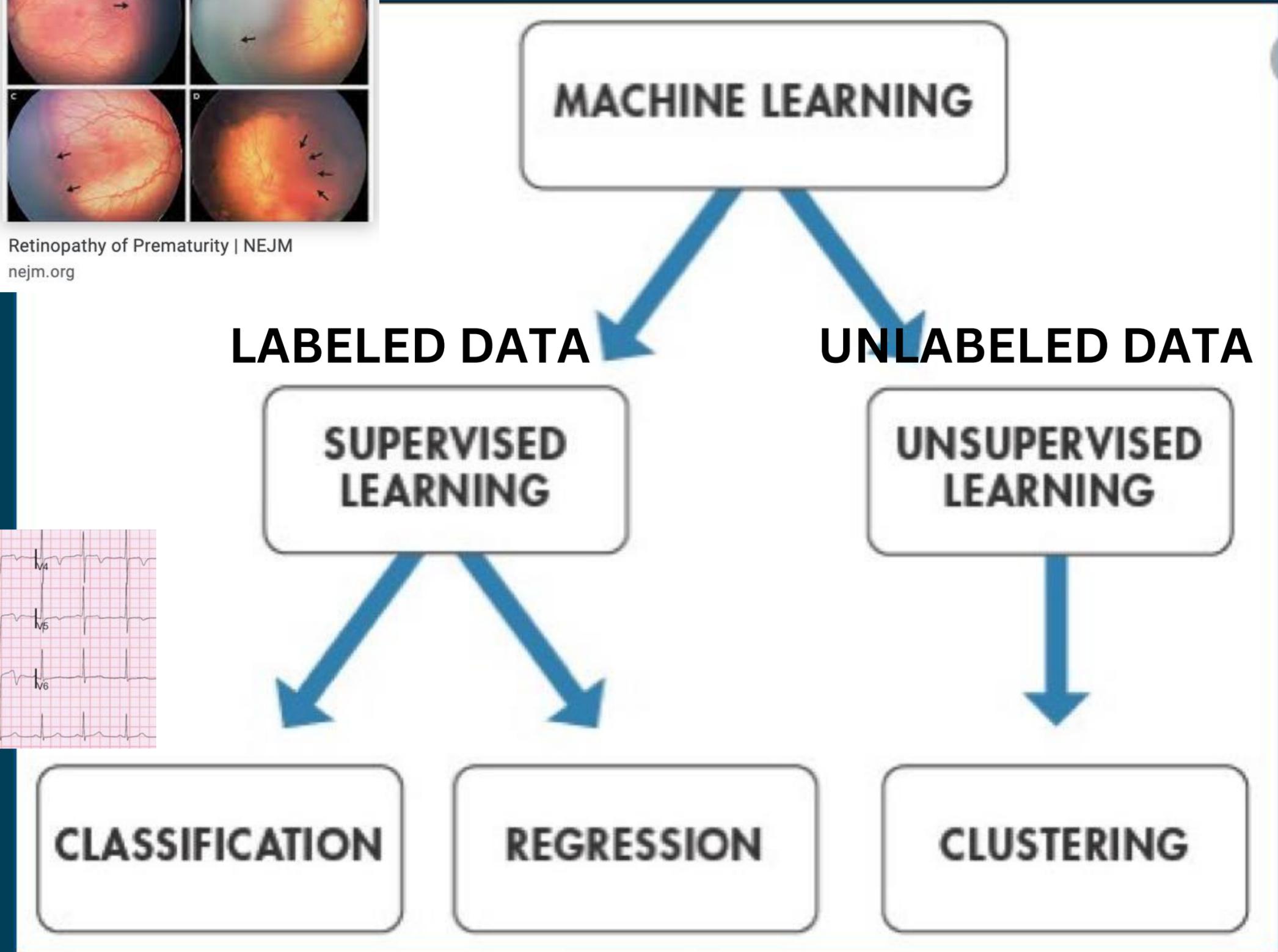
- learning 
- problem-solving 
- perception 
- language understanding 
- decision making 



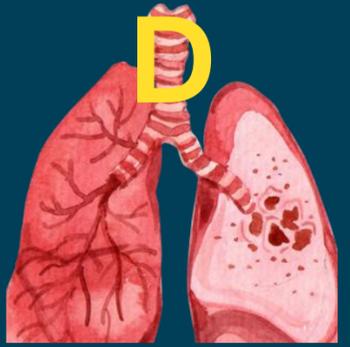




Retinopathy of Prematurity | NEJM
nejm.org



BP



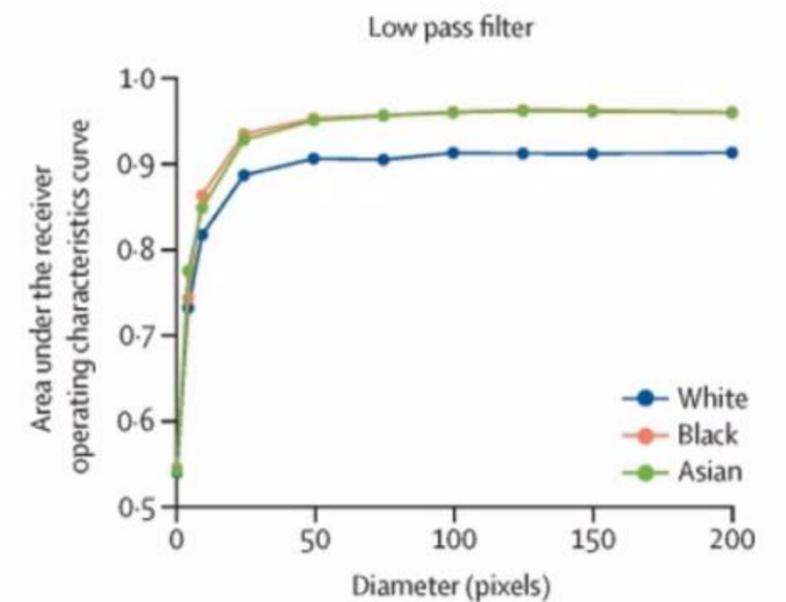
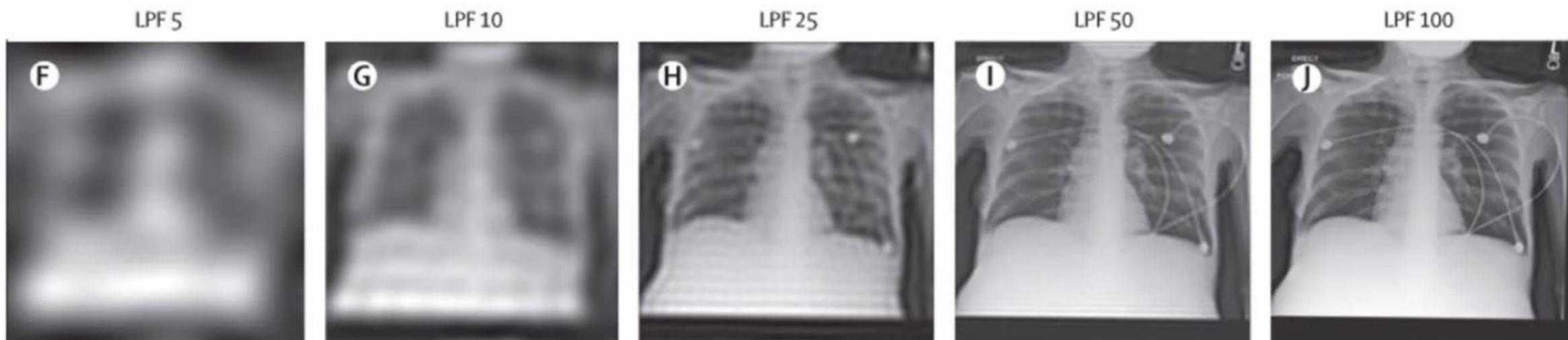
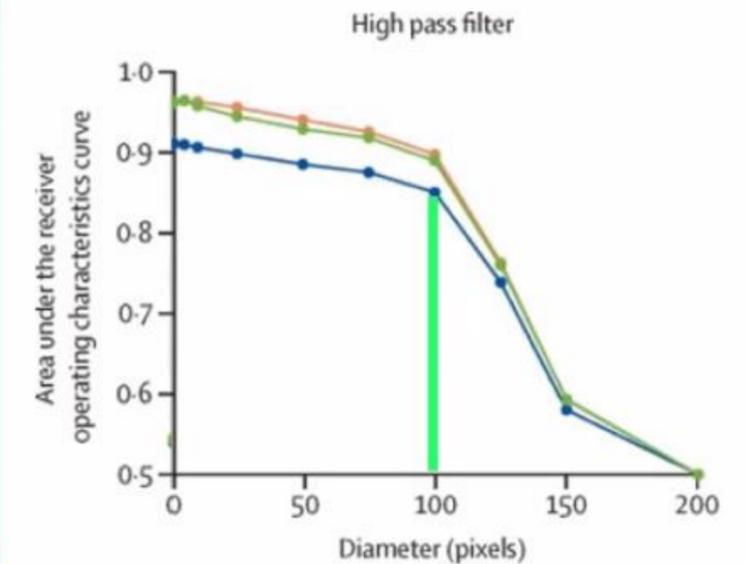
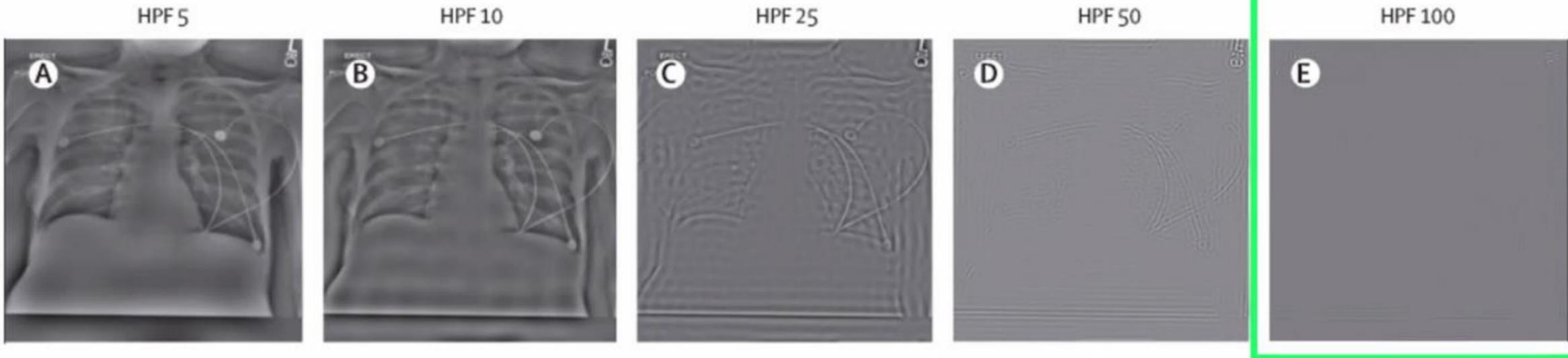
NEC



AI recognition of patient race in medical imaging: a modelling study



Judy Wawira Gichoya, Imon Banerjee, Ananth Reddy Bhimireddy, John L Burns, Leo Anthony Celi, Li-Ching Chen, Ramon Correa, Natalie Dullerud, Marzyeh Ghassemi, Shih-Cheng Huang, Po-Chih Kuo, Matthew P Lungren, Lyle J Palmer, Brandon J Price, Saptarshi Purkayastha, Ayis T Pyrros, Lauren Oakden-Rayner, Chima Okechukwu, Laleh Seyyed-Kalantari, Hari Trivedi, Ryan Wang, Zachary Zaiman, Haoran Zhang

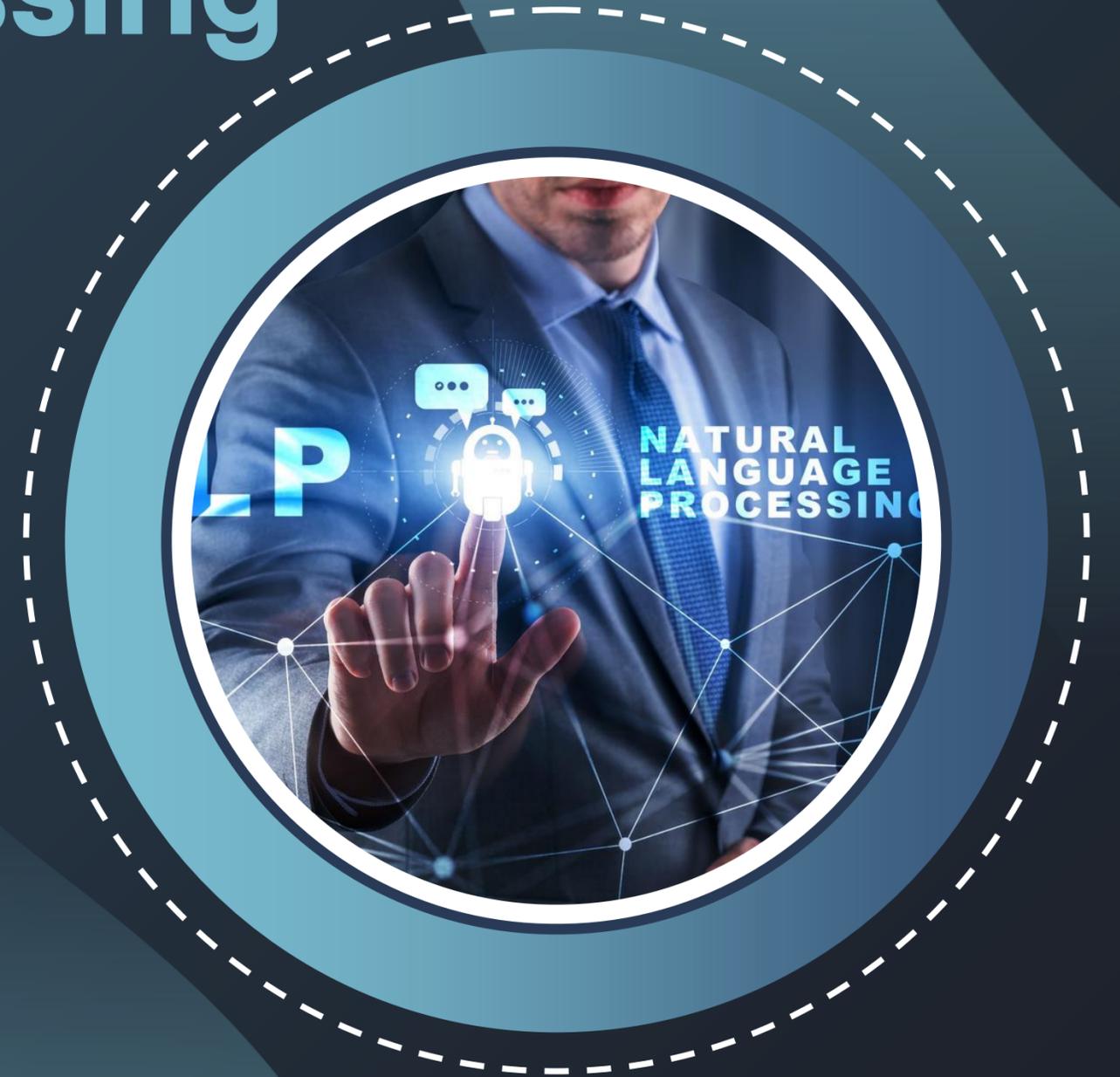


Natural Language Processing

A type of AI that can use machine learning and deep learning in understanding and generating text/language

For text/language:

- extraction
- interpretation
- understanding unstructured clinical text
- generating text



Natural Language Processing

Extraction of Clinical Phenotypes and Patient Cohorts

-identify and classify clinically relevant data from clinical notes, such as diagnoses, symptoms, treatments, and risk factors, at the word, sentence, or document level.



Using clinical Natural Language Processing for health outcomes research: Overview and actionable suggestions for future

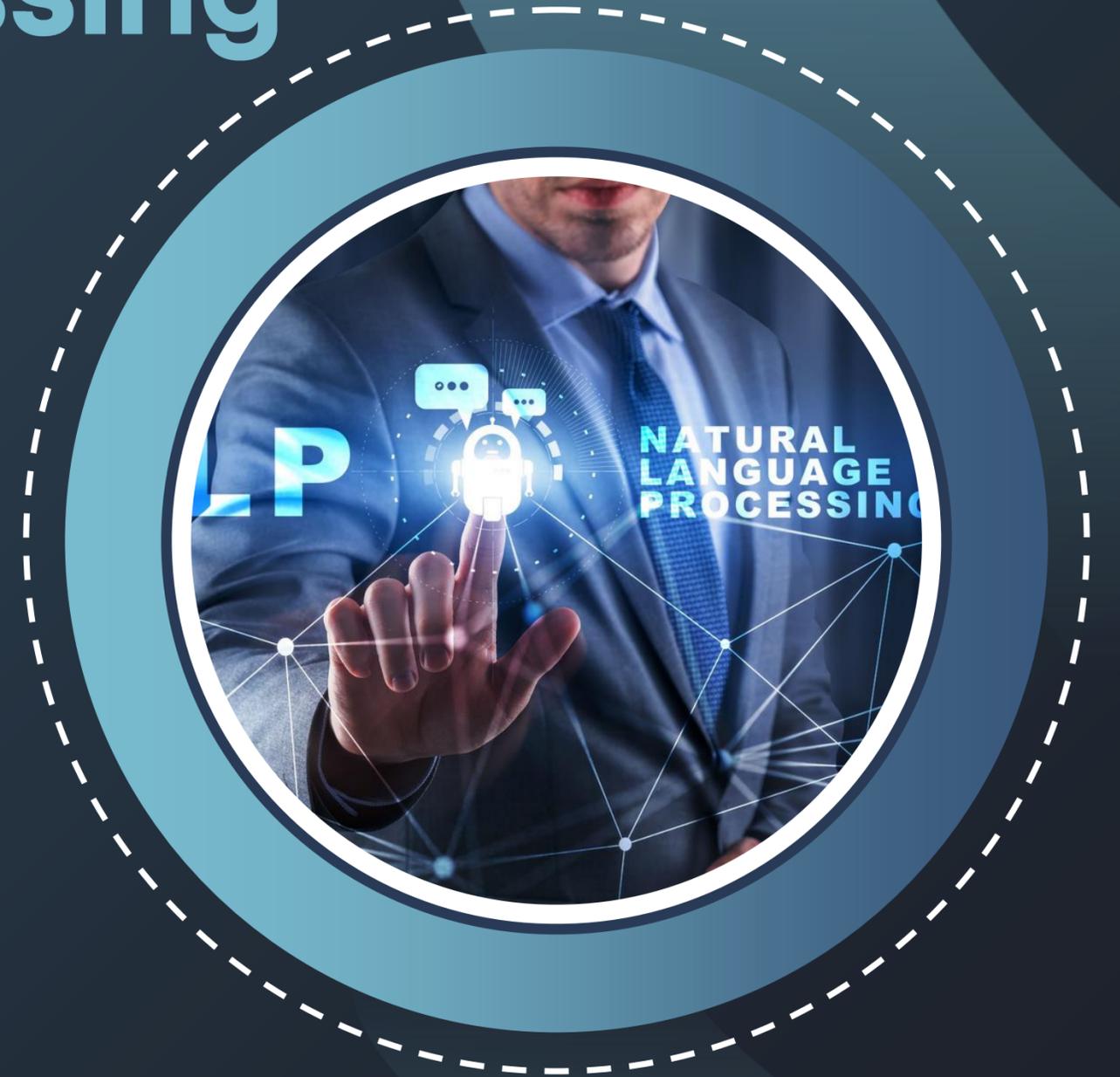
advances Sumithra Velupillai^{a,b,*}, *J Biomed Inform.* 2018 December 1; 88: 11–19.

Natural Language Processing

Applications in Clinical Research:

- Structuring and Summarizing EHR Records
- Sentiment Analysis and Patient Feedback
- Monitoring and Reporting of Adverse Events
- Clinical Decision Support
- Clinical Research such as ACS study with Dr. Kaempf

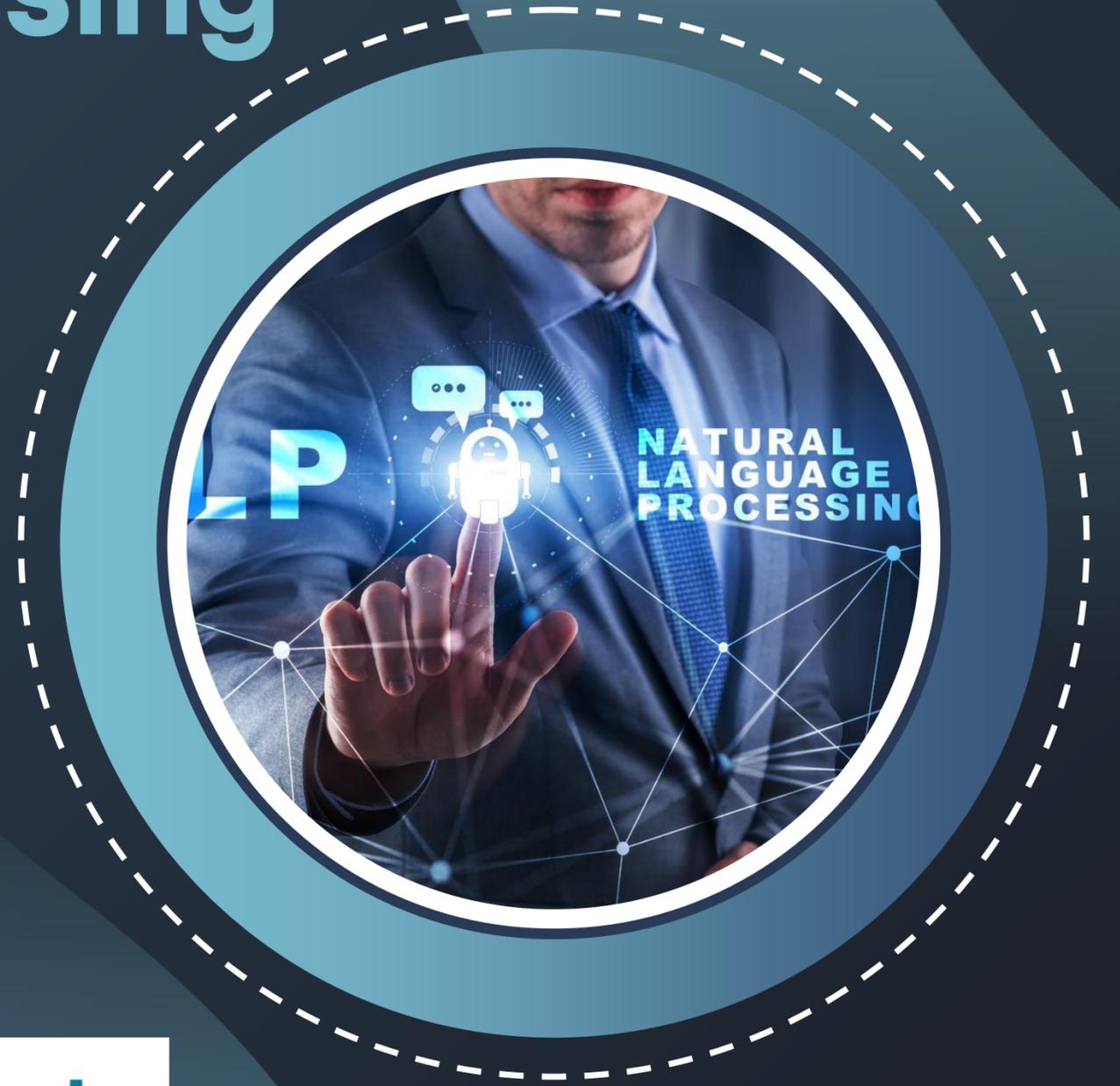
My Thoughts



Natural Language Processing

Literature Review and Data Synthesis

Detect relationships between drugs, genes, proteins, and diseases by mining scientific literature and clinical data, supporting hypothesis generation and drug repurposing efforts.



Natural Language Processing: from Bedside to Everywhere

Eiji Aramaki¹, Shoko Wakamiya¹, Shuntaro Yada¹, Yuta Nakamura²

IMIA Yearbook of Medical Informatics 2022

AUGMENT MEDICAL LIT. REVIEWS

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LLMs

- Banyi, 2025
Applications of Natural Language Processing in Otolaryngology: A Scoping Review.
The Laryngoscope
- Aljindan, 2023
Utilization of ChatGPT-4 in Plastic and Reconstructive Surgery: A Narrative Review
Plastic and Reconstructive Surgery, Global Open
- Turner, 2023
Making Use of Natural Language Processing to Better Understand Medical Students' Self-Assessment of Clinical Skills.
Academic medicine : journal of the Association of American Medical Colleges
- Tozzi, 2023
Prioritizing educational initiatives on emerging technologies for Italian pediatricians: bibliometric review and a survey
Italian Journal of Pediatrics

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Probabilistic machine learning and artificial intelligence
Nature

Pedregosa, 2011
Scikit-learn: Machine Learning in Python
Journal of Machine Learning Research

LeCun, 2015
Deep learning
Nature

Thessen, 2012
Applications of Natural Language Processing in Biodiversity Science
Advances in Bioinformatics

Cook, 2009
Virtual patients: a critical literature review and proposed next steps.
Medical Education

Häyryinen, 2008
Definition, structure, content, use and impacts of electronic health records: A

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Connected Papers

Transforming neonatal care with artificial intelligence: challenges, ethical consideration, and opportunities

B. Sullivan + 14 authors R. McAdams
2023, Journal of Perinatology

16 Citations [Save](#)

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S2 TL;DR: Key AI concepts are defined and ethical considerations and implicit biases associated with AI are discussed and ethical considerations and implicit biases associated with AI are discussed.

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2019 2025

Not Just PUBMED or UPTODATE



AUGMENT MEDICAL LIT. REVIEWS

Perplexity



How has natural language processing been used as a tool in clinical research or quality improvement research

Perplexity Sources · 19 Tasks

- Journal of biomedical i...
Using clinical Natural Language Processing for...
- 9 Examples Of Natural ...
9 examples of natural language processing in...
- John Snow Labs
Top 9 NLP Use Cases in Healthcare & Pharma - Joh...
- Hitachi Solutions
6 Uses for Natural Language Processing in...

Natural language processing (NLP) has become a transformative tool in both clinical research and quality improvement research, enabling the extraction, analysis, and structuring of vast amounts of unstructured clinical data. Below are the primary ways NLP is being used in these domains:

Applications in Clinical Research

1. Extraction of Clinical Phenotypes and Patient Cohorts

- NLP systems are widely used to identify and classify clinically relevant phenomena from clinical notes, such as diagnoses, symptoms, treatments, and risk factors, at the word, sentence, or document level ¹ ³.
- These capabilities accelerate the creation of disease registries and the identification of patient cohorts for observational studies and clinical trials ³ ⁷.

2. Clinical Trial Matching and Recruitment

- NLP automates the review of unstructured patient data to match patients with clinical trial eligibility criteria, improving the accuracy and speed of recruitment while supporting innovation in medical research ⁴ ⁷.
- It also enables more precise outreach and engagement with potential trial participants ⁷.

Notebook LM



Google NotebookLM

<https://notebooklm.google.com>

Google NotebookLM

Open Evidence



how long does it take for e coli to develop multi-drug resistance?

Showing answer for: How long does it take for **Escherichia coli** to develop multi-drug resistance?

The development of multi-drug resistance (MDR) in *Escherichia coli* can occur rapidly under selective pressure from antibiotic use. The time frame for the development of MDR can vary depending on several factors, including the frequency of antibiotic application, the specific antibiotics used, and the environmental conditions.

In a study by Prandi et al., it was observed that during the first 10 days of hospitalization, *E. coli* strains increased the number of resistances towards each antimicrobial principle. ¹ Van den Bergh et al. demonstrated that high levels of multidrug tolerance in *E. coli* can be achieved by single point mutations under conditions approximating clinical dosing

Consensus



Consensus

<https://consensus.app>

Consensus: AI-powered Academic Search Engine

AUGMENT MEDICAL LIT. REVIEWS

NoteBookLM- September 2024 on Google, Gemini 1.5

NotebookLM

organizational needs for AI in healthcare

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Add note Select all

Sources +

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- 2023 mit-cio-generat... ✓
- AI 2024 AI in nursing ... ✓
- AIIA-Enterprise_GenA... ✓
- Dagan 2024 NEJM ch... ✓
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- WILJIER 2021 Acceler... ✓
- guo nature 2024 scali... ✓
- merchant 2022 a HRO... ✓

Saved Response

New note

Briefing Doc: Generative AI and AI in Healthcare

This briefing doc reviews key themes and findings from five sources focused on generative AI and its application in healthcare. The sources include:

- **2023 MIT-CIO Generative AI Report:** This report explores the adoption, chal-

Saved Response

New Saved Note

Organizational Structure for Safe and Effective AI in Healthcare

To successfully implement AI in a healthcare organization, executives need to make strategic decisions in a number of areas. These include:

- **Workforce structure:** Consider how to restructure and retrain your workforce to work effectively with AI systems. [1-4]

10 citations

What are the key challenges associated with adopting AI in healthcare according to the "AI 2024 AI in nursing SWOT analysis" >

View Chat 8 sources Start typing... → * Notebook guide

NotebookLM may still sometimes give inaccurate responses, so you may want to confirm any facts independently.

NotebookLM

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It is not just PUBMED or UPTODATE anymore

Natural Language Processing

Applications in Clinical Research:



Medical NLP: Bedside to Everywhere

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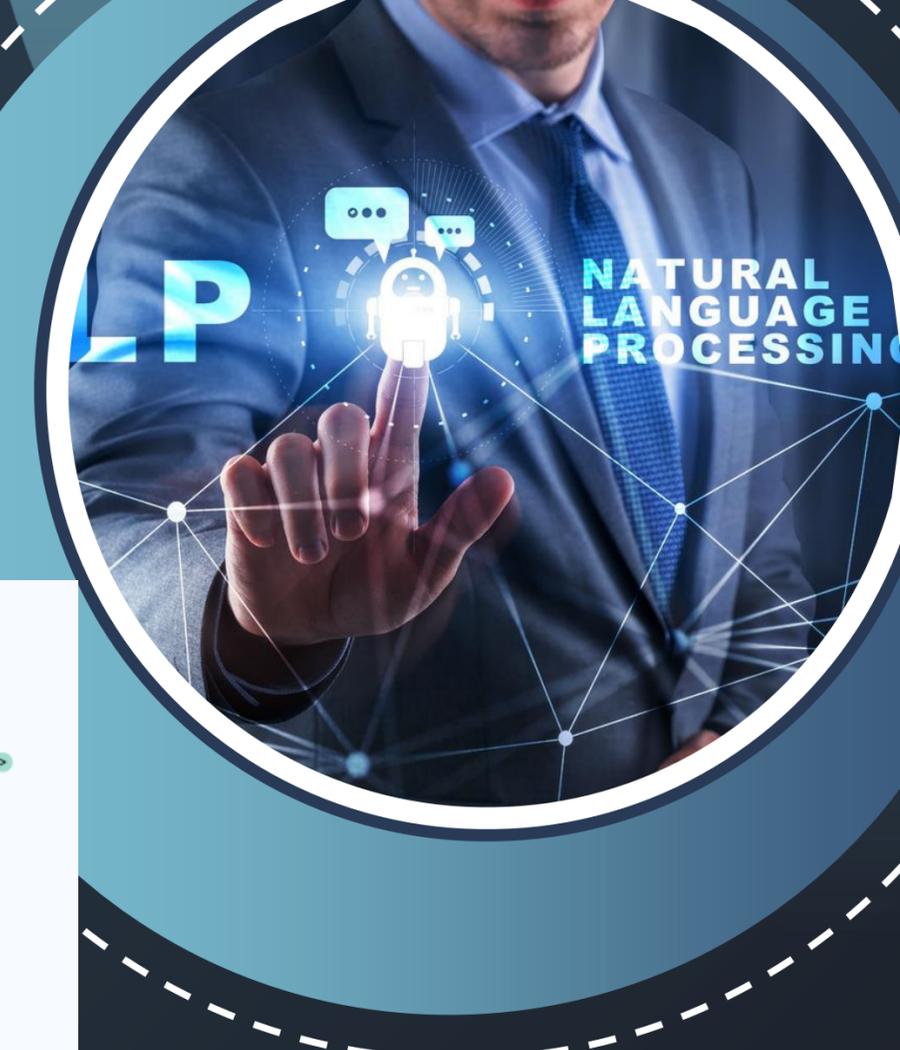
Select all sources

- A Review of Natural Language Processing in Medical Education - eScholarship.org
- Challenges in adapting existing clinical natural language processing systems to multiple, diverse health care settings - PubMed Central
- Clinical Decision Support and Natural Language Processing in Medicine: Systematic Literature Review - Journal of Medical Internet Research
- Ethical Considerations and Challenges in the Deployment of Natural Language Processing Systems in Healthcare
- Exploring the full potential of the electronic health record: the application of natural language processing for clinical practice - Oxford Academic
- How Language-Processing Technology Could Transform Medical Practice, Research and Patient Participation - Pediatrics Nationwide
- Natural Language Processing (NLP) in Healthcare - Zitnik Lab
- Natural Language Processing to Extract Meaningful Information from Patient Experience Feedback - PMC - PubMed Central

My Thoughts Augmented With Notebook LM

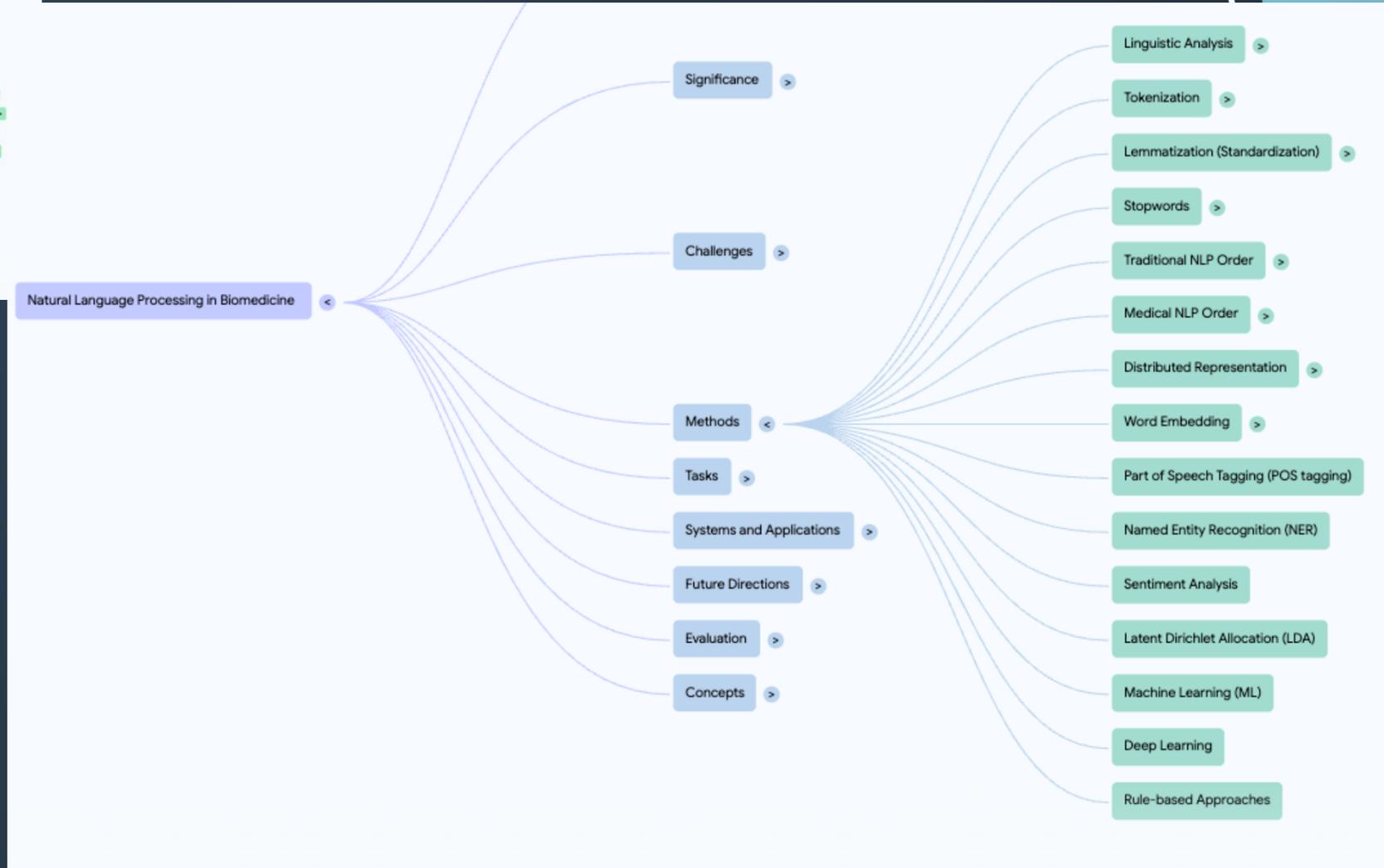
Natural Language Processing

Applications in Clinical Research:



Biomedical Natural Language Processing Fundamentals

Based on 12 sources



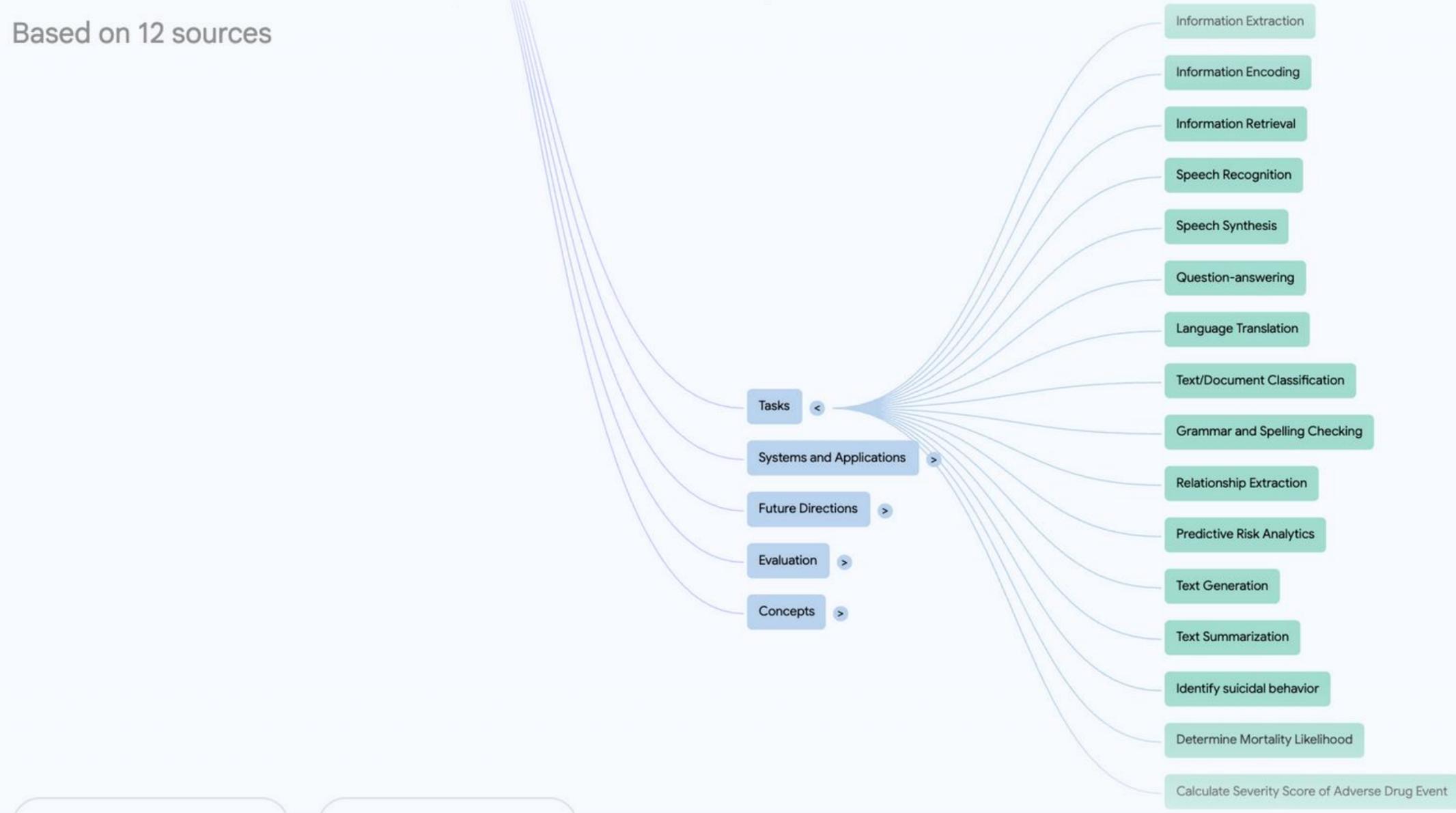
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Natural Language Processing

What Can NLP Be Used For?

Biomedical Natural Language Processing Fundamentals

Based on 12 sources



My Thoughts Augmented With Notebook LM

Natural Language Processing

What Can NLP Be Used For?

- **Information Extraction and Encoding** 10 : Extracting structured information from unstructured clinical text 11 . This is noted as the most frequent task among NLP articles between 1999-2018 5 .
- **Information Retrieval** 10 .
- **Translation or mapping words and phrases onto concepts** [source from previous turns, not explicitly in these new sources].
- **Analyzing text in Electronic Health Records (EHRs)** 8
- **Extracting data from specific document types** like clinic letters, progress notes, discharge summaries, test reports 11 , ambulatory notes, and admission notes 13 .
- **Identifying clinical events** 15 .
- **Risk factor identification** 15 .
- **Clinical Decision Support Systems (CDSSs)** 15

↓ Jump to bottom

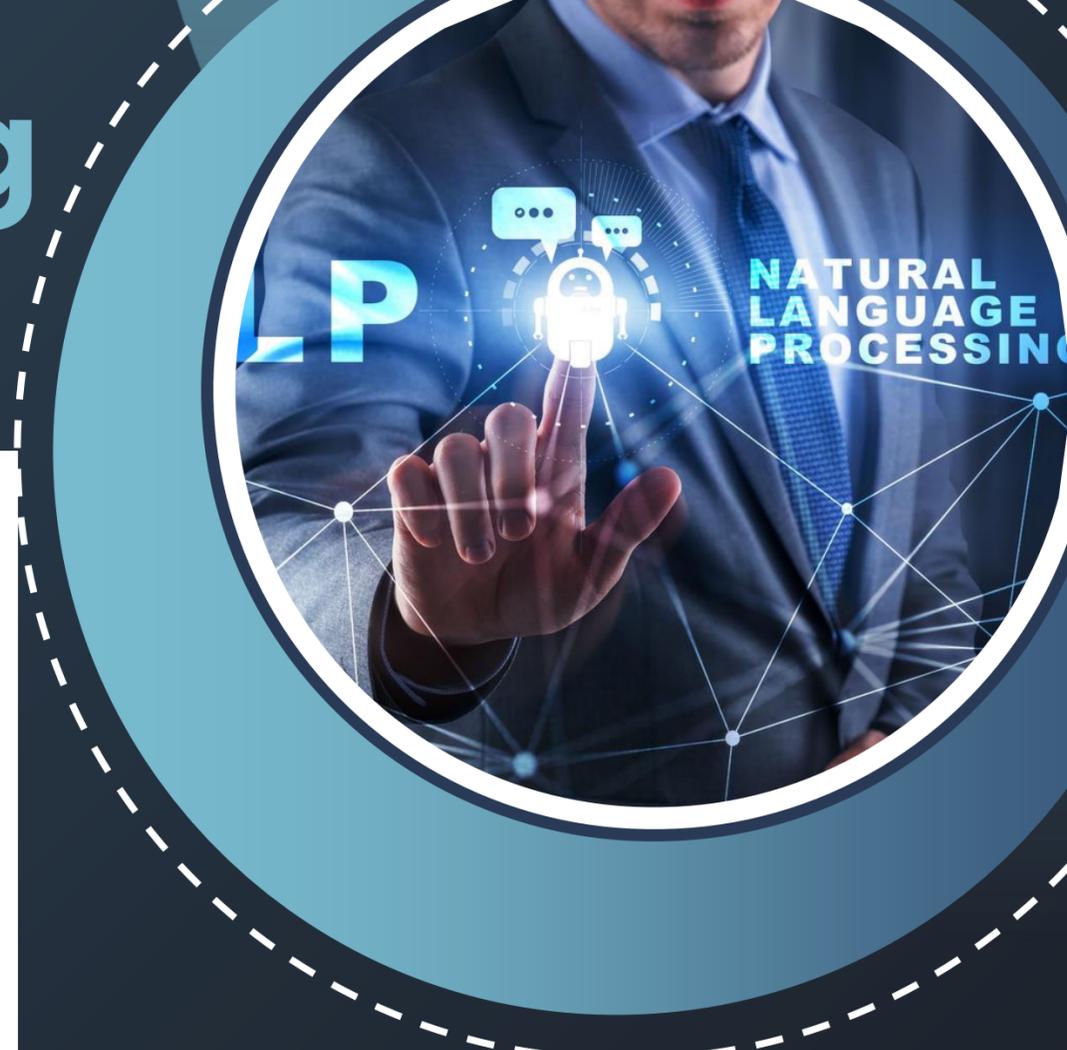
Start typing...

What are examples of NLP applications?

What is a challenge for NLP algorithms?

What does NLP aim to program machines to do?

NotebookLM can be inaccurate; please double check its responses.



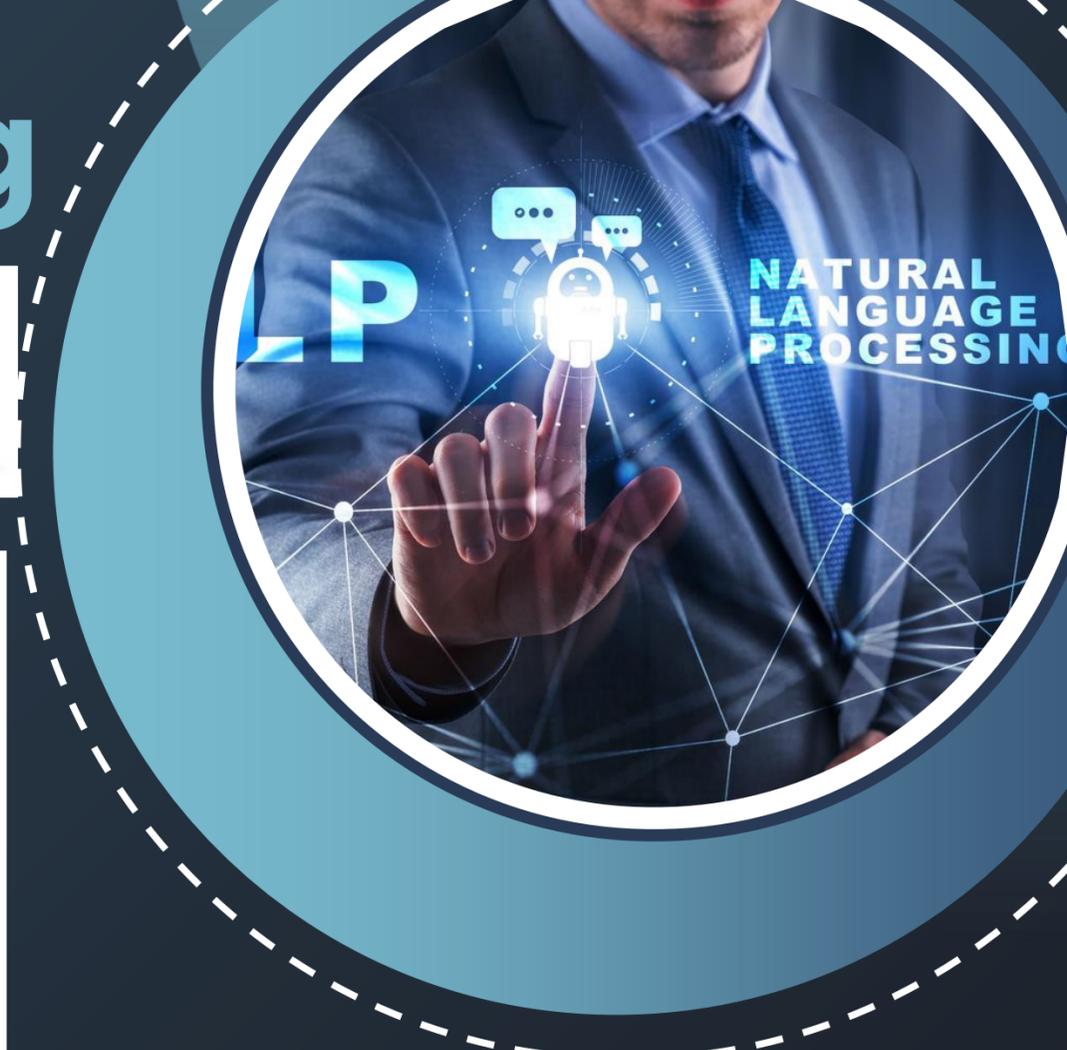
My Thoughts Augmented With Notebook LM

Natural Language Processing

NLP &



Use Cases at



Patient Story

[REDACTED] 13-day-old male, was [REDACTED] for respiratory failure requiring assisted ventilation, continuous monitoring for apnea, bradycardia, and desaturation. ¹

History

- Born at 27 5/7 weeks via C-section due to preterm premature rupture of membranes (PPROM) in a monochorionic diamniotic twin pregnancy. ²
- Maternal complications included suspected chorioamnionitis and fetal twin-to-twin transfusion syndrome. ²
- Required resuscitation at birth with Apgar scores of 5, 6, and 8 at 1, 5, and 10 minutes, respectively. ²

Events During Admission

- 5/10: Extensive resuscitation was performed due to pulmonary hemorrhage and metabolic acidosis. ² Transitioned from SIMV to HFOV, started iNO, and received sedation/paralysis. ² Echocardiogram showed pulmonary hypertension, treated accordingly. ²
- 5/16: Extubated to CPAP, weaned to 5 cm H2O. ³ UAC removed. ³
- 5/17: Stable on CPAP, feeds advanced. ⁴
- 5/18: Weight increased, feeds fortified to 24 kcal. ⁵
- 5/19: Bilateral grade III germinal matrix hemorrhages noted on US. ⁶ Phototherapy discontinued. ⁶
- 5/21: NEC suspected due to linear pneumatosis on X-ray. ⁷ NPO initiated, IV fluids started for hypoglycemia. ⁷ Sodium supplementation started for hyponatremia. ⁷
- 5/22: Pneumatosis and portal venous gas improved. ¹ Persistent hyponatremia addressed with NaCl supplementation. ¹

Recent Events on Patient

- Blood pressure readings show a decrease in diastolic values, with the most recent reading at 58/27 mmHg. ⁸
- Respiratory rate increased to 29 breaths/min. ⁹
- Sodium levels improved from 123 mmol/L to 132 mmol/L. ¹⁰
- Potassium levels fluctuated, with a recent serum value of 5.6 mmol/L. ¹¹
- Glucose levels decreased to 61 mg/dL. ¹²
- Imaging shows no pneumatosis or portal venous gas, and decreased bowel distention compared to previous studies. ¹³
- New medications include gentamicin and ampicillin, with a plan to complete a 7-day course of antibiotics. ^{14 15}
- Diagnosis updated to necrotizing enterocolitis stage II, with a plan to remain NPO and continue antibiotics. ¹⁶

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Recent Events

History

- [REDACTED] former 27 5/7 week (1210g) infant, is critically ill with respiratory failure requiring assisted ventilation. ¹
- Dependent on IV fluids/medications and a warmer or isolette for thermoregulation. ¹
- Cur [REDACTED]; PMA is 29w4d. ¹

Neonatology

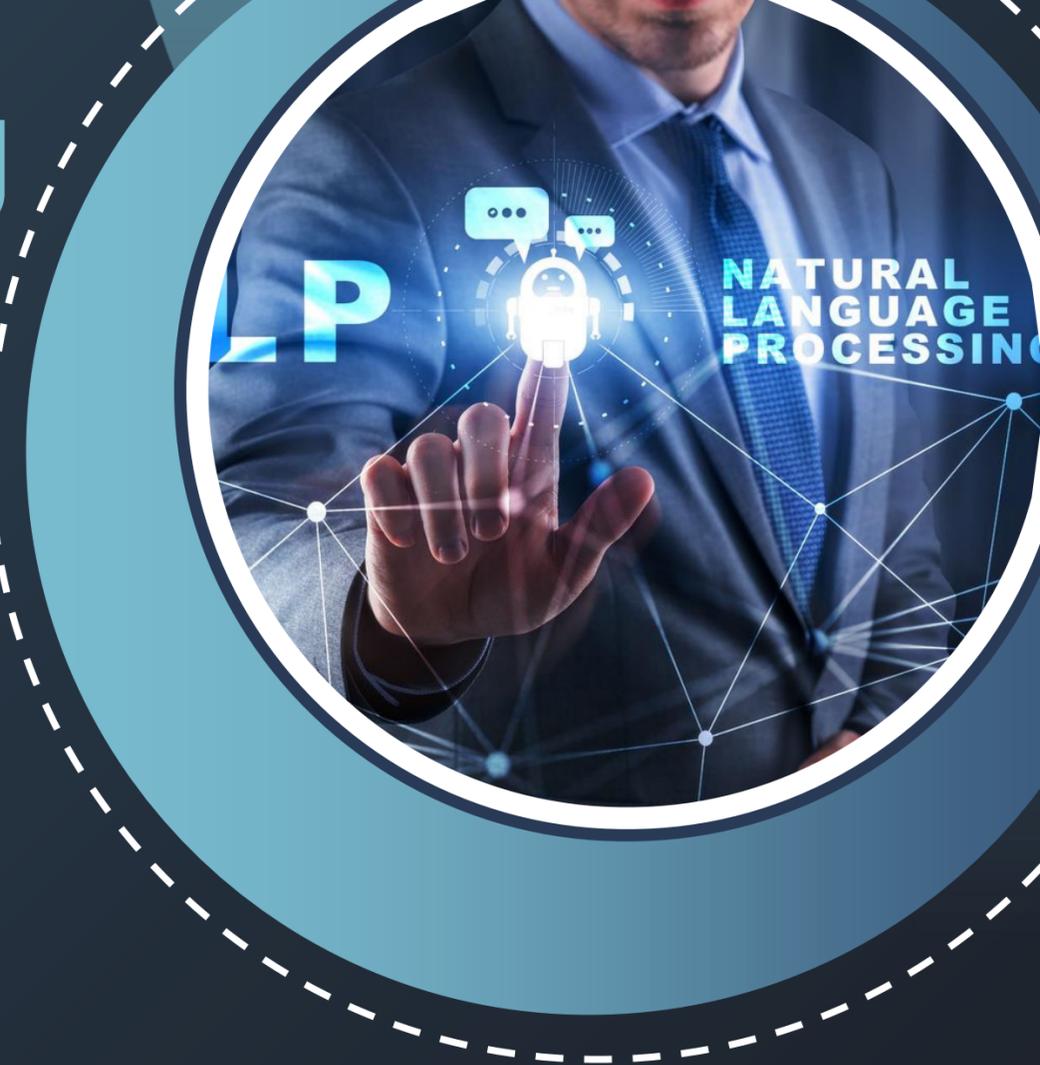
- On CPAP with evolving lung disease, feeding immaturity, hyponatremia, and grade III IVH bilaterally. ¹
- Plan includes continuing CPAP, monitoring on caffeine maintenance, and considering discontinuation at 34-36 weeks PMA. ¹
- Hyponatremia addressed with NaCl supplementation; NPO status with TPN and close sodium monitoring. ¹
- Necrotizing enterocolitis managed with NPO, AXR Q8h, antibiotics, and potential surgical consultation if worsening. ¹
- Infectious disease plan includes obtaining blood and urine cultures, starting ampicillin and ceftazidime. ¹
- Anemia of prematurity to be managed with iron starting at 2 weeks of age. ¹
- IVH monitored with weekly HUS and daily OFC. ¹
- ROP screening planned at 5 weeks of age. ¹
- Discharge planning includes follow-up with PCP, immunizations, car seat challenge, and vitamin D once on full feeds. ¹
- D10W stopped, SMOFLIPID and neonatal TPN started, NS infusion ongoing. ¹

Natural Language Processing

NLP Examples:



Error detection and alerting at Boston Children's using an LLM connected via API with Swirl AI tech.



NYU Langone Health
<https://nyulangone.org>

NYU LANGONE; SYSTEM INTELLIGENCE

**-unstructured clinical notes + clinical large language models=
all-purpose clinical predictive engines**

Predict: In Hospital Mortality, Falls, Readmissions, Denials

**Health system-scale language models are
all-purpose prediction engines**

Nature | Vol 619 | 13 July 2023 | 357

Lavender Yao Jiang^{1,2}, Xujin Chris Liu^{1,3}, Nima Pour Nejatian⁴, Mustafa Nasir-Moin¹, Duo Wang⁵, Anas Abidin⁴, Kevin Eaton⁶, Howard Antony Riina¹, Ilya Laufer¹, Paawan Punjabi⁶, Madeline Miceli⁶, Nora C. Kim¹, Cordelia Orillac¹, Zane Schnurman¹, Christopher Livia¹, Hannah Weiss¹, David Kurland¹, Sean Neifert¹, Yosef Dastagirzada¹, Douglas Kondziolka¹, Alexander T. M. Cheung¹, Grace Yang^{1,2}, Ming Cao^{1,2}, Mona Flores⁴, Anthony B. Costa⁴, Yindalon Aphinyanaphongs^{5,7}, Kyunghyun Cho^{2,8,9,10} & Eric Karl Oermann^{1,2,11}✉

Nursing+ ML and Deterioration Risk

Real-time surveillance system for patient deterioration: a pragmatic cluster-randomized controlled trial

nature medicine [Sarah C. Rossetti](#) , [Patricia C. Dykes](#), [Chris Knaplund](#), [Sandy Cho](#), [Jennifer Withall](#),

CONCERN,
warning system

April 2,
2025

COmmunicating Narrative Concerns Entered by RNs (CONCERN) early warning system (EWS); real-time (every hour) nursing surveillance documentation patterns recognized by ML algorithm to identify deterioration risk with red/green/yellow alerts.

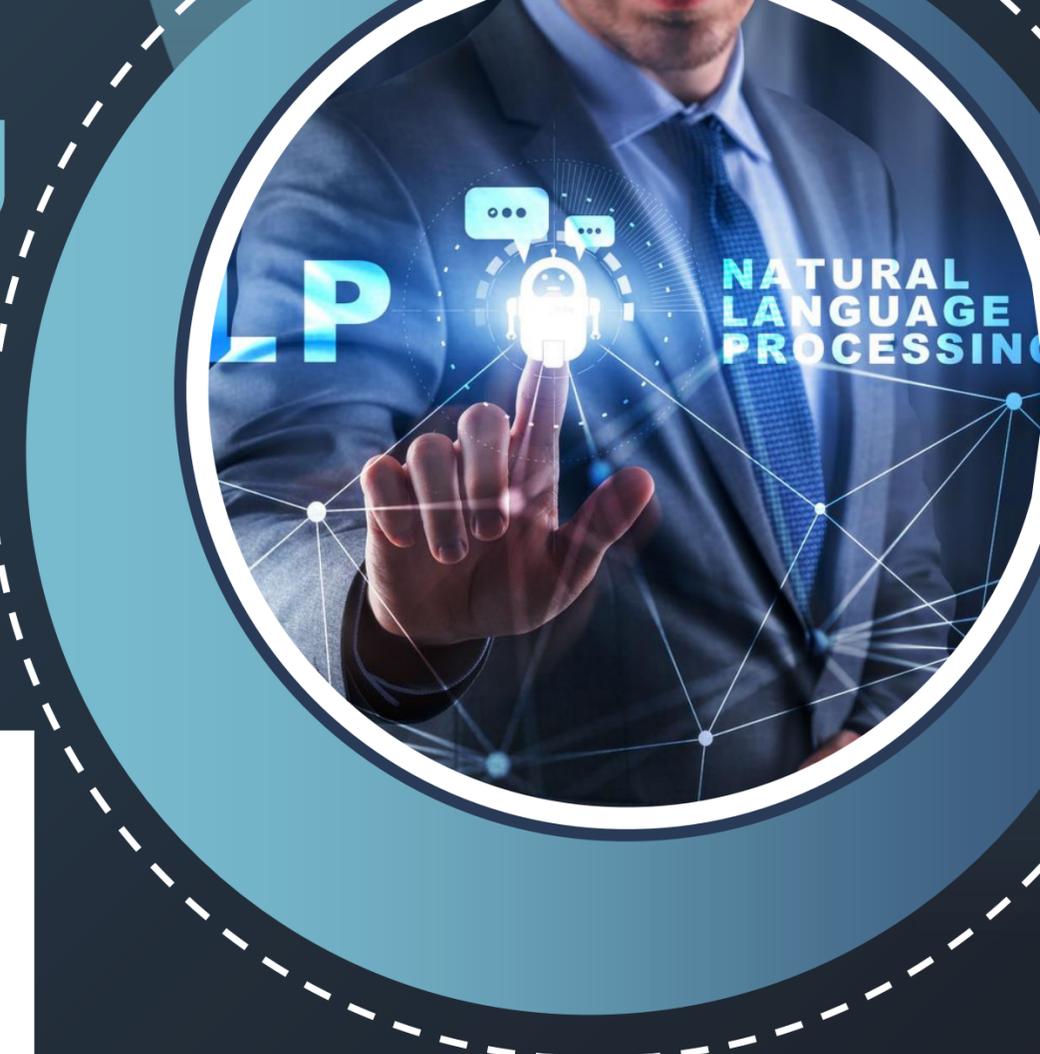
Pts on CONCERN-informed units:

- were 36% less likely to die during any given nursing shift
- had 11% decrease in mean LOS,
- had 7% lower risk of sepsis as a first deterioration event
- 25% increase in ICU transfers suggesting earlier escalation of care

Natural Language Processing

NLP & Use Cases at

UC San Diego Health



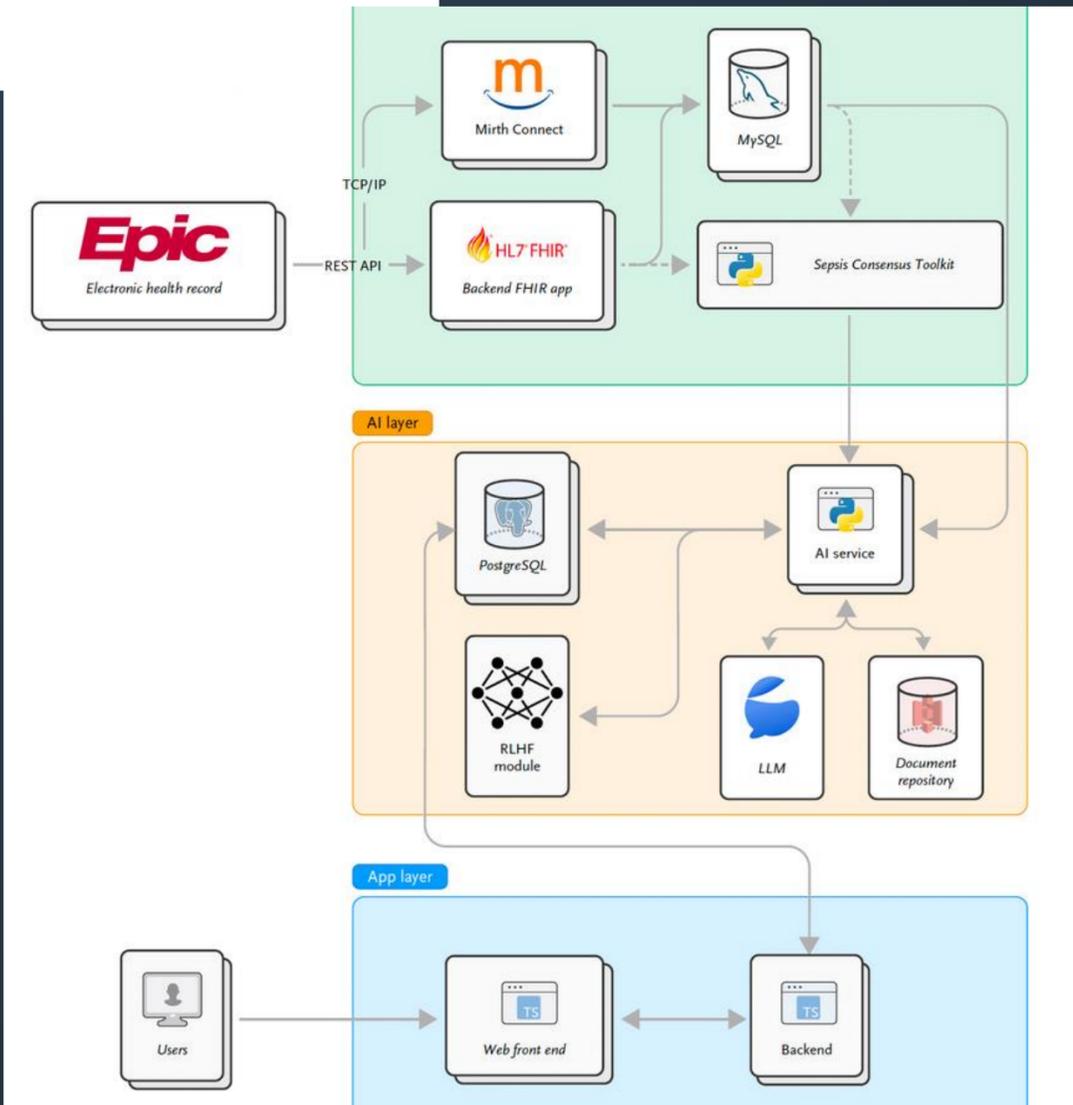
Large Language Models for More Efficient Reporting of Hospital Quality Measures

Aaron Boussina , Ph.D.,¹ Rishivardhan Krishnamoorthy , M.S.,¹ Kimberly Quintero , R.N., M.S.,² Shreyansh Joshi , Gabriel Wardi , M.D.,^{1,3,4} Hayden Pour , M.S.,¹ Nicholas Hilbert , R.N., M.S.N.,² Atul Malhotra , M.D.,³ Michael Hogarth , M.D.,¹ Amy M. Sitapati , M.D.,¹ Chad VanDenBerg , M.P.H.,² Karandeep Singh , M.D., M.M.Sc.,⁵ Christopher A. Longhurst , M.D., M.S.,³ and Shamim Nemati , Ph.D.¹

NEJM AI 2024;1(11)

DOI: [10.1056/AIcs2400420](https://doi.org/10.1056/AIcs2400420)

LLMs using interoperable EHR data to perform abstraction of the SEP-1 quality measure
LLMs correctly scored 90/100 SEP-1 metrics, with evaluation it was determined (by humans) that 4 manual abstractions were incorrect



Maybe I convinced you

AI Is Here

Maybe you were already
convinced



We are
entering a
different era in
healthcare





Artificial Intelligence

**Is Something We No
Longer Talk About**

AS A NEW SHINEY BRIGHT OBJECT





Artificial Intelligence

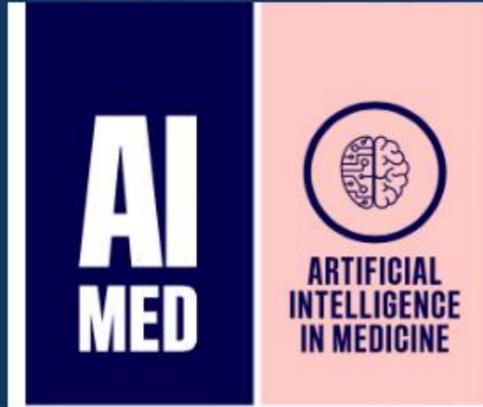


**But Instead, Leverage
to Augment Our Care**



Resources

AIMED: <https://ai-med.io>



Author: Anthony Chang, MD, MBA, MPH, MS

I am a pediatric cardiologist and have cared for children with heart disease for the past three decades. In addition, I have an educational background in business and finance as well as healthcare administration and global health – I gained a Masters Degree in Public Health from UCLA and taught Global Health there after I completed the program.

American Board of AI in Medicine (ABAIM). Multidisciplinary two-day **introductory** and **advanced courses** with educational certification as well as a one-day **AI primer** for everyone have been ongoing for almost two years.

The **Alliance for Centers of Artificial Intelligence in Medicine (ACAIM)** is a coalition of the centers around the world that have a dedicated leader and team within a health center with a focus on artificial intelligence in all dimensions of medicine and healthcare. We have now a **total** of over 50 centers, including more than 20 AI-focused efforts in pediatric health institutions.

Medical Intelligence Society (MIS). Clinicians and data scientists with interest and passion for AI in clinical medicine and healthcare with **monthly meeting** and **annual summit** in July.
(MISociety.org)

Other AI Resources

Books:

1. “Artificial Intelligence For Improved Patient Outcomes ” by Daniel Byrne
2. “Code to Care” by Rubin Pillay
3. “AI Ethics” by Mark Coeckelbergh

Websites:

1. OpenAI
2. DeepLearning.ai
3. AI-Forum
4. Stanford Artificial Intelligence Laboratory (ai.stanford.edu)

Medical Journals:

1. NEJMAI (<https://ai.nejm.org>)
2. JAMA+AI (<https://jamanetwork.com/channels/ai>)



Online Courses:

1. Coursera’s Introduction to Artificial Intelligence (coursera.org/learn/introduction-to-ai)
2. Udacity’s Artificial Intelligence Nanodegree (udacity.com/course/artificial-intelligence-nanodegree-nd898)
3. edX’s Artificial Intelligence Fundamentals (edx.org/learn/artificial-intelligence)

About Us

We have come together in the spirit of
collaboration and curiosity

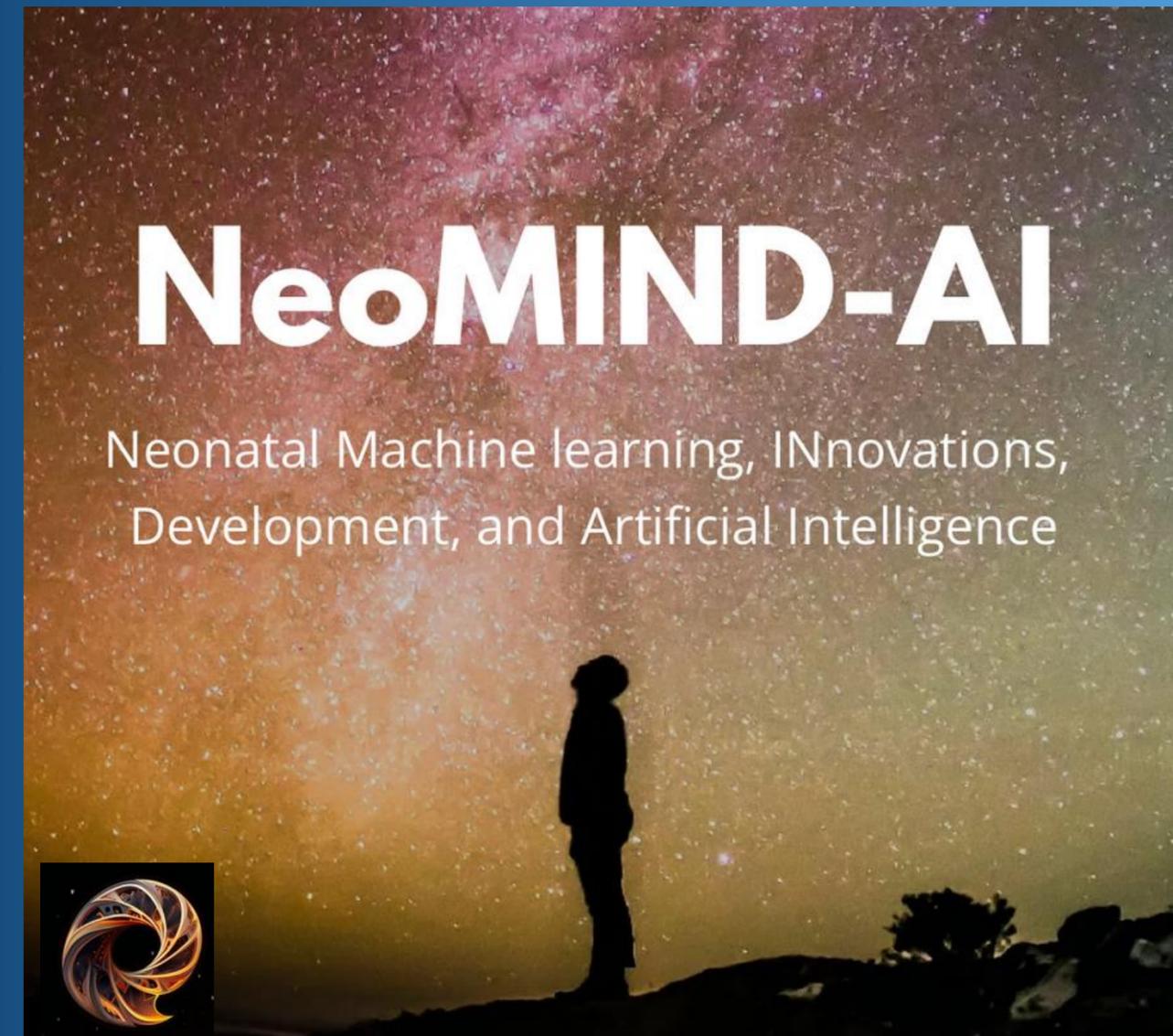
WHO?

Neonatologists, Data Scientists, and
Clinical Informaticists

WHY?

Focus on AI; Neonatal and Pediatric Critical Care/Medicine

WEBSITE: <https://neomindai.com/committee>



AI = Augmented Intelligence

Thank You

Always Happy to Chat About

AI
james.barry@cuanschutz.edu



www.linkedin.com/in/jamesbarry3636

HI! HOW CAN I
HELP YOU? 

