# **Region One Insights Webinar Series**

## **AI & Healthcare: An Overview for the Curious – 02/13/2024**

## **General Resources**

[Timeline of Artificial Intelligence](https://en.wikipedia.org/wiki/Timeline_of_artificial_intelligence)

[History of Machine Learning](https://www.estory.io/timeline/view/JlYn6L/445/History_of_Machine_Learning)

[“What Is The Difference Between Artificial Intelligence And Machine Learning?”](https://bit.ly/2jHOxFA)

[Worldwide Artificial Intelligence Spending Guide](https://www.idc.com/getdoc.jsp?containerId=IDC_P33198)

[“Neural Network | Human Brain versus computer”](https://techbuf.com/human-brain-neural-network/)

[What is the AI ‘State of the Art’?](https://medium.com/60-leaders/what-is-the-ai-state-of-the-art-b60227856cf2)

[AITopics](https://aitopics.org/search)

[Rabbit R1](https://www.rabbit.tech/)

[Beyond AI Exposure: Which Tasks are Cost-Effective to Automate with Computer Vision?](https://futuretech-site.s3.us-east-2.amazonaws.com/2024-01-18+Beyond_AI_Exposure.pdf)

## **Resources – Healthcare**

[AI’s role in healthcare starts small, gets bigger](https://bit.ly/2F93JZu)

[“How AI is transforming healthcare and solving problems in 2017”](https://bit.ly/2qWvugp)

[“Google, Fitbit, startups storm into healthcare AI”](https://bit.ly/2ryvJgn)

[“These ER Docs Invented a Real Star Trek Tricorder”](https://www.nbcnews.com/mach/technology/these-er-docs-invented-real-star-trek-tricorder-n755631)

[“What Companies Are Winning The Race For Artificial Intelligence?”](https://www.forbes.com/sites/quora/2017/02/24/what-companies-are-winning-the-race-for-artificial-intelligence/)

[“How artificial intelligence is revolutionizing the patient experience in healthcare”](https://www.telusinternational.com/articles/ai-patient-experience-healthcare/)

[“'It Is Crazy!' The Promise and Potential Peril of ChatGPT”](https://www.medpagetoday.com/opinion/patientcenteredmedicalhome/102557)

[Creating Artificial Intelligence 'In Full Color’](https://www.nursing.virginia.edu/news/ai-ecosystem-williams-moorman/)

[“Just a Few of the Amazing Things AI Is Doing in Healthcare”](https://singularityhub.com/2018/03/29/just-a-few-of-the-amazing-things-ai-is-doing-in-healthcare/)

[“Artificial intelligence powers digital medicine”](https://www.nature.com/articles/s41746-017-0012-2)

[“Man against machine: AI is better than dermatologists at diagnosing skin cancer”](https://www.eurekalert.org/pub_releases/2018-05/esfm-mam052418.php)

[“Contributed: Top 10 Use Cases for AI in Healthcare”](https://www.mobihealthnews.com/news/contributed-top-10-use-cases-ai-healthcare)

[Can Artificial Intelligence detect Melanoma?](https://www.mskcc.org/news/can-artificial-intelligence-detect-melanoma)

[AINOW 2019 Report](https://ainowinstitute.org/publication/ai-now-2019-report-2)

[How AI-Enabled RPM Can Improve Healthcare Delivery](https://www.americantelemed.org/blog/how-ai-enabled-rpm-can-improve-healthcare-delivery/)

[How Good Is That AI-Penned Radiology Report?](https://hms.harvard.edu/news/how-good-ai-penned-radiology-report)

[Pattern Recognition Power: Three Reasons AI Will Improve Clinical Care](https://www.forbes.com/sites/forbestechcouncil/2022/03/15/pattern-recognition-power-three-reasons-ai-will-improve-clinical-care/?sh=2125b3865e32)

[Medical Tasks at AMII](https://docs.google.com/document/d/e/2PACX-1vT__IJx7MIQLjNVPk7alrO7eKDHnBOT9PZCit63XopEzH89qsqkR3Tppe_DD1yuU5nFKpiV-L2pdQO7/pub) from the University of Alberta AI Medical Informatics Group

### Articles

Amisha, Malik, P., Pathania, M., & Rathaur, V. K. (2019). [Overview of artificial intelligence in medicine](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6691444/). *Journal of Family Medicine and Primary Care*, *8*(7), 2328–2331. https://doi.org/10.4103/jfmpc.jfmpc\_440\_19

Bajwa, J., Munir, U., Nori, A., & Williams, B. (2021). [Artificial intelligence in healthcare: transforming the practice of medicine](https://doi.org/10.7861/fhj.2021-0095). *Future healthcare journal*, *8*(2): e188–e194. https://doi.org/10.7861/fhj.2021-0095

Flanagin, A., Bibbins-Domingo, K., Berkwits, M., & Christiansen, S. L. (2023). [Nonhuman “Authors” and Implications for the Integrity of Scientific Publication and Medical Knowledge](https://jamanetwork.com/journals/jama/fullarticle/2801170). JAMA, *329*(8):637–639. doi: 10.1001/jama.2023.1344

Fogel, A. L. & Kvedar, J. C. (2018). [Artificial intelligence powers digital medicine](https://www.nature.com/articles/s41746-017-0012-2). *npj Digital Medicine, 1*(5). https://doi.org/10.1038/s41746-017-0012-2

Hosny, A., Parmar, C., Quackenbush, J., Schwartz, L. H.,& Aerts, H. J. W. L. (2018). [Artificial intelligence in radiology](https://doi.org/10.1038/s41568-018-0016-5). *Nature Reviews Cancer, 18*, 500–510. doi: 10.1038/s41568-018-0016-5

Nelson, A. R., Christiansen, S. L., Naegle, K. M., & Saucerman, J. J. (2024). [Logic-based mechanistic machine learning on high-content images reveals how drugs differentially regulate cardiac fibroblasts](https://doi.org/10.1073/pnas.2303513121). *PNAS, 121*(5): e2303513121. https://doi.org/10.1073/pnas.2303513121

Nithya, B., & Ilango, V. (2017). [Predictive analytics in health care using machine learning tools and techniques](https://ieeexplore.ieee.org/document/8250771/). 2017 International Conference on Intelligent Computing and Control Systems (ICICCS), Madurai, India, 2017, pp. 492-499, doi: 10.1109/ICCONS.2017.8250771

Singh, J., Sillerud, B., & Singh, A. (2023). [Artificial intelligence, chatbots and ChatGPT in healthcare—Narrative review of historical evolution, current application, and change management approach to increase adoption](https://jmai.amegroups.org/article/view/8271/html). *Journal of Medical Artificial Intelligence, 6*. https://doi.org/10.21037/jmai-23-92

Stark, L. (2023). [Medicine’s Lessons for AI Regulation](https://www.nejm.org/doi/full/10.1056/NEJMp2309872). *The New England Journal of Medicine, 2023*(389): 2213-2215. doi: 10.1056/NEJMp2309872

Ulrich, S., Gantenbein, R. S., Zuber, V., Wyl, A. V., Kowatsch, T., & Künzli, H. (2024). [Development and Evaluation of a Smartphone-Based Chatbot Coach to Facilitate a Balanced Lifestyle in Individuals with Headaches (BalanceUP App): Randomized Controlled Trial](https://www.jmir.org/2024/1/e50132). *Journal of Medical Internet Research, 26*: e50132. doi: 10.2196/50132

## **Resources – Bias**

[Aequitas Bias & Fairness Audit Toolkit](http://aequitas.dssg.io/)

[Trained AI models exhibit learned disability bias, IST researchers say](https://bit.ly/47LnezS)

Algorithmic impact assessment: [user guide](https://www.adalovelaceinstitute.org/resource/aia-user-guide/)

[WC3 WAI Artificial Intelligence (AI) and Accessibility Research Symposium 2023](https://www.w3.org/WAI/research/ai2023/)

### Timnit Gebru

[Black in AI](https://blackinai.github.io/)

[DAIR](https://www.dair-institute.org/) (Distributed AI Research Institute)

[“We’re in a diversity crisis”: cofounder of Black in AI on what’s poisoning algorithms in our lives](https://bit.ly/3OIcNGv)

### Meredith Broussard

More Than a Glitch: Confronting Race, Gender, and Ability Bias in Tech

Artificial Unintelligence: How Computers Misunderstand the World

### Articles

Ferryman, K., Mackintosh, M., & Ghassemi, M. (2023). [Considering Biased Data as Informative Artifacts in AI-Assisted Health Care](https://www.nejm.org/doi/full/10.1056/NEJMra2214964). *New England Journal of Medicine, 389*(9): 833-838. doi: 10.1056/NEJMra2214

Hall, W. J., Chapman, M. V., Lee, K. M., Merino, Y. M., Thomas, T. W., Payne, B. K., Eng, E., Day, S. H., & Coyne-Beasley, T. (2015). [Implicit Racial/Ethnic Bias Among Health Care Professionals and Its Influence on Health Care Outcomes: A Systematic Review](https://doi.org/10.2105/AJPH.2015.302903). *American Journal of Public Health, 105*(12): e60–e76. https://doi.org/10.2105/AJPH.2015.302903

Narayanan Venkit, P., Srinath, M., & Wilson, S. (2023). [Automated Ableism: An Exploration of Explicit Disability Biases in Sentiment and Toxicity Analysis Models](https://doi.org/10.18653/v1/2023.trustnlp-1.3). In *Proceedings of the 3rd Workshop on Trustworthy Natural Language Processing (TrustNLP 2023),* 26–34. https://doi.org/10.18653/v1/2023.trustnlp-1.3

Seyyed-Kalantari, L., Zhang, H., McDermott, M. B. A., Chen, I.Y., & Ghassemi, M. (2021). [Underdiagnosis bias of artificial intelligence algorithms applied to chest radiographs in under-served patient populations](https://www.nature.com/articles/s41591-021-01595-0). *Nature Medicine, 27*, 2176-2182. https://doi.org/10.1038/s41591-021-01595-0

Zou, J., & Schiebinger, L. (2018). [AI can be sexist and racist—It’s time to make it fair](https://doi.org/10.1038/d41586-018-05707-8). *Nature, 559*(7714): 324–326. https://doi.org/10.1038/d41586-018-05707-8

## **Resources – Reports & Regulations**

[THE AI INDEX REPORT: Measuring trends in Artificial Intelligence](https://aiindex.stanford.edu/report/)

[UNESCO Artificial Intelligence](https://www.unesco.org/en/artificial-intelligence)

Schwartz, R., Vassilev, A., Greene, K., Perine, L., Burt, A., & Hall, P. (2022). [Towards a Standard for Identifying and Managing Bias in Artificial Intelligence](https://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.1270.pdf). U.S. Department of Commerce, National Institute of Standards and Technology. https://doi.org/10.6028/NIST.SP.1270

The Center for Open Data Enterprise (CODE). (2019). [Sharing And Utilizing Health Data for A.I. Applications: Roundtable Report](https://www.hhs.gov/sites/default/files/sharing-and-utilizing-health-data-for-ai-applications.pdf). U.S. Department of Health and Human Services.

### UN

[Governing AI for Humanity](https://www.un.org/sites/un2.un.org/files/ai_advisory_body_interim_report.pdf)

### WHO

[Regulatory considerations on artificial intelligence for health](https://umbcits-my.sharepoint.com/personal/cnieman_hshsl_umaryland_edu/Documents/Region%201/Webinars/Love%20Data%20Week%202024/AI&Healthcare_ResourcesHandout.docx)

[Ethics & Governance of Artificial Intelligence for Health](https://www.who.int/publications/i/item/9789240029200)

### EU

[EU AI Act: first regulation on artificial intelligence](https://bit.ly/3HEsAlI)

### AI Now

[Advancing Racial Equity Through Technology Policy](https://ainowinstitute.org/publication/advancing-racial-equity-through-technology-policy)

[Algorithmic Impact Assessments Report: A Practical Framework for Public Agency Accountability](https://ainowinstitute.org/publication/algorithmic-impact-assessments-report-2)

## **Resources – Academic**

[*Artificial Intelligence in Medicine*](https://www.sciencedirect.com/journal/artificial-intelligence-in-medicine)

[*Journal of Medical Artificial Intelligence*](https://jmai.amegroups.org/)

[NEJM’s article series “AI in Medicine”](https://www.nejm.org/ai-in-medicine)

[Artificial Intelligence at University of Alberta](https://www.ualberta.ca/research/our-research/artificial-intelligence.html)

[*Journal of Artificial Intelligence Research*](https://www.jair.org/index.php/jair)

## **Shared in Chat**

[Why AI detectors think the US Constitution was written by AI](https://arstechnica.com/information-technology/2023/07/why-ai-detectors-think-the-us-constitution-was-written-by-ai/)

Example of Heygen used to make a deepfake: [Signs and Portents: Some hints about what the next year of AI looks like](https://www.oneusefulthing.org/p/signs-and-portents)

[Open Crawl](https://commoncrawl.org/)/[Common Crawl](https://paperswithcode.com/dataset/common-crawl)

Universities partnering with AI:

[Arizona State University partners with OpenAI](https://community.openai.com/t/arizona-state-university-partners-with-openai/605314/1)

[Getting Started with U-M GPT](https://teamdynamix.umich.edu/TDClient/30/Portal/KB/ArticleDet?ID=10607)

### Articles

Alshami, A., Elsayed, M., Ali, E., Eltoukhy, A. E. E., & Zayed, T. (2023). [Harnessing the power of ChatGPT for automating systematic review process: Methodology, case study, limitations, and future directions](https://doi.org/10.3390/systems11070351). *Systems, 11*(7): 351. https://doi.org/10.3390/systems11070351

Menz, B.D., Modi, N. D., Sorich M. J., & Hopkins, A. M. (2023). [Health Disinformation Use Case Highlighting the Urgent Need for Artificial Intelligence Vigilance: Weapons of Mass Disinformation](https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2811333). *JAMA Internal Medicine, 184*(1): 92–96. doi: 10.1001/jamainternmed.2023.5947​ – This article is a good/scary read

Qureshi, R., Shaughnessy, D., Gill, K. A. R., Robinson, K. A., Li, T., & Agai, E. (2023). [Are ChatGPT and large language models “the answer” to bringing us closer to systematic review automation?](https://doi.org/10.1186/s13643-023-02243-z) *Systematic Reviews, 12*(1), 72. https://doi.org/10.1186/s13643-023-02243-z