Exploring the Impact of AI on Health Information Workforce Competencies

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Introduction

- The recent advancements in AI are drawing a lot of attention to debate on their impact on the future workforce.
- Health Information Workforce is undergoing a significant transformation, driven by recent advancements in AI but little is known about how ready the AM workforce may be to make best use of AI and how best AM technicians can be readied for a career that is infused with AI.
- This study provides a comprehensive analysis of how AI impacts health information work-force competencies, offering valuable guidance for both current workforce and those entering the field.

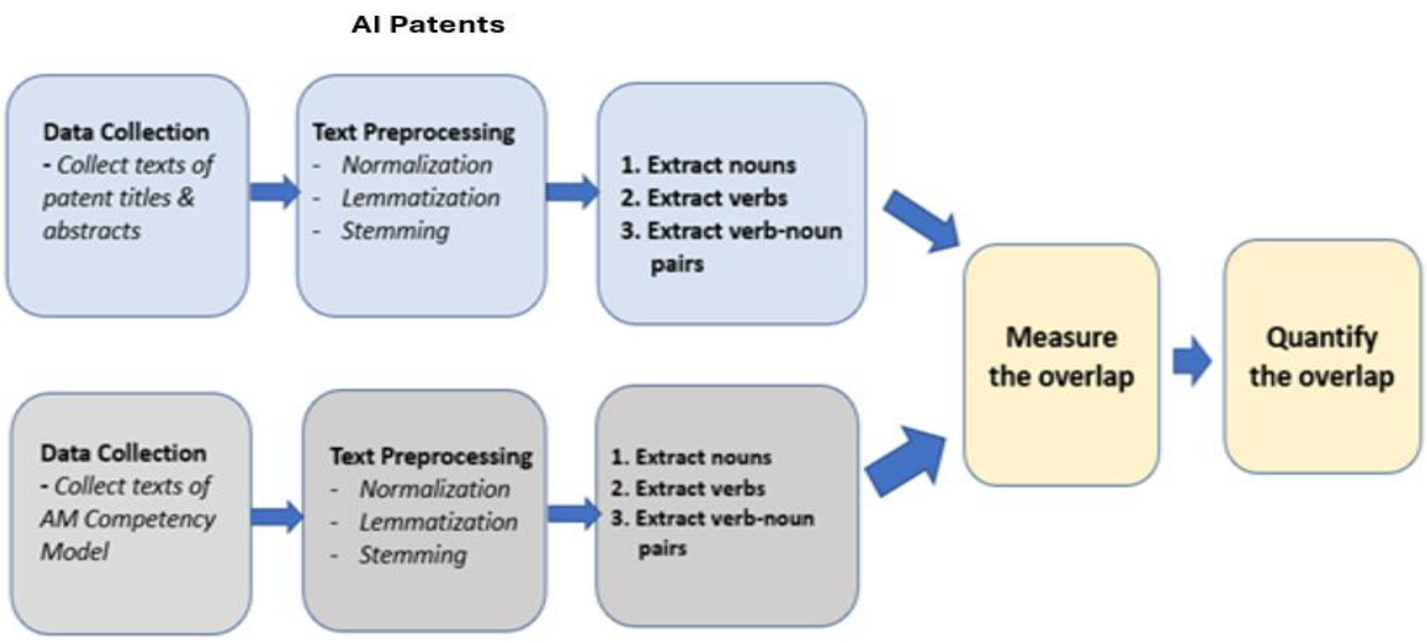
Specifically, this study pursues the following research questions:

RQ 1). Which health information workforce competencies are vulnerable to AI?

RQ 2). How will AI change the workforce competencies required for the health information industry?

RQ 3). How should the current and future health information workforce be trained to prepare for the impact of AI?

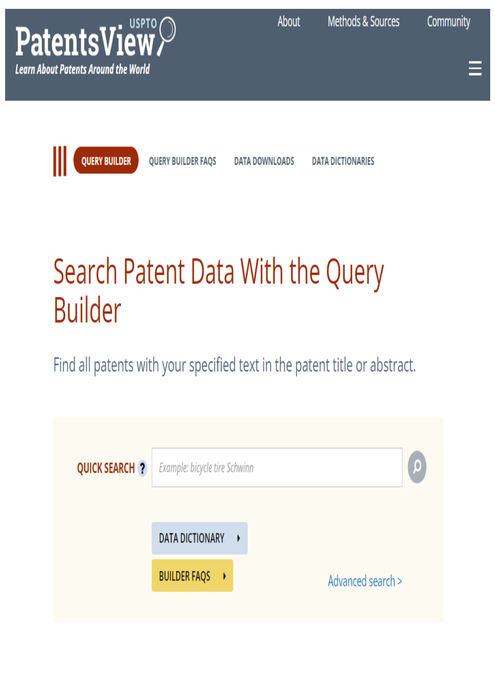
Research Design



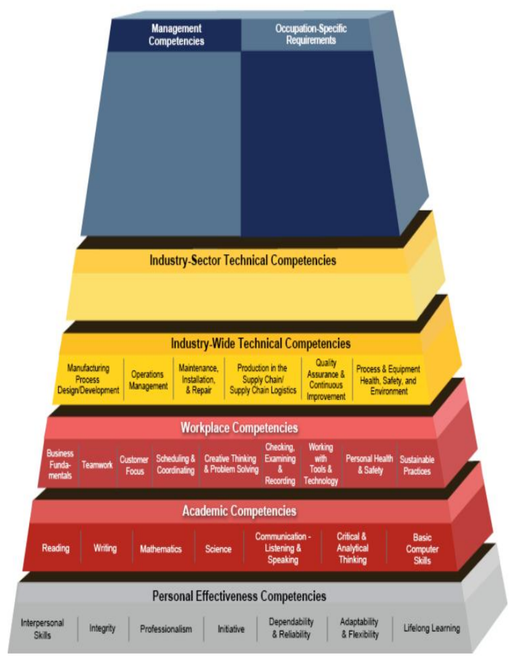
Health Information Workforce Competency Model

- **Applied a novel method by Webb (2019), which quantifies the exposure of occupations to emerging technologies through the application of a natural language processing (NLP) algorithm.**
- **Text Extraction and Processing (AI Patents)**
- **Text Extraction and Processing (Health Information Workforce Competency Model).**
- **Overlap analysis**
- **Exposure measurement.**

Data Sources



AI Patents from USPTO



Health Information Workforce Competency Model

Implications & Conclusion

- **The findings have significant implications for different stakeholders in the health information industry, including the health information industry leaders, employers, policymakers, and health information workers.**
- **Contributes to a deeper understanding of which health information competencies are most vulnerable to the impact of AI.**
- **By identifying these vulnerable competency areas, this study will offer valuable insights for health information industry leaders, educators, and policymakers to anticipate which skills may become obsolete or less relevant, thereby guiding strategic adjustments in workforce development and training.**
- **Help identify emerging skill sets that will be increasingly in demand, thereby supporting the preparation of a future-ready health information workforce. This can help industry leaders, educators and policymakers to better prepare the health information workforce for effective training and development programs.**
- **Ensure the health information workforce remains agile and capable in the era of AI**

References

1. Autor, D. (2010). The polarization of job opportunities in the US labor market: Implications for employment and earnings. Center for American Progress and The Hamilton Project, 6, 11-19.
2. Autor, D. H., Levy, F., & Murnane, R. J. (2003). The skill content of recent technological change: An empirical exploration. The Quarterly journal of economics, 118(4), 1279-1333.
3.Bessen, J.E. (2016) How computer automation affects occupations: Technology, jobs, and skills. Law and Economics Research Paper 15-49 (Boston Univ School of Law, Boston).
4.Bessen, J. (2018). AI and Jobs: The role of demand (No. w24235). National Bureau of Economic Research.
5.Competency Model Clearinghouse. (2021). Information Technology Competency Model. https://www.careeronestop.org/competencymodel/competency-models/information-technology.aspx
6.Clark, H. (2015). Building a common language for career readiness and success: A foundational competency framework for employers and educators. Iowa City, Iowa: ACT.
7.David, H., & Dorn, D. (2013). The growth of low-skill service jobs and the polarization of the US labor market. American Economic Review, 103(5), 1553-97.
8.Frank, M. R., Autor, D., Bessen, J. E., Brynjolfsson, E., Cebrian, M., Deming, D. J., ... & Rahwan, I. (2019). Toward understanding the impact of artificial intelligence on la-bor. Proceedings of the National Academy of Sciences, 116(14), 6531-6539.
9.Frey, C. B., & Osborne, M. A. (2017). The future of employment: How susceptible are jobs to computerisation?. Technological forecasting and social change, 114, 254-280.
10.Gehlhaus, D., & Koslosky, L. (2022). Training tomorrow's AI workforce. Center for Security and Emerging Technology Report. https://cset.georgetown.edu/wp- con-tent/uploads/CSET-Training-Tomorrows-AI-Workforce.pdf
11.Learning Templates (2023). What is a Competency. Retrieved January 17, 2023, from https://learning-templates.com/what-is-a-competency/
12.Lucia, A.D. & Lespinger, R. (1999). The art and science of competency models: Pin-pointing critical success factors in organizations. San Francisco, CA: Jossey-Bass.
13.MacCrory, F., Westerman, G., Alhammadi, Y., & Brynjolfsson, E. (2014). Racing with and against the machine: Changes in occupational skill composition in an era of rapid technological advance.
14.Stanford University. 2021. Artificial Intelligence Index Report 2021. Stanford, CA: Human-Centered Artificial Intelligence (HAI), Stanford University.
15.Staying Ahead - Center for Security and Emerging Technology. (2022, March 29). Cen-ter for Security and Emerging Technology. https://cset.georgetown.edu/publication/staying-ahead/
16.Webb, M. (2019). The impact of artificial intelligence on the labor market. Available at SSRN 3482150.
17.World Economic Forum. (2016, January). The future of jobs: Employment, skills and workforce strategy for the fourth industrial revolution. In Global challenge insight re-port. Geneva: World Economic Forum.