What influence will AI play in radiology resident learning? Does it enhance or hinder the learning process?

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Disclosures

Neither the authors nor their immediate family members have a financial relationship with a commercial organization that may have a direct or indirect interest in the content.

Purpose

To discuss the pros and cons of the inclusion of artificial intelligence (AI) into the field of radiology on the educational development of radiology residents

Background

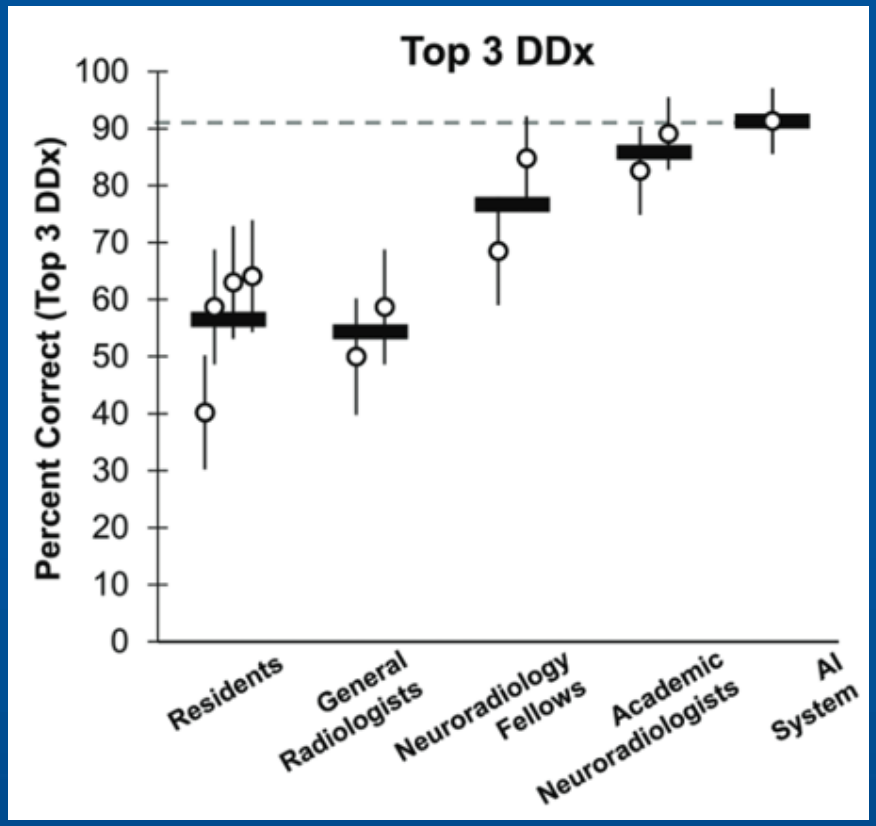
- Over the past decade, there has been considerable growth in interest in the future of radiology with the inclusion of artificial intelligence
- Correspondingly, there has been a surge in AI-related literature around the world and in all subspecialities, with neuroradiology at the forefront
- At our institution, there has been a slow but steady gathering of AI information in all cases and throughout all modalities

Radiology Artificial Intelligence Publication by Subspecialty (2000-2018)[1]	
Subspecialty	No. (%) of Publications (n=8813)
Neuroradiology	2148 (24.4)
Chest and Body	1825 (20.7)
Nuclear Medicine	1143 (13.0)
Breast	1056 (12.0)
Musculoskeletal	606 (6.9)

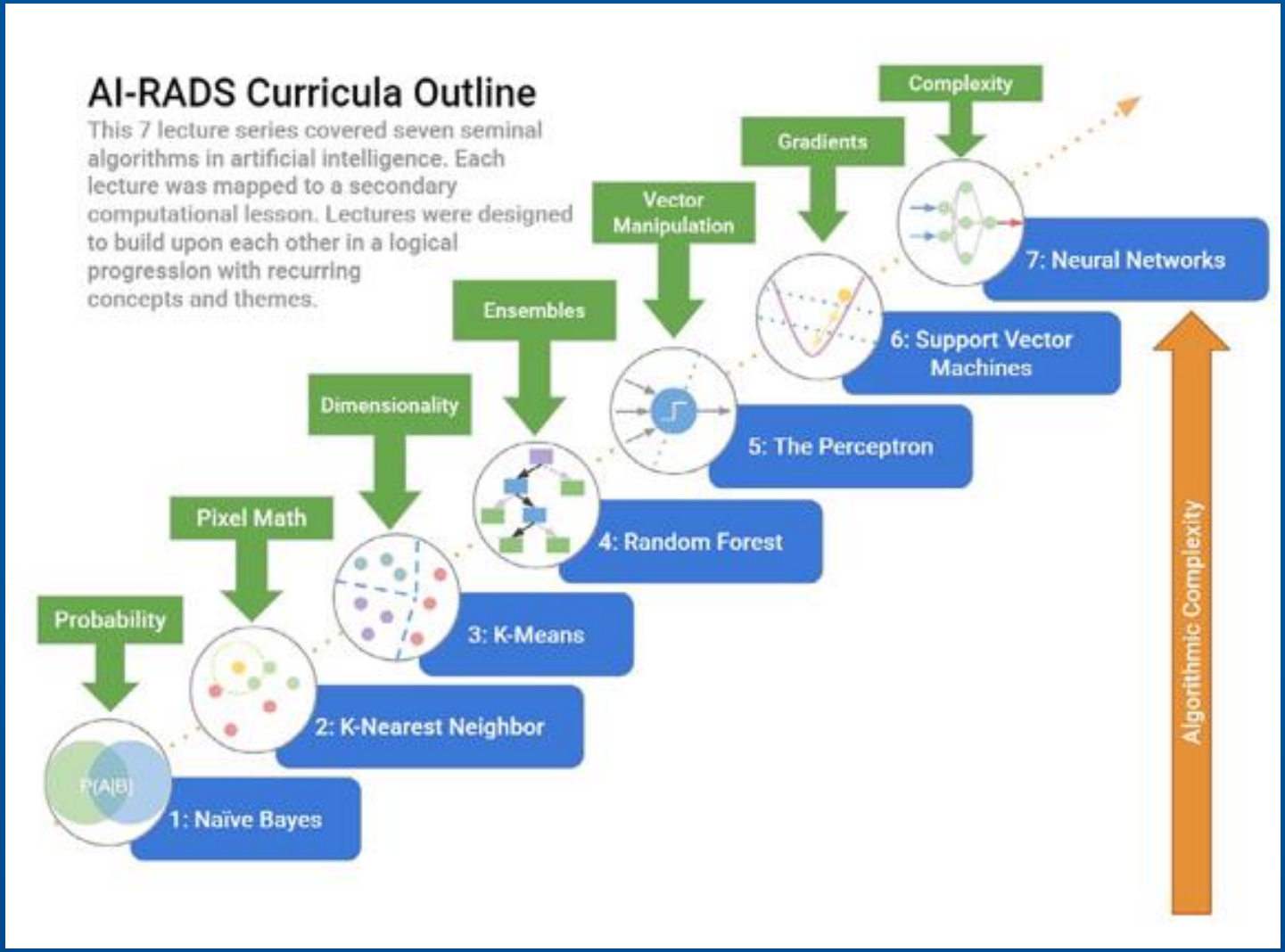
[1]https://www.ajronline.org/doi/10.2214/AJR.19.21346

Background

- As technology progresses, so do advancements in artificial intelligence
- A recent study in neuroradiology demonstrated that AI was able to develop a top 3 differential equivalent to that of neuroradiologists and better than that of general radiologists or residents[1]
- In preparation for the potential AI integration into radiology, many residency programs have begun to develop their own AI curriculum for trainees



[1]https://pubs.rsna.org/doi/pdf/10.1148/radiol.2020190283



Curriculum for AI learning designed by the Geisel School of Medicine at Dartmouth[1]

[1]https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7563580/pdf/main.pdf

Benefits of AI in Residency Training

- Increased efficiency and accuracy of trainees' reports
- Instantaneous feedback
- Less likely that a critical finding would be missed
- Great tool for "triaging" exams

Negatives of AI in Residency Training

- AI is still in its infancy increasing likelihood of missed or false positive findings
- Trainees may lean too heavily on the erroneous findings given by AI because of their own self-doubt or lack of experience
- Trainees may not fully develop their own search patterns and become dependent upon AI
- Lack of transparency by AI

Conclusions

Within the last decade, the number of publications related to artificial intelligence with regards to radiology has experienced unparalleled growth. With this growth, residents are not shielded from the effects, whether they will be positive or negative

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