

Artificial Intelligence Education in Radiology: How We Can Better Prepare the Workforce



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Purpose

- **Current challenges of AI:** poor performance, lack of user technical knowledge and skepticism regarding quality and safety. This delays implementation.
- **Our goal:** Determine how radiology residency curricula can be modified to improve resident trust and confidence in AI to improve future workplace integration with AI.
- **Current state of radiology education:** AI education in residencies is largely unstructured nationwide, may include simple or complex concepts such as pixel math or neural networks.
- Successful algorithm integration in real practice relies on simplicity of integration, lack of skepticism, and well-versed AI users: AI Experts.

Methods

- We surveyed residents across the country regarding their understanding of artificial intelligence
- Survey was distributed to program coordinators and directors
- Below are some topics included within the survey:
 - Trust in AI
 - Presence of AI Expert
 - AI Terminology
 - AI Applications
 - FDA Regulation Pathways

Results

Demographics of Respondents (45)

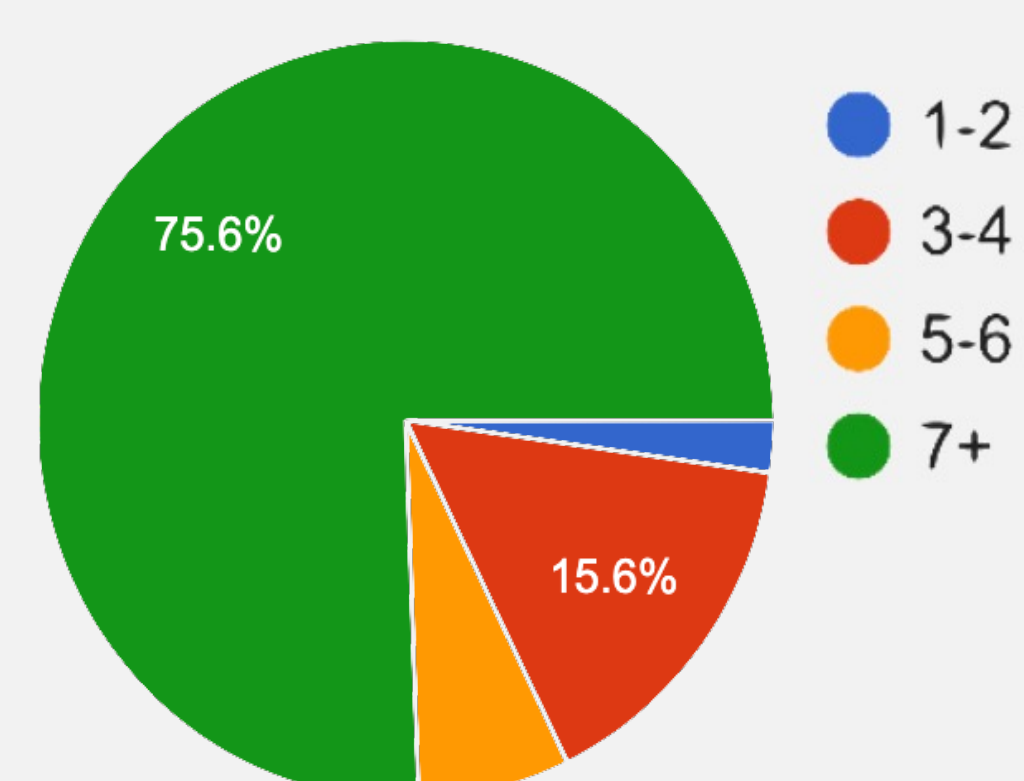


Figure 1. Class Size. Respondents were mostly from larger residencies

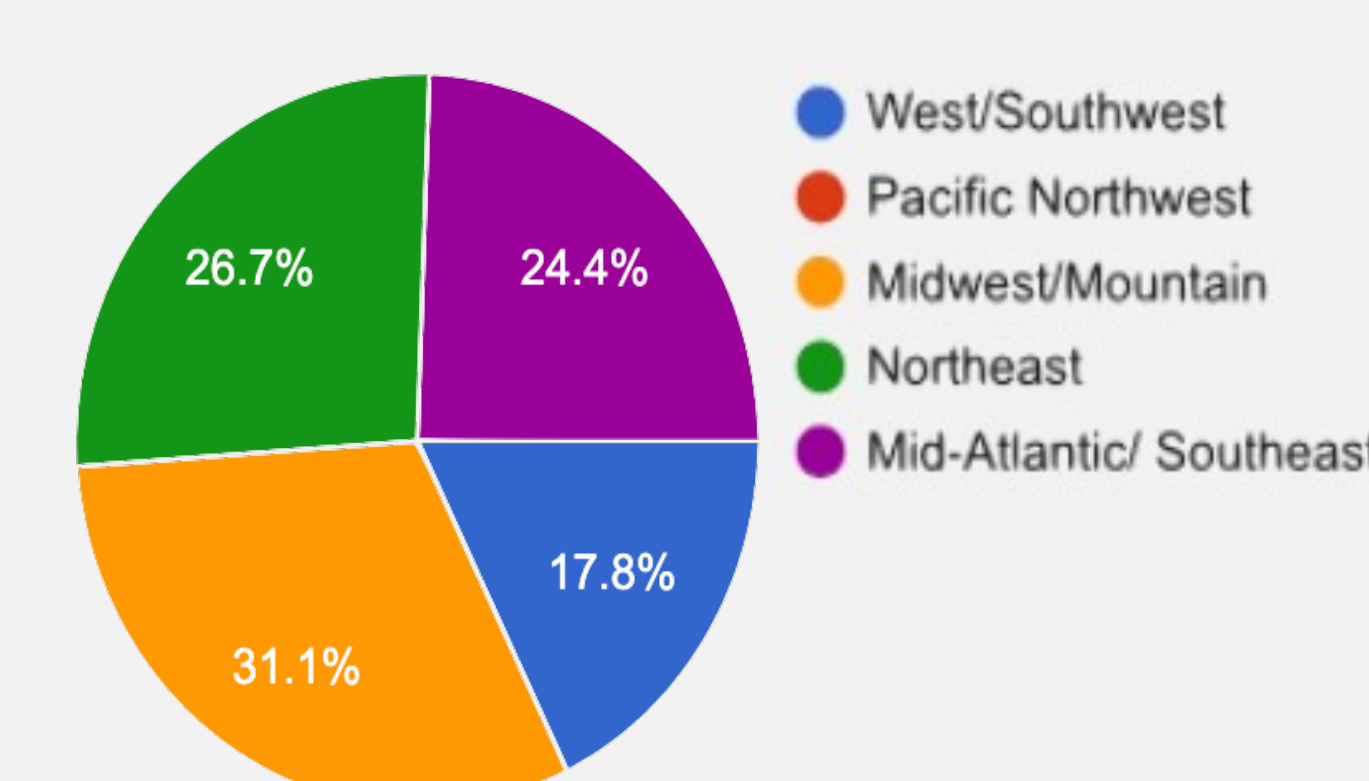


Figure 2. Geographic Distribution. Respondents represented a wide variety of regions

Figure 3. Confidence in AI. Residents with a colleague considered an AI Expert were significantly more confident explaining AI structures, but not trusting them.

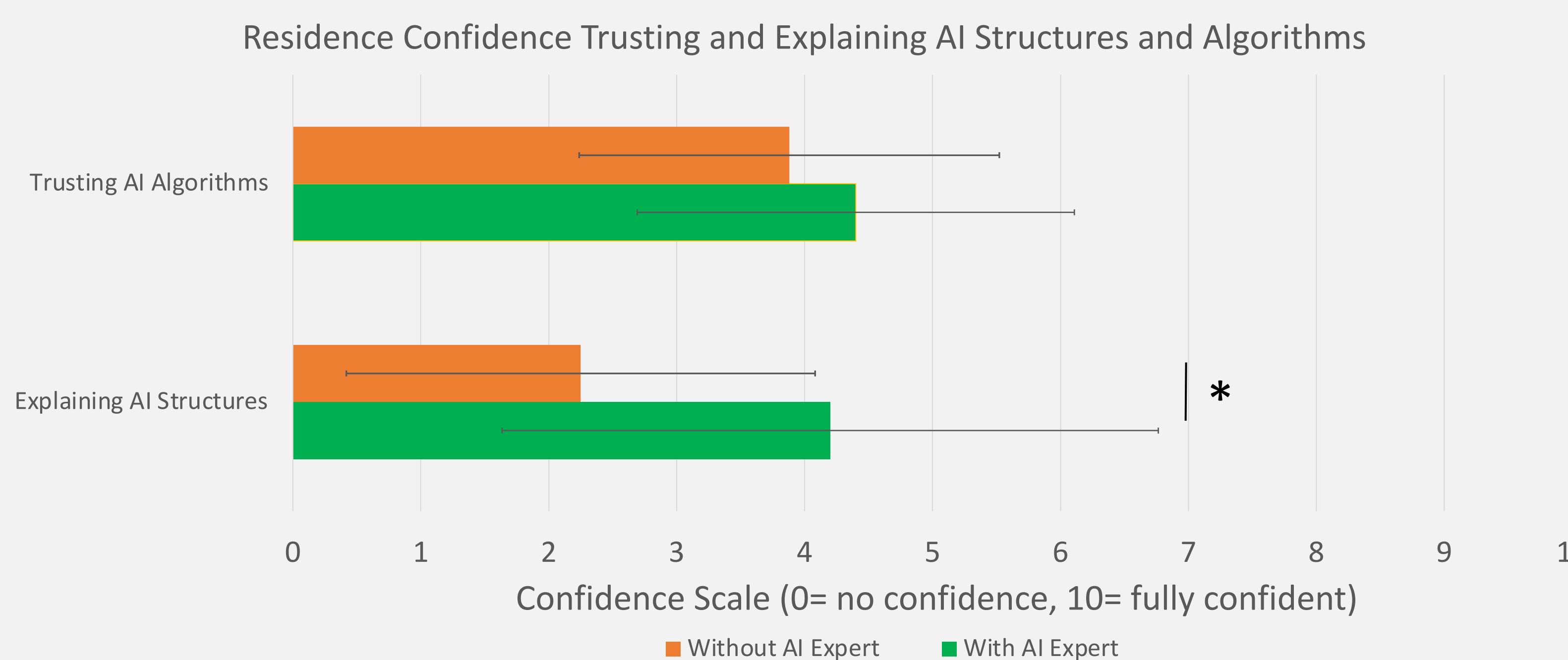
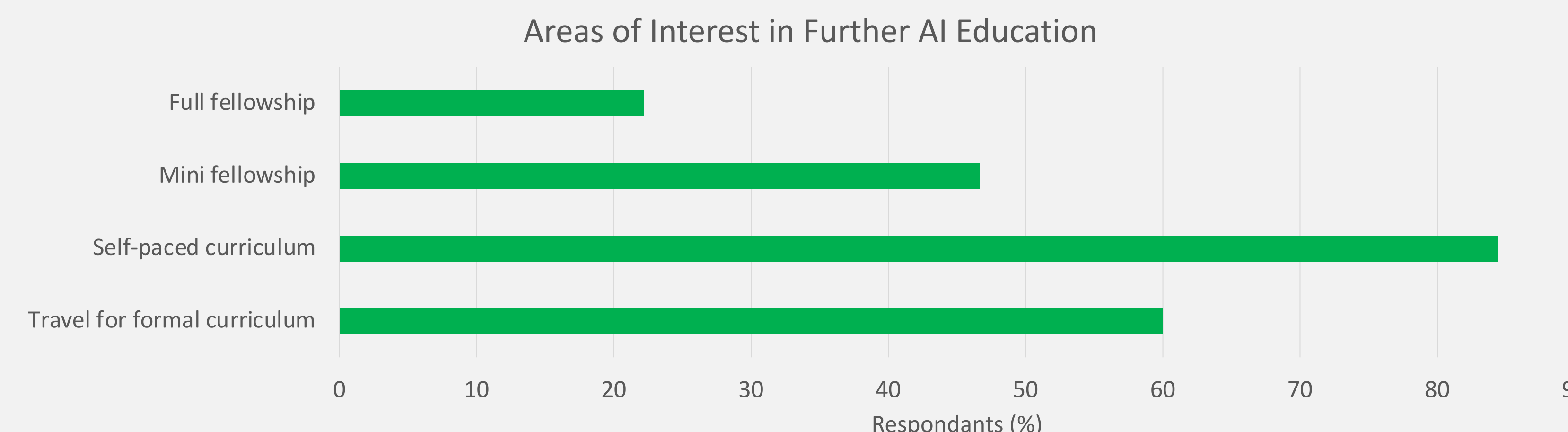


Figure 4. Interest in Further Training. Residents were open to many opportunities for further education, ranging from a full fellowship to a self-paced curriculum.



Knowledge of FDA involvement in AI

- 15.6% correctly identified that there are over 150+ algorithms approved by FDA for imaging
- 86.7% wished to know more about FDA approval pathways

Summary & Discussion

- Residents were mostly unaware of how many applications of AI algorithms in radiology have been approved, as well as different AI terminology like CADE, CADt, CADx, etc. These are terms that differentiate algorithms that use imaging to detect, triage, or diagnose diseases, respectively.
- Residents largely feel uncomfortable explaining how algorithms are developed. When there was a well-versed colleague (AI expert), residents were significantly more confident explaining these concepts.
- Interestingly, the presence of the expert did not change residents' trust levels in AI.
- Knowledge of FDA approval is lacking in current education on AI, this may be a source of mistrust towards algorithms.
- The majority of residents are interested in further education on AI.
- The majority of residents are interested in further education on the FDA and the approval pathways/requirements.
- Most residents would be open to traveling for a formal curriculum on AI, or even a self-paced curriculum.
- Developing structured curriculum during residency could make development and integration of AI software more seamless.