Alec Meyer

SpCm 212

Section 32

Informative Speech

**Title:** *Artificial Intelligence in Medicine*

**General purpose:** To inform

**Specific purpose:** To inform my audience about what artificial intelligence means and its applications for the medical industry.

**Organizational pattern:** *Topical*

1. **Introduction**
   1. **Attention-getter:** “We can only see a short distance ahead, but we can see plenty there that needs to be done.” Alan Turing was one of the founders of computational artificial intelligence and wrote this quote in his 1950 paper titled “Computing Machinery and Intelligence.”
   2. **Audience relation:** Artificial intelligence in medicine is a largely growing field in the health industry and will directly affect anyone who has even just gone in for a check-up at the doctor.
   3. **Credibility statement:** I am a software engineering student pursuing a minor in data science. I have experience building and teaching artificial intelligence systems and enjoy learning more about the subject. **Narration**
   4. **Thesis:** Artificial intelligence being implemented in healthcare may be right around the corner, but first we need to discuss what it means to have AI in medicine.
   5. **Preview:** In this speech I will be discussing how artificial intelligence can help improve the accuracy of medical diagnoses, decrease patient wait times, and its current application in the field.

***Transition:*** *How does artificial intelligence play a role in medical diagnoses?*

1. **Body**
   1. **Main Point:** Artificial intelligence can be used to increase the accuracy of medical diagnoses.
      1. Computers use two approaches to diagnosing a patient, flowcharts and databases. **Explanation**
         1. The article ‘Overview of Artificial Intelligence in Medicine’ from 2019 stated that the flowchart approach is like “a physician asking a series of questions, then arriving at a probable diagnosis by combining the symptom complex presented”
         2. When it comes to databases the article states how deep-learning and pattern recognition is used. Deep-learning is when you “teach” a computer by providing it with repetitive algorithms so in the hopes that it can begin to recognize patterns
      2. The exam all doctors in Britain take, proctored at the Royal College of General Practitioners gave the results of AI outperforming doctors
         1. AI was able to complete the diagnosis exam with an 82% using the Babylon Health AI model. Babylon Health is an app made for communicating with doctors, but also uses AI to meet with patients.
         2. The average score on the GP exam for humans is a 72%
      3. AI is able to diagnose Tuberculosis at a high accuracy
         1. AI was able to diagnose TB at 95% accuracy and with 100% specificity
         2. 95% accuracy means the diagnosis is 95% accurate while 100% specificity means that for each correctly diagnosed case 100% of the time the computer is able to determine the type of TB. **Definition**

***Transition:*** *The use of AI for diagnosing is also appealing because it will lower patient wait times.*

* 1. **Main Point:** Patient wait times would be decreased with the ability to artificially automate healthcare.
     1. Low risk patients would receive immediate reassurance
        1. AI would be able to determine the severity of a low-risk patient and provide results much quicker than human doctors.
        2. I remember many of times where I am at a doctor’s office for a “quick” check-up that takes well over an hour. **Narration**
     2. High risk patients would receive immediate care
        1. AI would also be able to determine high-risk patients quicker and allow them to seek the correct treatment faster
        2. This could also help reduce the times that a person is dealing with a fatal disease of some sort and is unaware.
     3. AI would help reduce any sort of social anxiety a patient may feel
        1. Without the worry of what your doctor may think of you or conditions It could help some people go to the doctor more
        2. This could also help patients be more truthful and not have to feel the need to hide certain aspects of their health.

***Transition:*** *Diagnosis precision and lack of wait time is already being used in the field of Radiology.*

* 1. **Main Point 3:** Radiology is currently using artificial intelligence quite extensively.
     1. Radiology using computer aided diagnosis is becoming well-known
        1. Computers were initially only used for sorting file systems and presenting images in radiology.
        2. Computers are now able to help with image processing and predication.
     2. AI helps disprove false positives in radiological diagnoses
        1. Using AI’s quick ability to identify negative exams helps prevent false positive results.
        2. However, this doesn’t help much yet with an actual diagnosis.

***Transition:*** *Artificial intelligence in medicine is already proving useful in radiology and is being adapted into most if not all medical fields.*

1. **Conclusion**
   1. **Restate thesis:** The use of Artificial intelligence in medicine is an innovation growing extremely fast, but it is one to be taken with caution.
   2. **Review main points:** Whether it’s more accurate diagnoses, lower patient wait times, or its already implemented use in radiology, AI has proven its use in the medical field
   3. **Final statement:** Finally, I will leave you with another quote by Alan Turing, which gives reason to innovate the medical field, “A very large part of space-time” must be investigated, if reliable results are to be obtained.”

**Works Cited**

Sparrow, Robert, and Joshua Hatherley. “High Hopes for ‘Deep Medicine’? AI, Economics, and the Future of Care.” Hastings Center Report, vol. 50, no. 1, Jan. 2020, pp. 14–17. EBSCOhost, doi:10.1002/hast.1079.

Nadin, Mihai. “Aiming AI at a Moving Target: Health (or Disease).” AI & Society, vol. 35, no. 4, Dec. 2020, pp. 841–849. EBSCOhost, doi:10.1007/s00146-020-00943-x.

Amisha et al. “Overview of artificial intelligence in medicine.” *Journal of family medicine and primary care* vol. 8,7 (2019): 2328-2331. doi:10.4103/jfmpc.jfmpc\_440\_19

Sagar Kulkarni, Nuran Seneviratne, Mirza Shaheer Baig, Ameer Hamid Ahmed Khan, Artificial Intelligence in Medicine: Where Are We Now?, Academic Radiology, Volume 27, Issue 1, 2020, Pages 62-70, ISSN 1076-6332, <https://doi.org/10.1016/j.acra.2019.10.001>

Jonah Comstock. “Artificial intelligence passes recreation of UK's GP exam and performs against doctors in simulated tests.” *Healthcare IT News,* <https://www.iqpc.com/events-digitalhealthcareonline/downloads/artificial-intelligence-passes-recreation-of-uks-gp-exam-and-performs-against-doctors-in-simulated-tests>