

Assessment of Undergraduate Medical Students' Perception and Knowledge Toward **Artificial Intelligence** and Its Application in Medicine among a Sample of **New Giza University Students**: A Cross-Sectional Study

We are a group of medical students at NGU undertaking research regarding the knowledge and perception of Artificial Intelligence among medical students. Data in this questionnaire is Anonymous and Confidential.

Participation in this study is entirely voluntary, and you are free to withdraw at any time without any consequences.

This questionnaire will take **5-7 minutes (19 Questions other than Demographics)**.
By clicking next you Agree to participate in this research.

* Indicates required question

Untitled Section

1. Are you currently a medical student at New Giza University? *

Mark only one oval.

Yes

No

Demographics

This section Includes 10 Questions about Demographics

2. What is your gender? *

Mark only one oval.

Male

Female

3. What is your age? * *Mark only one oval.*

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4. Your nationality. *

Mark only one oval.

Egyptian

Other..

5. As of October 2023, which academic year are you in? *

Mark only one oval.

- Year 1
- Year 2
- Year 3
- Year 4
- Year 5
- Year 6

6. What specialty do you wish to pursue in the future? *

Mark only one oval.

- Anesthesiology
- Cardiology
- Cardiovascular/Thoracic Surgery
- Dermatology
- Emergency medicine
- Endocrinology
- Family medicine
- Gastroenterology
- General Surgery
- Hematology
- Interventional radiology
- Immunology
- Nephrology
- Neurology
- Neurosurgery
- Obstetrics and gynecology
- Ophthalmology
- Orthopaedic surgery
- Otolaryngology
- Pathology
- Pediatrics
- Physical medicine and rehabilitation
- Plastic surgery
- Public Health and Preventive Medicine (PhPm)
- Psychiatry
- Radiology (diagnostic)
- Radiation oncology
- Respiriology
- Urology
- Other..

I have not decided yet

7. Have you ever had clinical practical experience / work shadowing / observership of any kind?

Mark only one oval.

Yes

No

8. What's your father's degree? *

Mark only one oval.

School

University

Postgraduate

Other..

9. What's your mother's degree? *

Mark only one oval.

School

University

Postgraduate

Other..

10. Do you have an academic background in any technologically oriented field? *

This can include computer science, IT, Robotics, Database or any other similar field.

Mark only one oval.

Yes

No

11. Have you undertaken any additional training in computer science where artificial intelligence, machine learning, or deep learning was taught/discussed? (e.g. certificate program, online course, etc) *Mark only one oval.* *

- Yes
- No

SURVEYING CURRENT PERCEPTIONS OF ARTIFICIAL INTELLIGENCE (AI) IN MEDICINE

These next 13 questions will assess what you think about AI in medicine.

We believe this section to be the most important part of the survey. Please rate how strongly you agree or disagree with the statements below (All options are the same for each question below).

12. AI will take on a significant role in medicine during my lifetime. *

Mark only one oval.

- Strongly agree
- Somewhat Agree
- Neither agree nor disagree
- Somewhat Disagree
- Strongly Disagree

13. I am excited about using AI tech as a future physician. *

Mark only one oval.

- Strongly agree
- Somewhat Agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly Disagree

14. I understand AI concepts like: CNN (Convolutional Neural Network), Cross *

Validation, ROC AUC (Area Under the Curve of the Receiver Operating Characteristic curve), Hyperparameters, Deep learning, Hidden Layers, etc.

Mark only one oval.

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly Disagree

15. I can list some examples of recent clinically relevant AI research. *

Mark only one oval.

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

16. I can list the strengths/benefits of using AI in medicine. *

Mark only one oval.

- Strongly agree
- Somewhat agree
- Neither agree or disagree
- Somewhat disagree
- Strongly disagree

17. I can list the weaknesses/pitfalls of using AI in medicine. *

Mark only one oval.

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

18. It's hard to understand and approach AI because of media sensationalism. *

(Sensationalism is the presentation of stories in a way that is intended to provoke public interest or excitement, at the expense of accuracy. It is also defined as the use or effect of sensational subject matter or treatment.)

Mark only one oval.

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

19. I can separate "Hype" AI articles vs clinically relevant AI articles. *

(Note "hype" definition: meaning extravagant or intensive publicity or promotion)

Mark only one oval.

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

20. I am worried about the ethics of using AI in medicine. *

Mark only one oval.

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

21. Some training on AI concepts and related topics during medical school can be useful for my future career.

Mark only one oval.

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat Disagree

22. My school offers resources if I want to explore the topic of AI in medicine. *

Mark only one oval.

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

23. Learning the relevant topics of AI in medicine will significantly detract me from my *
medical school curriculum.
(Topics include ethics, criticizing AI articles, pros/cons of AI, job security, etc.)

Mark only one oval.

- Strongly agree
 Somewhat agree
 Neither agree nor disagree
 Somewhat disagree
 Strongly disagree

24. I want to learn what medical students should know about AI in medicine. *

Mark only one oval.

- Strongly agree
Somewhat agree
Neither agree or disagree
Somewhat disagree

SURVEYING CURRENT PERCEPTIONS OF AI IN MEDICINE

This section includes **3 Questions**

25. Which specialties do you think will be most affected by AI? (Please select the top * three)

Check all that apply.

- Anesthesiology
- Child Neurology
- Dermatology
- Emergency medicine
- Family medicine
- General Surgery
- Internal medicine
- Interventional radiology
- Neurosurgery
- Neurology
- Obstetrics and gynecology
- Ophthalmology
- Orthopaedic surgery
- Otolaryngology
- Pathology
- Pediatrics
- Physical medicine and rehabilitation
- Plastic surgery
- Psychiatry
- Radiology (diagnostic)
- Radiation oncology
- Urology
- Vascular surgery

26. I am less likely to choose these selected specialties because of the anticipated integration of AI.

Mark only one oval.

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

27. Where did you gain your exposure to AI? (Please select all that apply) *

Check all that apply.

- Media (YouTube, Twitter)
 - Television
 - Online forms
 - Peer-reviewed articles
 - Formal lectures
 - Professor/doctors
 - Books
 - Research projects
 - Conferences
 - Family and
 - friends Other:
-

SURVEYING INTEREST (4 questions)

28. What are some ways that you think would be MOST USEFUL for your medical school to offer to help students like you to explore the topic of AI in medicine? (Please select all that apply)

Check all that apply.

*

- Q&A (Questions and Answers) panels with leaders in the field
- Symposiums where experts present and discuss their AI-related research
- Short lectures (3-5 total hours) on the fundamentals of AI in medicine
- Student-led journal club on AI articles
- Interdisciplinary research teams with the goal of publication
- Incentivization to go to AI conferences
- Formal preclinical elective
- Collation of various good online resources into a single
- location Workshops on programming AI models Other:
- _____

29. What are some specific topics within AI in medicine you would MOST be interested in? (Please select all that apply)

*

Check all that apply.

- Strengths and weaknesses of using AI in medicine
- When to use AI in medicine?
- Fundamental concepts of AI
- Types of models in AI (NLP, CNNs, etc.)
- How to create AI models using Python
- Most recent and significant AI health innovations/research in my top 3 listed specialties
- Ethics of AI
- What aspects of a physician's job can be replaced with AI and which can't?
- How to critique AI articles
- How to bring AI models to clinical practice (translational science)
- AI in medical research
- Roles of individuals in multidisciplinary teams doing AI research
- Global health implications of AI
- Effects of AI on health inequalities
- Other:

30. The maximum amount of time I would like to spend exploring the topic of AI in medicine per month is..

Mark only one oval.

- None
- 30 minutes
- 1 hour
- 2 hours
- 3 hours
- 4 hours
- 5 hours
- More than 5 hours

31. Please use this space to share any other thoughts on the topic that you feel are significant but weren't completely captured in the survey.

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