The Critical Need for Education in Voice AI, its Potential in Healthcare, and the Ethical Challenges Associated with Using Patient Voice Data

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Outline

1. Critical need for (Voice) AI education

2. Implementing the Voice AI Summer School – 2024

3. Ethical issues in Voice AI

Critical need for (voice) AI education

- Need for education in informatics and AI not new
  - Greatest focus for new medical students: patients and information (Shortliffe, 2010)
  - Search engine is as important as the stethoscope (Glasziou, 2008)
  - Clinical informatics is an essential competency for 21st century health professionals (Hersh, 2014)

- This does not change in era of AI
  - Growing recognition of need for competencies in its use (Russell, 2023)
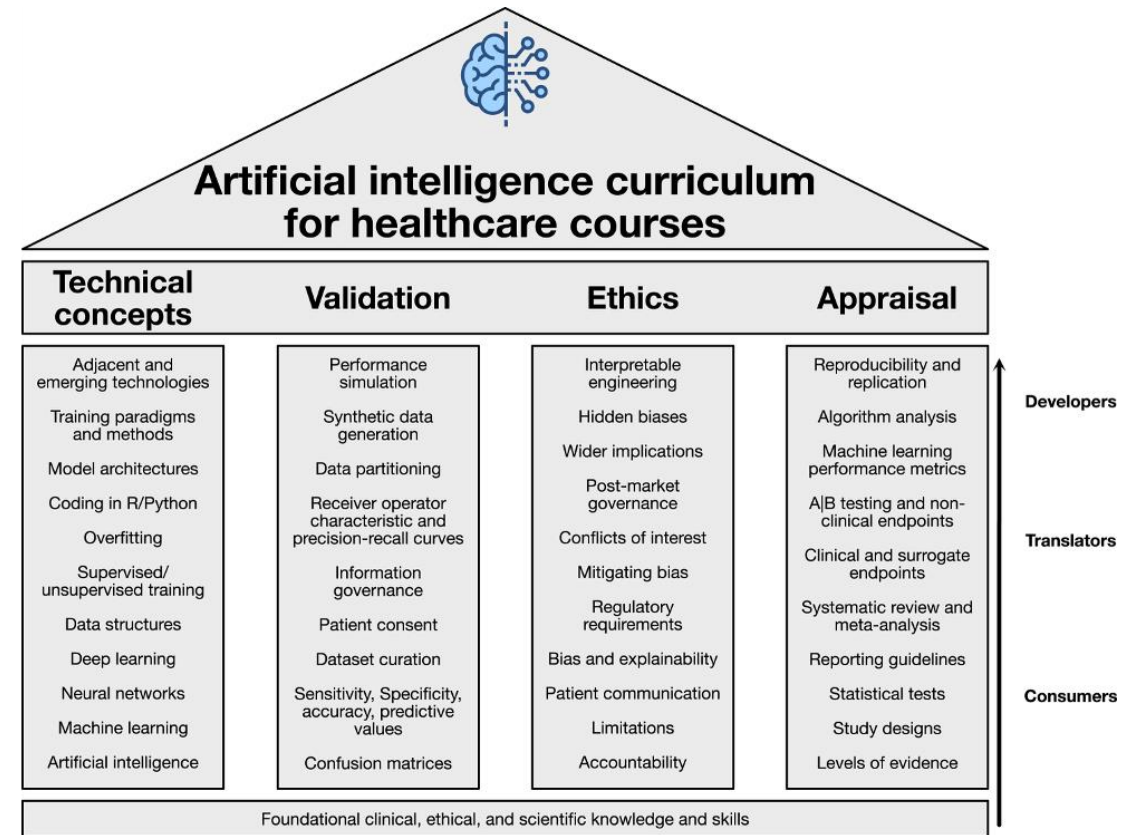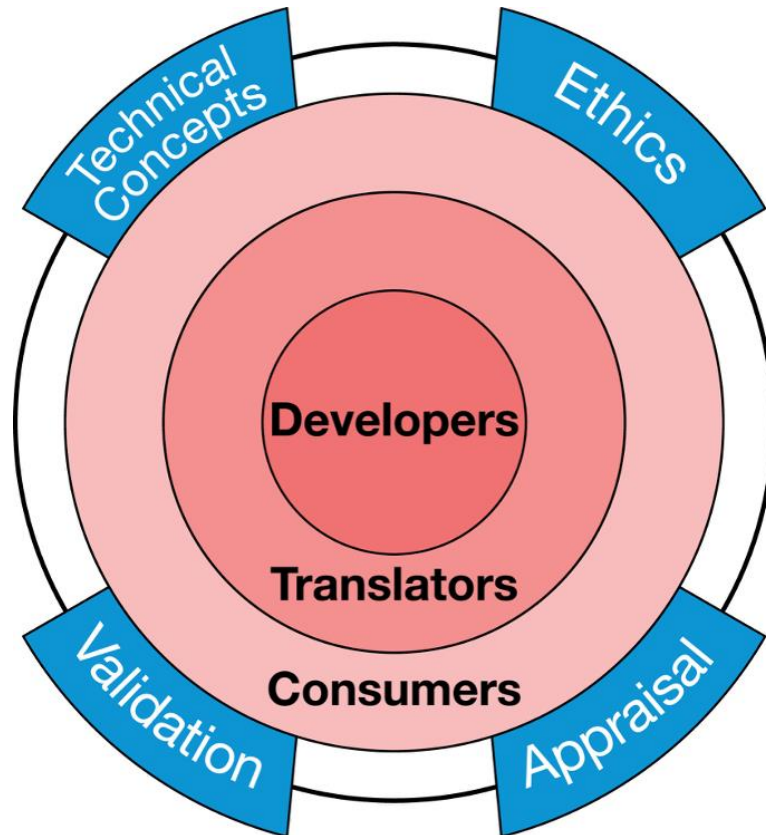 - Many accomplishments and challenges for AI in education (Hersh, 2025)

Annual Review of Biomedical Data Science

Generative Artificial Intelligence: Implications for Biomedical and Health Professions Education
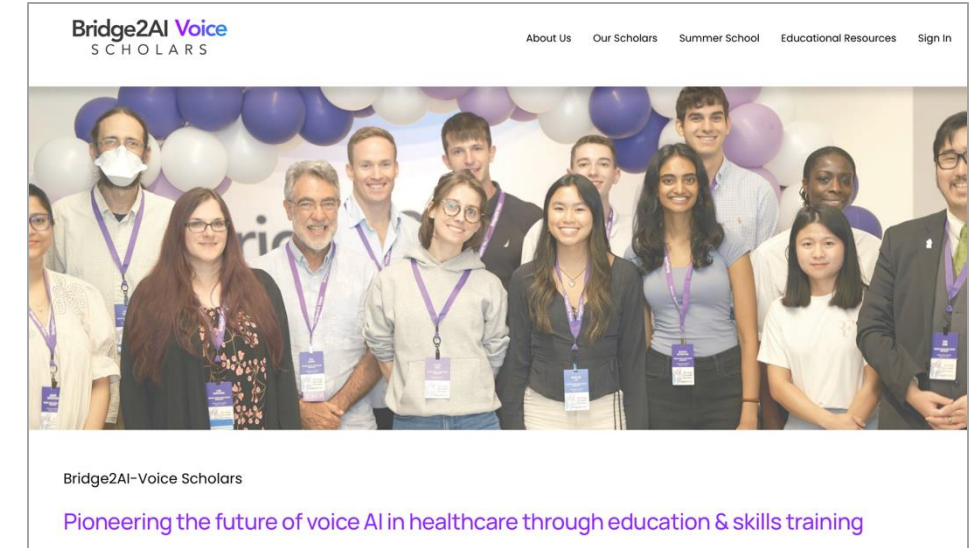
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Educational needs vary by role (Ng, 2023)

Voice AI Summer School

- Implemented at four sites
  - Oregon Health & Science University (OHSU)
  - University of South Florida (USF)
  - Weill Cornell Medical School (WCM)
  - Washington University (WashU)
- At OHSU and WashU, integrated within an internship program funded by NLM R25
- Aimed to have half of the interns with "clinical" and half with "technical" backgrounds
- Culminating hackathon in Tampa, FL

Bridge2AI-Voice Scholars

Pioneering the future of voice AI in healthcare through education & skills training

VOICE AI SUMMER SCHOOL

4-6 WEEK PROGRAM AT THE INTERSECTION OF HEALTHCARE & VOICE ARTIFICIAL INTELLIGENCE

NOW ACCEPTING APPLICATIONS!

OHSU Summer Internship activities

- Projects

- Didactic sessions

- Health Data Ethics and Equity Seminar

- Responsible Conduct of Research

- Research Seminar

- Near-peer mentoring

- Career mentoring

Didactic curriculum

- Topics included general biomedical informatics and data science, machine learning and AI, and domain-specific voice

- Lecture methods included
  - Synchronous
    - Real-time in person local to lecturer and via Zoom to other sites
  - Asynchronous
    - Voice-over-Powerpoint recording of lecture
    - Flipped classroom real-time discussion in person locally or via Zoom to other sites

- My asynchronous approach
  - Lecture segments selected from introductory biomedical informatics course
  - Students prepare slide with overview of topic of interest and discussion question for class
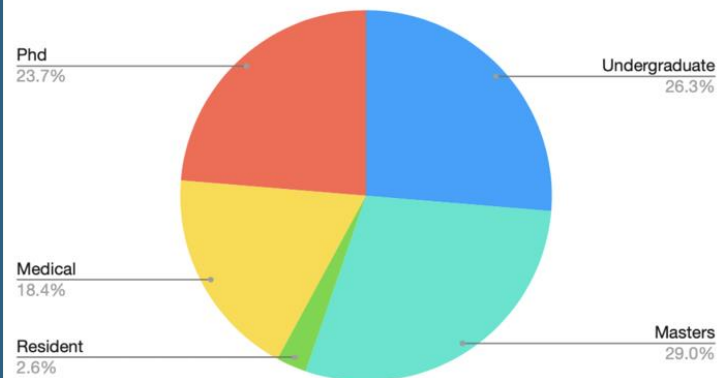
Data and Outcomes

- 40 Voice AI Summer School students

- Over 85 Hackathon participants between August 2024 – April 2025

- 25 + posters and presentations delivered at annual conferences by Voice AI scholars
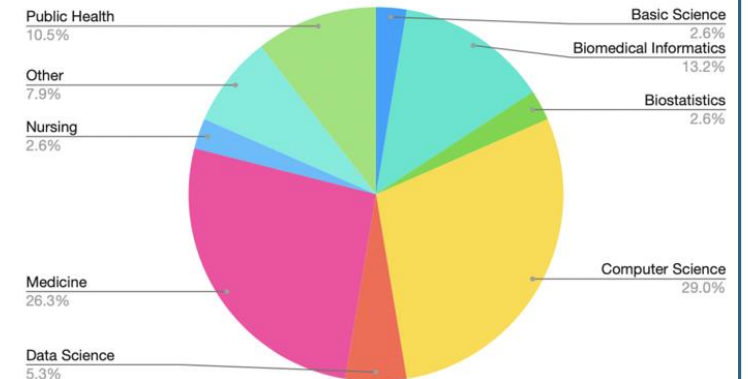

Overall

- The Bridge2AI Summer School 2024 Post Evaluation Survey received 38 total responses from 4 sites.
- Overall, the program was rated 4.05 out of 5 for effectiveness.

Education Level

- Phd 23.7%
- Undergraduate 26.3%
- Medical 18.4%
- Masters 29.0%
- Resident 2.6%

Background

- Public Health 10.5%
- Basic Science 2.6%
- Biomedical Informatics 13.2%
- Other 7.9%
- Nursing 2.6%
- Biostatistics 2.6%
- Medicine 26.3%
- Computer Science 29.0%
- Data Science 5.3%

Ethical issues in voice AI

Stakeholder perspectives on ethical and trustworthy voice AI in health care (Bélisle-Pipon, 2024)

Team science approach involving clinical expertise, bioethics, standards, and DEI (Rameau, 2024)

Key issue for project and education is ethics for data (Bélisle-Pipon, 2024)

Key aspects	Description	Percent of respondents raising the aspect
Consent and transparency	Obtaining informed consent from individuals and being transparent about the data collection process, including usage and duration.	74%
Privacy and security	Securely collecting and storing data, protecting the privacy and personal information of individuals.	63
Fairness and avoiding bias	Treating data subjects fairly, avoiding biases, and ensuring diverse representation in data collection.	52
Compliance and standards	Following regulatory requirements and adhering to industry best practices for data protection and privacy.	37
Empowerment and control	Giving individuals control over their data and educating them about responsible use.	26
Environmental responsibility	Minimizing the environmental impact of data storage and management, promoting energy efficiency and sustainability.	22
Value and purpose	Collecting data with a clear purpose and considering the value and potential benefits of the data for ethical AI development and research.	19

Example: Is voice AI data protected health information (PHI)?

1. Names
2. All geographic subdivisions smaller than a State, including street address, city, county, precinct, zip code,
3. All elements of dates (except year) for dates directly related to an individual, including birth date, admission date
4. Telephone numbers;
5. Fax numbers;
6. Electronic mail addresses;
7. Social security numbers;
8. Medical record numbers;
9. Health plan beneficiary numbers;
10. Account numbers;
11. Certificate/license numbers;
12. Vehicle identifiers and serial numbers, including license plate numbers;
13. Device identifiers and serial numbers;
14. Web Universal Resource Locators (URLs);
15. Internet Protocol (IP) address numbers;
16. Biometric identifiers, including finger and voice prints;
17. Full face photographic images and any comparable images; and
18. Any other unique identifying number, characteristic, or code, except as permitted by paragraph (c)

What's Next?

Potential 2026 Summer School Collaboration

Packaging and tailoring curriculum for organizations and industry

Continuous updating of the curriculum as AI evolves and we receive more feedback via evaluation

Workshops, Panels, and Publications