A qualitative research of views on implementing ethical considerations into Artifcial intelligence (AI) design in healthcare

Ping Ji, Ph.D.
Associate Director of Peking University Clinical Research Institute (Shenzhen)

Jiping_pucri@bjmu.edu.cn

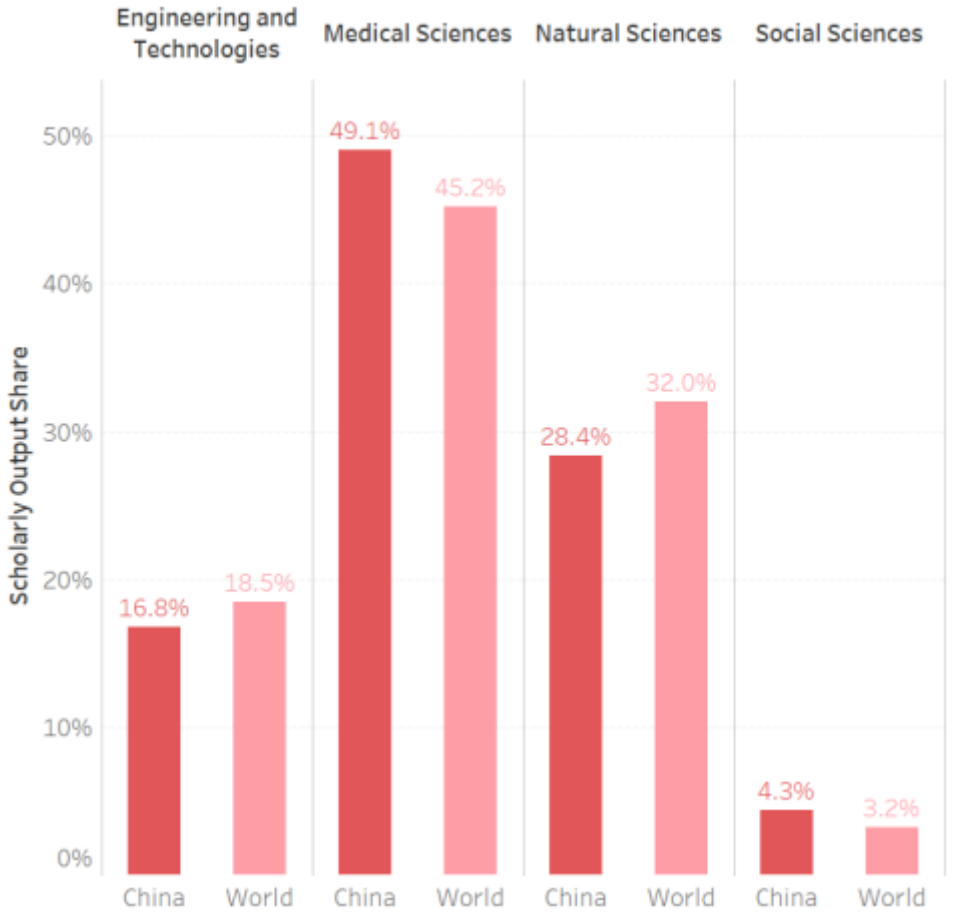
Outline

- Background
- Methodology
- Main Findings and Discussion

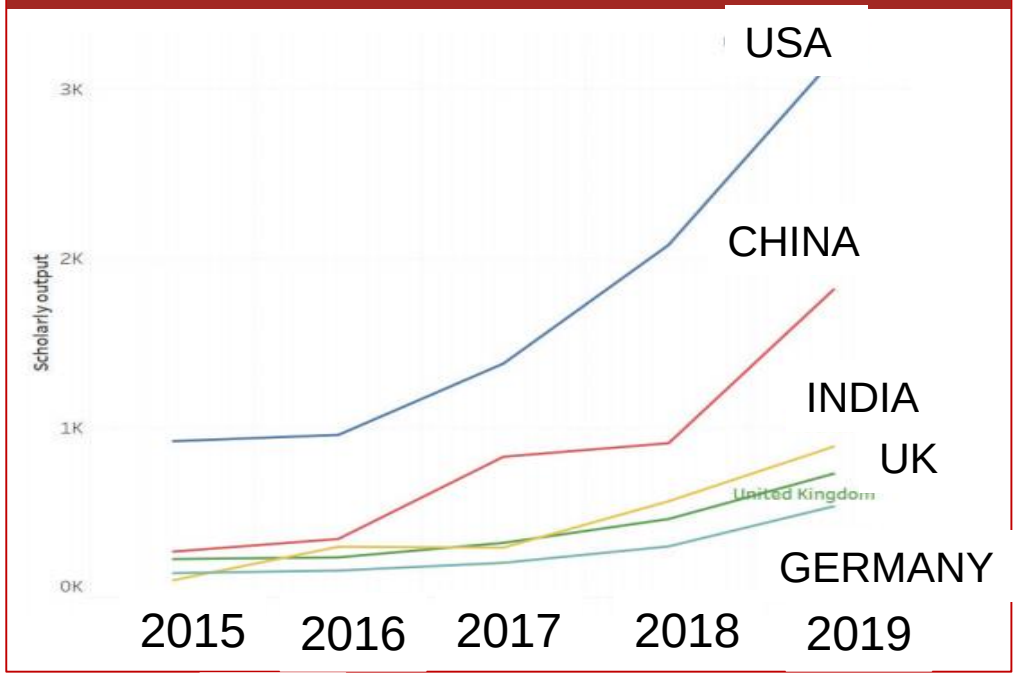
Health AI Index report 2020

The National Research Institute of Health Data Science (NIHDS) at Peking University

健康医疗 Health AI Index 人工智能指数



Top 5 countries on Scholarly output



Source:http:// 2015 ihds.pku.edu.cn/haiindex/index.html

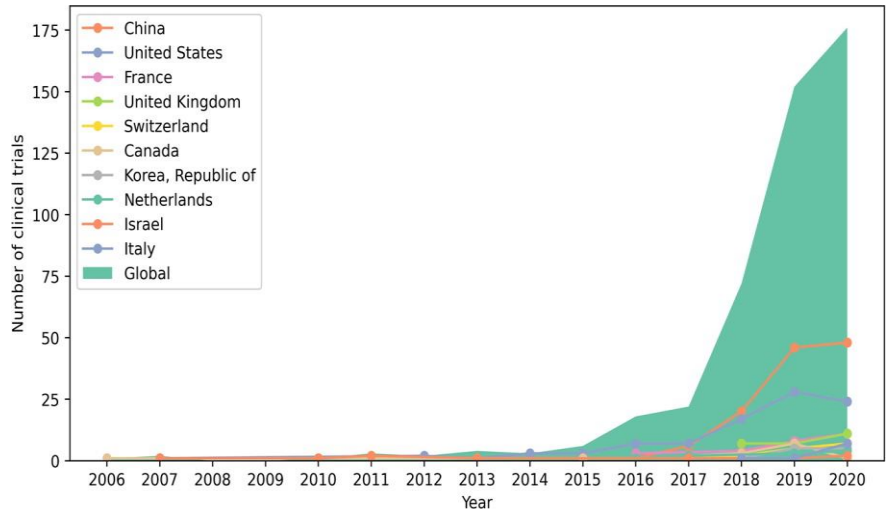
Health AI Index report 2020

published by:

The National Research Institute of Health Data Science (NIHDS) at Peking University

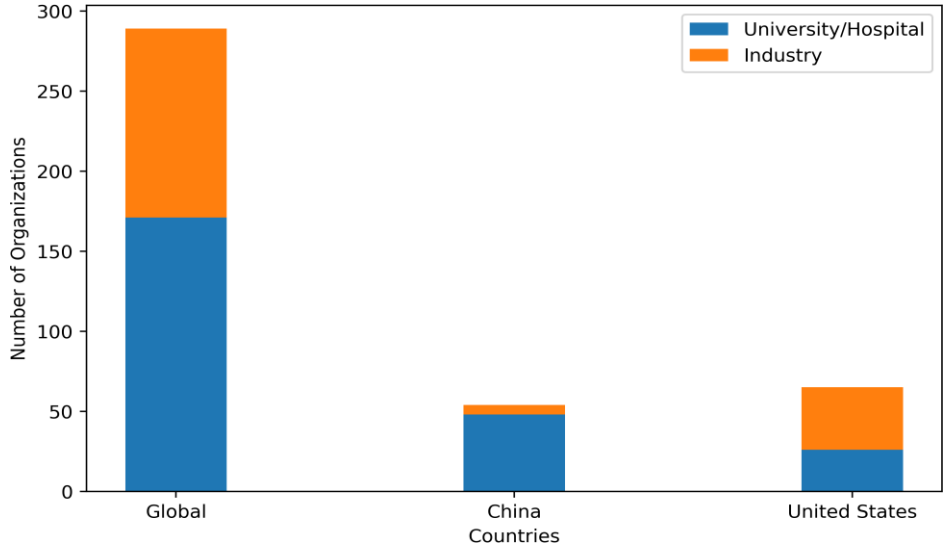
Health AI in clinical trials

Since 2018, China has ranked first in the number of health AI clinical trials.



Global and U.S.: universities/hospitals - 60%, enterprises -40%

China: only 11% from enterprises.



Source:http://www.nihds.pku.edu.cn/haiindex/index.html

Beijing AI Principles

May 25, 2019
Published by Beijing Academy of Artificial Intelligence (BAAI) etc.

Research and Development
- ✓Do Good
- ✓For Humanity
- ✓**Be Responsible**
- ✓Control Risks
- ✓**Be Ethical**
- ✓Be Diverse and Inclusive
- ✓Open and Share

中华人民共和国科学技术部
Ministry of Science and Technology of the People's Republic of China

Governance Principles for the New Generation Artificial Intelligence Developing Responsible Artificial Intelligence
Jun 17, 2019

- ✓ Harmony and Human friendly
- ✓ Fairness and Justice
- ✓ Inclusion and Sharing
- ✓ Respect for Privacy
- ✓ Safety and Controllability
- ✓ **Shared Responsibility**
- ✓ Open and Collaboration
- ✓ Agile Governance

LAIP –Linking Artificial Intelligence Principles
Integrating, synthesizing, analyzing, and promoting global AI Principles as well as their social and technical practices.

http://www.linking-ai-principles.org/cn

Background

- Shenzhen is promoting "AI + medical health".
- AI-related products have been widely developed.

中国科学院深圳先进技术研究院
SHENZHEN INSTITUTES OF ADVANCED TECHNOLOGY
CHINESE ACADEMY OF SCIENCES

Tencent 腾讯

HUAWEI

BGI 华大

PING AN
金融 · 科技

Background

- **What does responsible conduct of health AI research mean?**
  - From ethical requirements to practical ethics
  - For such research, are there difference between regular clinical research? What might be special for health AI research?
  - What responsibilities of related stakeholders?

- **How to implement ethical considerations into AI research?**
  - Engineer
  - Research institute

Objectives

- To explore the views(personal opinion)of research team members (particular engineers) and institutes engaged in AI products design in healthcare,and
- How to integrate ethical considerations into AI design?
- To have an overall understanding on this issue
- To propose appropriate policy recommendations in Shenzhen, China.

Methodology

- **Design:** A qualitative study,A semi-structured interview guide was developed based on a group discussion involving the study team. The themes included experiences, current status, attitute, barriers, needs and suggestions on responsibility sharing.
- **Participants:** Stratified purposive and convenience sampling were used.

Participant characteristic	Focus group 1	Focus group 2	Focus group 3	Focus group 4
Number	6	7	9	7
	Academia-Research institute	Academia-Research institute	Industry – company	Academia-Regional IEC
Role	Directors of Health AI R&D team in different feild			IEC members

- The interviewees were encouraged to share their opinions freely and discuss their own questions of interest.

Main Findings and Discussion

1. How to **conduct ethical review on AI projects**?

Issues:

- The ethical awareness and supervision measures in the medical AI R&D products are relatively weak in industry and research institutes.Some interviewees asked:

"Should medical AI be in compliance with the Ethical Guidelines for Health-related Research Involving Human Subjects?"

"Can we fit a bioethics approach with AI? We don't have specific standards for reviewing the medical AI R&D projects."

Coping strategies:

- Setup key points of considerations on AI projects Ethical review:

✓Value and scientific validity

✓Data resources: proper informed consent, data transfer agreement

✓Data security approaches

✓Sufficiency of privacy protection

- Improve the capability of Ethic review board

✓member's training, qualification

Main Findings and Discussion

2. How to conduct responsible AI projects **from institutional level**

Issues:

- Multidisciplinary cooperation is insufficient.

  Some interviewees said: *"those who understand algorithms do not understand medicine,while those who understand medicine do not understand algorithms".*

- It is hard to judge the responsibility and accountability for AI systems designer.

  “While we work on early algorithms and models for product development, the early stages of development are still uncertain about future application scenarios without engaging with end users.

Coping strategies:

  - to ensure accountability mechanism for AI systems design

- to ensure qualification and capability of multidisciplinary research team
- to establish a model of community engagement

Main Findings and Discussion

3. How to conduct responsible AI projects **from R&D staff- engineer level**

Issues:

- Lack of ethical awareness
- It is hard to take the responsibility from individual level

“ You are overthinking.It is actually not very realistic to share the responsibilities.The Engineer's input on the product usually is designed by the product manager based on the market needs.On a project, It is a teamwork for specific task.team members are often changed, not permanent on each project. that makes it more difficult to stick with one team for one project.”

Coping strategies:

- Set up appropriate engineers' self-discipline code
- Provide ethic training
- To have a product-based accountability model, in which the R & D product design team/owner carries out the accountability instead of the individual engineer.

Acknowledgement

Thanks for all the participants and Support from Shenzhen Health Commission

Team members:

Prof Yali Cong, Chair of PUHSC IRB

Dr Haihong Zhang, Office Director of PUHRPP

Dr Xiaojie Li, Research Fellow in PUHSC

Ms Danna Zhu, Staff of Shenzhen IRB Office

Thanks for your attention