AI and Me: Personal Reflections on the Next Era of Health Research

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AI Against Me

• From east to west

• “Conventional” quantitative social science methods

• A non-binary social scientist
Me On AI

- 2 AI certificate programs
- 5 AI courses
- “AI in the Social Sciences” Open Classroom series
- AI interest group with 30+ graduate students
- Graduates landing data scientist positions
Me With AI

- From “for” to “with”

- Human-machine partnership
Coding & Debugging
Literature Summarization
Data Extractions
A Book of Experiment

1. Identify research ideas
2. Formulate research hypotheses
3. Undertake literature reviews
4. Select research design
5. Develop research instruments
6. Handle data collection and management
7. Analyze quantitative and qualitative data
8. Draft research papers and reports
9. Address peer review comments
10. Disseminate study findings
My Research Using AI
Fight Against Exaggerations in News

- Original: “Yogurt contributing to obesity epidemic, study claims”
- Model-revised: “Most yogurt products in UK have too much sugar to be considered healthy”
Estimate Nutritional Value from Nut Consumption
Predict Obesity with Self-reported Height & Weight
Track Sentiments Towards Health Policies

Changes of Proportion by Year

- News
- Neutral
- Negative
- Positive
Evaluate ChatGPT’s Medical Diagnosis Capacity

Setting
I am testing the differences of diagnostic capacities between ChatGPT and Chinese primary-care doctors. Now you are a primary-care doctor in China, and a patient has come for a consultation. Please conduct a detailed medical history inquiry, make a diagnosis, and prescribe appropriate treatment medications.

Chief complaint
Case 1: I've been experiencing chest pain recently.
Case 2: Lately, I've been feeling anxious, having difficulty falling asleep, and experiencing a decreased appetite.
Case 3: My child is having loose stools.
Case 4: I've been feeling constantly dry and thirsty lately.
Case 5: Doctor, I started having a runny nose and coughing two days ago.
Case 6: Doctor, I feel like I can't breathe well, and I'm wheezing heavily.
Case 7: Doctor, my cough hasn't been improving, and I also have a slight fever.
Case 8: Doctor, I've been feeling uncomfortable down below recently. My skin is broken, and it's a bit painful.
Case 9: Doctor, there's something growing down there, and I'm worried it might affect my girlfriend.

Interactions
ChatGPT: Questions
Simulated patients: Answers

Outcome
Diagnosis
Medical advice
Drug prescription
Predict Obesity with Voices
Qualitative Data Analysis
AI & Data Science Learning Resources at Brown School

Ruopeng An, PhD, FACE, FAAHB
Associate Professor, Brown School

Washington University in St. Louis
Upcoming Talk on Zoom

Open Classroom | Bridging Bytes & Bonds: The AI Transformation in Social Work

📅 Tuesday, November 14, 2023
© 12:30 am - 1:30 pm, Central, Virtual

Register here
AI in the Social Sciences Open Classroom Series

Write Effective ChatGPT Prompts to Boost Research Productivity (Part I) – YouTube

Write Effective ChatGPT Prompts to Boost Research Productivity (Part 2) - YouTube

Super-intelligence, Frankenstein, and Post-humanism: AI Ethics Beyond Data and Algorithmic Bias - YouTube

Applications of AI and Big Data Analytics in Obesity Research - YouTube

Artificial Intelligence: Implications for Social Equity and Bias – YouTube

Artificial Intelligence For Everyone – YouTube

Artificial Intelligence: Applications, Promises, Pitfalls, and Misperceptions - YouTube
Online Advanced Certificate Program

Artificial Intelligence Applications for Health Data

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