

# Xiaoyu Liu

(Pronouns in use: she/her/hers)

Curriculum Vitae

## EDUCATION

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<b>Ph.D., Biomedical and Health Informatics</b> University of Wisconsin Milwaukee, USA	Dec 2022
<b>M.B.A., Business Administration</b> Middle Tennessee State University, USA	May 2017
<b>B.B.A., Business Administration</b> North China University of Technology, China	Jun 2016

## PROFESSIONAL EXPERIENCE

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<b>Assistant Professor</b> Department of Health Management and Policy College for Public Health and Social Justice Saint Louis University	Aug 2023 to Present
<b>Assistant Lecturer</b> School of Health Sciences College of Human and Health Sciences Southern Illinois University Carbondale	Aug 2022 to Aug 2023

## RESEARCH INTERESTS

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*My primary interest is to identify unmet healthcare needs and improve health outcomes with trustworthy, effective health IT solutions.*

### Theories & Methodologies:

- Data Science and Informatics: Natural Language Processing, Applied Machine Learning and Data Mining
- Health Design Thinking, Innovation in Healthcare Service Delivery, Mixed Methods Research

### Topics:

- Health Information on the Internet/Social media, Infodemic, Ageing, Cardiovascular, Maternal Health, Clinical Decision Support System, mHealth, Serious Game, Assisted Living Technology

## RESEARCH PAPERS

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### Published/Accepted

- Tong, L., Luo, J., Adams, J., Osinski, K., **Liu, X.**, & Friedland, D. (2023). Interpretable Machine Learning Text Classification for Clinical Computed Tomography reports – A Case Study of Temporal Bone Fracture. *Computer Methods and Programs in Biomedicine Update*, 100104. <https://doi.org/10.1016/j.cmpbup.2023.100104>
- **Liu X**, Alsghaier H, Tong L, Ataullah A, & McRoy S. Visualizing the Interpretation of a Criteria-Driven System That Automatically Evaluates the Quality of Health News: Exploratory Study of 2 Approaches. *JMIR AI* 2022;1(1):e37751. doi: 10.2196/37751
- McNamee, L. C., **Liu, X.**, Phan, K., Johnson, T., & Talsma, A. (2022). Pregnant Through the COVID-19 Chaos: Insights on How Women Use Information in the Perinatal Period During a Pandemic. *Clinical nurse specialist CNS*, 36(6), 298–308. <https://doi.org/10.1097/NUR.0000000000000705>
- Tong, L., Luo, J., Adams, J., Osinski, K., **Liu, X.**, & Friedland, D. (2022). A Clustering-Aided Approach for Diagnosis Prediction: A Case Study of Elderly Fall. 2022 IEEE 46th Annual Computers, Software, and Applications Conference (COMPSAC), pp. 337-342, doi: 10.1109/COMPSAC54236.2022.00054.
- **Liu, X** & Zhang, S (2014). Human Resource Management and Enterprise Competitive Advantage. *Human Resource Management*, 2014(9):166-166. doi: 10.3969/j.issn.1673-8209.2014.09.

### Under Review/Revision

- Alharthi, N, Alanazi, E, **Liu, X**. Awareness level of Huntington disease among users in social media: Comprehensive analysis of tweets during Huntington disease awareness month. *Informatics in Medicine Unlocked*. (In Review)

### Working Papers

- **Liu, X**, Tong, L, Yao, L & McRoy, S. AI-based Techniques for Combating Health Misinformation: A Systematic Review.( In Development)
- **Liu, X**, Yin, Y, & McRoy, S. “Do you trust me?” Understanding users’ trust in an AI-based, Criteria-driven, Explainable system that evaluates health news quality. (In Development).
- Payjapoh, C, **Liu, X**, +Elam-Canty, Collins, R, Johnson, TS, & Talsma, AN. Data Usage Amongst Perinatal Clinicians Barriers and Facilitators to a technology-based solution.(In Development)
- Elam-Canty, M, McNamee, L, Collins, R, Payjapoh, C, Phan, K, **Liu, X**, Janssen, E, Gondwe, K, Talsma, AN (Tent.). NSF I-Corps Project: Understanding the Nurses Experience with access and use of data for maternal infant outcomes. (In Development)

## REPORTS

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- Case Report of Beijing Information Management Science Institute
- Case Report of Silver Bridge Home Care Service Station
- Case Report of Department of Gerontology, Peking Union Medical College Hospital
- A Summary of the Case Report of Beijing “Medical & Health Care Combination” Service
- Reflections and Suggestions on the Development of Beijing “Medical & Health Care Combination

- Review of Domestic and Foreign Theory and Practical Experience of Health Care Service for the Aged

*Note: The reports above have been reviewed and some have been adopted by the Beijing government for formulating and implementing aging care policies.*

## CONFERENCES

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- Tong, L, **Liu, X**, Luo, J (2023), Telemedicine And Health Disparities: Revealing the Utilization Gaps of In-Person, Telephone, And Message During The COVID-19 Pandemic. AMIA 2023 Clinical Informatics Conference. May 23-25
- **Liu, X**, McRoy, S (2022). Priming critical thinking: an AI-based, criteria-driven system as an intervention to counteract the effects of health misinformation. APHA 2022 Annual Meeting and Expo. November 6 – November 9.
- **Liu, X**, Ao, J (2022). Fake News Alert! Understanding Health Misinformation and Two Combating Tools in Healthcare Management. Paper Presentation Work in the Age of Intelligent Machine (WAIM) Working Conference. June 5-June 7.
- **Liu, X**, McRoy, S.(2022). Visualizing the Interpretation of a Criterion-Driven System that Automatically Evaluates the Quality of Health News: An Exploratory Study of Two Approaches. Poster Presentation Tenth IEEE International Conference on Healthcare Informatics. June 11-June 14.
- **Liu, X**. (2022). A Review of AI-Based Techniques for Combating Health Misinformation: Identifying Gaps, Trends, and Directions for Future Research. Lightning Round Talk Midwest Interdisciplinary Graduate Conference. May 6
- McNamee, L, **Liu, X**, Phan, K, Collins, R, Elam-Canty, M, Payjapoh, C, Johnson, TS, & Talsma, AN. (2021). Maternal experiences seeking information and support in context of COVID-19: A qualitative study. Poster presentation Midwest Nursing Research Society (MNRS). March 27, 2021. (Virtual Conference)
- McNamee, L, **Liu, X**, Phan, K, Collins, R, Elam-Canty, M, Payjapoh, C, Johnson, TS, & Talsma, AN. (2021). Identifying gaps in perinatal care through the voices of women experiencing pregnancy during the COVID-19 pandemic. Poster presentation Wisconsin Association for Perinatal Care. Annual Meeting, April 28, 2021 (Virtual Conference).
- Elam-Canty, M, Niyokwizera, A., Collins, R., Janssen, E., **Liu, X.**, Lloren, J., McNamee, L., Phan, K., Payjapoh, C., Ogonnaya, U., Johnson, T., Gondwe, K., & Talsma, A. (2021). NSF I-Corps project: Understand the nurses' experience with access and use of data for maternal infant outcome. Peer reviewed, poster presentation at Wisconsin Association for Perinatal Care. Annual Meeting, April 28, 2021.
- Talsma, AN, Liu, X (2021). Maternity Metrix™ Web-based Clinical Expert & Community System Impacts Outcomes. University of Wisconsin Milwaukee. Lubar Entrepreneurship Center (LEC) Annual Expo. May 7, 2021
- Phan, K, Johnson, TS, **Liu, X**, Janssen, E, McNamee, L, Collins, R, Talsma, AN (2021). The influence of obesity on maternal – Infant health through the lifespan. Midwest Nursing Research Society (MNRS). March 27, 2021. (Virtual Conference)

## RESEARCH EXPERIENCE

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**Graduate Research Assistant**

Jan 2020 to May 2022

College of Nursing

University of Wisconsin Milwaukee

Project: Maternity Metrix Solution for integrated Maternal Child Outcomes Improvements

Project Investigator: AkkeNeel Talsma, Ph.D., R.N, FAAN

**Student Research Helper**

Jan 2018 to Sep 2018

Social Media and Health Research &amp; Training (SMAHRT) Lab

College of Health Sciences

University of Wisconsin Milwaukee

Supervisor: Priya Nambisan, Ph.D.

**Undergraduate Research Assistant**

Jul 2014 to Mar 2015

Ministry of Health of the Peoples Republic of China

Ministry of Labor and Social Security of the Peoples Republic of China

General Office of China National Committee on Ageing

Project: Beijing model of major diseases and technology research based on the theory of innovation ecosystem

Supervisor: Shuqian Zhang, Ph.D.

**Undergraduate Research Project Leader**

Oct 2013 to Dec 2014

Beijing Municipal Commission of Education

North China University of Technology

Advisor: Shuqian Zhang, Ph.D.

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**TEACHING EXPERIENCE**

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**Southern Illinois University Carbondale**

Aug 2022 to Present

*School of Health Sciences – Instructor*

- Managing Health Information (G)
- Health Information Management (UG)
- Health Care Informatics (UG)

**University of Wisconsin Milwaukee**

Aug 2018 to May 2022

*Department of Computer Science – Teaching Assistant*

- Introduction to Programming Language (JAVA) (UG)
- Intermediate Programming Language (JAVA) (UG)
- Introduction to Engineering Programming (MATLAB) (UG)
- Text Retrieval and Its Applications in Biomedicine (G/UG)
- Introduction to Data Mining (G/UG)

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**PROFESSIONAL MEMBERSHIPS/ AFFILIATIONS**

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- American Public Health Association: APHA

- American Medical Informatics Association: AMIA
- Academy Health
- Institute for Healthcare Informatics - Innovation and Excellence

## **PROFESSIONAL SERVICES**

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### **Reviewer**

- Journal of Medical Internet Research (JMIR)
- JMIR Serious Games
- JMIR Human Factors
- AMIA Informatics Summit 2023
- APHA Summit and Expo 2023

### **Invited Talks**

- Podcast: AMIA as a Catalyst for Collaboration. AMIA, Aug 24, 2021
- Invited Talk: AI-based techniques for Combating Health Misinformation. Northwestern Mutual, Nov 23, 2021.
- Invited Talk: The impact of Artificial Intelligence on Human Society. Sociology Program, Behavioral Science Department. Utah Valley University. (April 13,2023)

## **DEPARTMENT/UNIVERSITY SERVICES**

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### **University of Southern Illinois Carbondale**

*Graduate Student Mentor*

Aug 2022 to Aug 2023

Fnu Muskan, Master Student of Health Administration

Ugochukwu G Ezigbo, Master Student of Health Informatics

*Student Scholarship Committee Chair*

Feb 2023 to March 2023

Health Care Management Program

School of Health Sciences

Program Director: Sandra Collins, PhD

*Master of Health Informatics Curriculum Specialist*

Dec 2022 to Feb 2023

Health Care Management Program

School of Health Sciences

Program Director: Sandra Collins, PhD

*Search Committee Member*

Nov 2022 to Jan 2023

- Health Care Management Program
- Dental Hygiene Program
- Radiology Sciences Program
- Occupational Therapy Doctorate Program

School of Health Sciences

School Director: Scott Collins, PhD

### **University of Wisconsin Milwaukee**

<i>Focus Group Facilitator -NCWIT-UWM</i> Computer Science Department Leader: Susan McRoy, PhD	March 2022
<i>Panther International Pals Mentor</i> International Student and Scholar Services Organizer: Ying Hu	Sep 2021 to May 2022
<i>Undergraduate Student Poster Competition Judge</i>	March 2019
<b>Middle Tennessee State University</b> <i>Outreach Director</i> Blue Spark-MT Entrepreneurs Jennings A. Jones College of Business President: Jessie Maggard, M.B.A.	Oct 2016 to May 2017
<i>Computer Lab Assistant</i> Department of Foreign languages and literatures Supervisor: Jun Da, Ph.D.	Jan 2017 to May 2017
<i>Chinese Tutor</i> Confucius Institute Director: Guanping Zheng, Ph.D.	Sep 2016 to May 2017
<b>North China University of Technology</b> <i>Associate Event Coordinator</i> College of Business Administration and Management	Sep 2012 to May 2014

## **FUNDING**

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### **Grant**

- US National Academy of Medicine, 2023 US NAM Catalyst Award Competition (Submitted)

### **Fellowship And Awards**

- 2022– 3rd UWM Graduate Student Award at Student Research Poster Competition
- 2022 – UWM Graduate Student Travel Award (\$250)
- 2022 – UWM Chancellor’s Graduate Student Award (\$2000)
- 2017-2018-UWM Chancellor’s Graduate Student Award (\$8000)
- 2016-2017 – MTSU International Achievement Scholarship (\$8000)
- 2015-2016 – MTSU 1st Place International Student Merit Scholarship (\$16000)
- 2014-2015 – NCUT 3rd Place Scholarship for Outstanding Student (¥ 2000)
- 2014-2015|2013-2014|2012-2013 NCUT 1st Place Academic Excellence Scholarship (¥ 1200)
- 2014-2015|2013-2014|2012-2013 NCUT 1st Place Thought and Morality Scholarship (¥ 1200)
- 2014-2015 NCUT 2nd Place Innovation and Social Practice Scholarship (¥ 800)
- 2013-2014|2012-2013 NCUT 3rd Place Innovation and Social Practice Scholarship (¥ 400)

# SKILLS

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## Technical Skills

- Programming languages: Python, Java
- Data Mining & Machine Learning: TensorFlow, Keras, Scikit-Learn, NumPy, Seaborn, Weka, LIME, SHAP, MATLAB
- Natural Language Processing: spaCy, NLTK, Word2Vec, GloVe
- Statistical Software: SPSS, MINITAB
- Prototyping: Figma
- Data Visualization: Tableau
- Database: Access, Oracle

## Soft Skills

- Interdisciplinary team collaboration
- Consulting/Strategy Analysis /Proposal
- Needs/Problem Identification
- System Troubleshooting
- Quality Control
- Motivation