

LU HE

Department of Informatics
Donald Bren School of Information and Computer Sciences
University of California, Irvine

lu.he@uci.edu
www.luheholly.com

EDUCATION

University of California, Irvine

- Ph.D. in Informatics, 2017–2023 (Expected)
- Dissertation: *Human-centered Computational Analysis of Health Texts: Applications, Challenges, and Opportunities*
- Committee: Kai Zheng PhD, FACMI (Chair), Yunan Chen PhD, Helen Ma MD

University of Minnesota, Twin Cities

- B.S. in Computer Science with Distinction, 2013–2017

HONORS AND AWARDS

- Graduate Student Consortium, Natural Language Processing Working Group, American Medical Informatics Association 2022 Annual Symposium (AMIA '22), 2022
- Second Place in Student Paper Competition, American Medical Informatics Association Annual Symposium (AMIA '22), 2022
- Graduate Dean's Dissertation Fellowship, University of California, Irvine, 2022
- Editor's Choice of Journal of American Medical Informatics Association (JAMIA), 2021
- Student Paper Competition Finalist, American Medical Informatics Association 2020 Annual Symposium (AMIA '20), 2020
- Best Poster Award, The 2019 Southern California Natural Language Processing Symposium (SoCal NLP '19), 2019
- Student Best Paper Nomination, The 2019 World Congress on Health and Biomedical Informatics (MedInfo '19), 2019
- CRA-W Grad Cohort Workshop Travel Award, Computing Research Association, 2018
- Graduate Dean Recruitment Fellowship, Department of Informatics, University of California, Irvine, 2017
- Dean's Award, Department of Informatics, University of California, Irvine, 2017
- Second Place in Student Paper Competition, American Medical Informatics Association 2017 Joint Summits, 2017
- Undergraduate Special Recognition, Department of German, Nordic, Slavic and Dutch, University of Minnesota, Twin Cities, 2014
- Maroon Global Excellence Scholarship, University of Minnesota, Twin Cities, 2013–2017
- Dean's List, University of Minnesota, Twin Cities, 2013–2016

PUBLICATIONS

Peer-Reviewed Journal Articles

- J.10 He C, **He L**, Lu Z, Li B. “I have to use my son’s QR code to run the business”: unpacking senior street vendors’ challenges in mobile money collection in China. *Proceedings of the ACM on Human-Computer Interaction, CSCW*. 2023. (in press)
- J.9 Griffin A, **He L**, Sunjaya A, King A, Khan Z, Douthit B, Nwadiugw M, Subbin V, Braunstein M, Nguyen V, Jaffe C, Schleyer T. Clinical, technical, and implementation characteristics of real-world health applications using FHIR. *Journal of American Medical Informatics Association Open*. 2022;5. DOI: 10.1093/jamiaopen/ooac077
- J.8 **He L**, Yin T, Zheng K. They may not work! An evaluation of eleven sentiment analysis tools on seven social media datasets. *Journal of Biomedical Informatics*. 2022;132:104142. PMID: 35835437
- J.7 **He L**, He C. Help me #DebunkThis: unpacking individual and community’s collaborative work in information credibility assessment. *Proceedings of the ACM on Human-Computer Interaction, CSCW*. 2022;6. DOI: 10.1145/3555138
- J.6 Su Z, **He L**, Jariwala SP, Zheng K, Chen Y. “What is your envisioned future?”: towards human-AI enrichment in data work of asthma care. *Proceedings of the ACM on Human-Computer Interaction, CSCW*. 2022;6. DOI: 10.1145/3555157
- J.5 He C, Liu H, **He L**, Lu T, Li B. More collaboration, less seriousness: investigating new strategies for promoting youth engagement in government-generated videos during the COVID-19 pandemic in China. *Computers in Human Behavior*. 2021;126. DOI: 10.1016/j.chb.2021.107019
- J.4 He C, **He L**, Lu T, Li B. Beyond entertainment: unpacking Danmaku and comments’ role of information sharing and sentiment expression in online crisis videos. *Proceedings of the ACM on Human-Computer Interaction, CSCW*. 2021;5. DOI: 10.1145/3479555
- J.3 **He L***, He C*, Reynolds TL, Bai Q, Huang Y, Li C, Zheng K, Chen Y. Why do people oppose mask wearing? A comprehensive analysis of US tweets during the COVID-19 pandemic. *Journal of American Medical Informatics Association*. 2021;28(7):1564–73. PMCID: PMC7989302 (* equal contribution) (**Editor’s Choice and Featured Article**)
- J.2 **He L**, Yin T, Hu Z, Chen Y, Hanauer DA, Zheng K. Developing a standardized protocol for computational sentiment analysis research using health-related social media data. *Journal of American Medical Informatics Association*. 2021;28(6):1125–34. PMCID: PMC8200276
- J.1 Ma H, Smith C.E, **He L**, Narayanan S, Giaquinto R.A, Evans R, Hanson L, Yarosh S. Write for life: persisting in online health communities through expressive writing and social support. *Proceedings of the ACM on Human-Computer Interaction, CSCW*. 2017;1. DOI: 10.1145/3134708

Peer-Reviewed Full-Length Conference Papers

- C.8 Guo Y, Zhu J, Huang Y, **He L**, He C, Li C, Zheng K. Public opinions toward COVID-19 vaccine mandates: a machine learning-based analysis of U.S. tweets. *American Medical Informatics Association Annual Symposium Proceedings*. 2022. (in press) (**Student Paper Competition Second Place**)
- C.7 **He L***, Song T*, Jiang Y, Yu P, Song L, Gong Y. To improve supportive care for patients taking oral anticancer agents. In: *Proceedings of the 2021 World Congress on Health and Biomedical Informatics (MEDINFO ’21)* 2021;290:547–51. PMID: 35673076 (* equal contribution)
- C.6 **He L**, He C, Wang Y, Hu Z, Zheng K, Chen Y. What do patients care about? Mining fine-grained patient concerns from online physician reviews through computer-assisted multi-level qualitative analysis. *American Medical Informatics Association Annual Symposium Proceedings*. 2020;544–53. PMCID: PMC8075539 (**Student Paper Competition Finalist**)

- C.5 **He L**, Zheng K. How do general-purpose sentiment analyzers perform when applied to health-related online social media data? In: Proceedings of the 2019 World Congress on Health and Biomedical Informatics (MEDINFO '19). 2019;1208–12. PMID: PMC8061710 (**Student Best Paper Nomination**)
- C.4 Shehada ER, **He L**, Eikey EV, Jen M, Wong A, Young S, Zheng K. Characterizing frequent flyers of an emergency department using cluster analysis. In: Proceedings of the 2019 World Congress on Health and Biomedical Informatics (MEDINFO '19). 2019;158–61. PMID: 31437905
- C.3 Chi C, **He L**, Ravvaz K, Weissert J, P. Tonellato. Optimized decision support rules of precision warfarin treatment. In: Proceedings of the 2018 Pacific Symposium on Biocomputing (PSB '18). 2018;23:412–23. PMID: 29218901
- C.2 Fan Y, **He L**, Zhang R. Evaluating automatic methods to extract patients' supplement use from clinical reports. In: Proceedings of the 2016 IEEE International Conference on Bioinformatics and Biomedicine (BIBM '16). 2016;1054–61. DOI: 10.1109/BIBM.2016.7822668
- C.1 Fan Y, **He L**, Pakhomov S, Melton G, Zhang R. Classifying supplement use status in clinical notes. The 2017 American Medical Informatics Association Joint Summits (AMIA Joint Summit '17). 2017;493–501. PMID: PMC5543386 (**Student Paper Competition Second Place**)

Extended Abstracts, Workshops, and Posters

- A.5 **He L**, Ma H, Moldenhauer M, Zheng K. Extracting clinical and non-clinical information from clinical notes for veterans with lymphoid malignancies with limited expert annotation to assist clinical research. American Medical Informatics Association Annual Symposium Proceedings. 2022. (in press) (Graduate Student Consortium)
- A.4 Griffin A, **He L**, Sunjaya A, King A, Khan Z, Douthit B, Nwadiugw M, Subbin V, Braunstein M, Nguyen V, Jaffe C, Schleyer T. Assessment of real-world health applications on FHIR. American Medical Informatics Association Annual Symposium Proceedings. 2022. (in press)
- A.3 **He L**, Cheng Y, Zhou T, Xian Y. Investigating the narratives of anti-Asian hate speech on Twitter during the COVID-19 pandemic. American Medical Informatics Association Annual Symposium Proceedings. 2021
- A.2 Goyal J, Ng DQ, Maddhuri J, Kumar AS, Jia S, **He L**, Wisseh C, Nguyen M, Lee J, McBane S, Zheng K, Hurley-Kim K, Nguyen Lee, Chan A, Cadiz CL. Predicting adverse drug events using the All of Us cohort data: a feasibility study. In: Proceedings of the 2021 American College of Clinical Pharmacy Annual Meeting (ACCP '21). 2021.
- A.1 Yin T, **He L**. Challenges of applying sentiment analysis on health-related social media data. The 2019 Southern California Natural Language Processing Symposium (SoCal NLP '19) (**Best Poster Award**)

Manuscripts in Progress

- P.1 Ye J*, **He L***, Beestrum M. Implications for implementation and adoption of telehealth in low-and-middle income countries during the COVID-19 pandemic: systematic review of China's practices and experiences. Journal of American Medical Informatics Association. (* equal contribution) (Major Revision and Resubmit)

GRANT PARTICIPATION

- 2208383 (Bradley, Tang), 06/01/2022–05/31/2023
NSF, \$255,990
STTR Phase I: An Integrated Biomedical Platform and Custom Algorithm to Optimize Feeding Protocols for Preterm Infants
Role: Graduate Student Research Assistant

- UCI Internal (Ma, Zheng), 02/01/2022–01/31/2023
UCI ICTS/VA Long Beach Informatics Pilot Award, \$50,000
Outcomes from the National Database of Lymphoid Malignancies in US Veterans Using Data from the Veterans Health Administration, the Largest Integrated Healthcare System.
Role: Contributed to grant proposal writing; Graduate Student Research Assistant
- OT2OD026552 (Ohno-Machado, Anton-Culver), 04/01/2018–03/31/2023
NIH Office of The Director, \$58,453,967
California Precision Medicine Research Program Consortium
Role: Graduate Student Research Assistant
- UCI Internal (Zheng), 06/01/2018–08/31/2018
Academic Senate Council on Research, Computing and Libraries (CORCL), \$3,500 (direct cost)
Developing a Domain-Specific Sentiment Analyzer for Studying Health-Related Social Media Data
Role: Contributed to grant proposal writing; Graduate Student Research Assistant

TALKS AND PRESENTATIONS

Invited Talks

- “*Characterizing Frequent Attenders of Emergency Department Using Cluster Analysis*”, Medical Intelligence and Innovation Institute (MI3), Children Hospital of Orange County (CHOC), Irvine, California, April 8, 2019

Conference Presentations

- “*Help Me #DebunkThis: Unpacking Individual and Community’s Collaborative Work in Information Credibility Assessment*,” The 25th ACM Conference On Computer-Supported Cooperative Work And Social Computing, Virtual Event, November 10, 2022
- “*Extracting Clinical and Non-clinical Information From Clinical Notes for Veterans with Lymphoid Malignancies with Limited Expert Annotation to Assist Clinical Research*,” Graduate Student Consortium, American Medical Informatics Association Annual Symposium 2022, Washington DC, November 5, 2022
- “*Investigating the Narratives of Anti-Asian Hate Speech on Twitter During the COVID-19 Pandemic*,” American Medical Informatics Association Annual Symposium 2021, San Diego, California, November 3, 2021
- “*What Do Patients Care About? Mining Fine-grained Patient Concerns from Online Physician Reviews Through Computer-assisted Multi-level Qualitative Analysis*,” American Medical Informatics Association Annual Symposium 2020, Virtual Event (Recorded, Co-present with Changyang He), November 16, 2020
- “*What Do Patients Care About? Mining Fine-grained Patient Concerns from Online Physician Reviews Through Computer-Assisted Multi-level Qualitative Analysis*,” American Medical Informatics Association Annual Symposium 2020, Student Paper Competition (Virtual Live Presentation), November 15, 2020
- “*Characterizing Frequent Attenders of Emergency Department Using Cluster Analysis*,” MedInfo 2019, Lyon, France, August 25, 2019
- “*How Do General-purpose Sentiment Analyzers Perform on Health-related Social Media Data?*” Med-Info 2019, Lyon, France, August 23, 2019

TEACHING EXPERIENCE

Instructor of Record

- ICS 33 Intermediate Programming, Summer 2022, Department of Informatics, Donald Bren School of Information and Computer Sciences, University of California, Irvine (Enrollment: 46)

Teaching Assistant

- INF 151 Project Management, Fall 2018, Department of Informatics, Donald Bren School of Information and Computer Sciences, University of California, Irvine
- CSci 1913 Introduction to Data Structures and Algorithms, Fall 2016 & Spring 2017, Department of Computer Science and Engineering, College of Science and Engineering, University of Minnesota, Twin Cities

Guest Lectures

- “*Human-centered Computational Analysis of Health Texts: Applications, Challenges, and Opportunities*,” School of Information, Florida State University, Tallahassee, Florida, November 15, 2022. Instructor: Dr. Zhe He
- “*Computational Analysis of Social Media Data for Health Research: Applications, Challenges, and Opportunities*,” Center for Digital Health and Analytics, University of Texas Health School of Biomedical Informatics, Houston, Texas, November 29, 2021. Instructor: Dr. Yang Gong
- “*Computational Analysis of Social Media Data for Health Research: Applications, Challenges, and Opportunities*,” Center for Digital Health and Analytics, University of Texas Health School of Biomedical Informatics, Houston, Texas, October 21, 2021. Instructor: Dr. Sahiti Myneni

MENTORING

- Tasmima Khan (Undergraduate, UCI, 4/2021–11/2021)
- Tingjue Yin (Undergraduate, UCI, 3/2019–6/2020) [A.1, J.2, J.8]
- Peilin Gan (Undergraduate, UCI, 1/2020–12/2020)
- Tianyang Zhou (Undergraduate, UCI, 3/2020–6/2020) [A.3]
- Xincheng Zhang (Undergraduate, UCI, 1/2020–6/2020)
- Ya Cheng (Undergraduate, UCI, 3/2020–6/2020) [A.3]
- Yongxu Xian (Undergraduate, UCI, 3/2020–6/2020) [A.3]
- Daniel Davies (Undergraduate, UCI, 1/2019–6/2019)
- Su In Lee (Undergraduate, I-SURF Program, 6/2019–12/2019)
- Yiji Bae (Undergraduate, I-SURF Program, 6/2019–12/2019)
- Joohee Kwon (Undergraduate, I-SURF Program, 6/2019–12/2019)
- Haotian Hu (Undergraduate, UCI, 10/2019–12/2019)

PROFESSIONAL SERVICE

Journal Editing

- Student Editorial Board Member, Journal of the American Medical Informatics Association (JAMIA), 2022–2024

Program Committee

- The 10th IEEE International Conference on Healthcare Informatics (ICHI '22), 2022

Reviewer

Journals

- Journal of Medical Internet Research (2019, 2020), BMC Medical Informatics and Decision Making (2020, 2021), Journal of Healthcare Informatics Research (2020, 2021), Journal of Biomedical Informatics (2021, 2022), IEEE Access (2022)

Conferences

- AMIA Annual Symposium (2018, 2019, 2020, 2021, 2022), AMIA Informatics Joint Summit (2019), CHI Late Breaking Work (2020), The Pacific Asia Conference on Information Systems (2021), CHI (2022, 2023 with 1 special recognition)

Volunteer

- AMIA Annual Symposium Student Volunteer, 2017, 2021
- AMIA Year-in-Review Student Working Group Volunteer, 2020
- Women in Academia Reading Group Organizer, 2020

MEDIA COVERAGE

- KXAN News: Do face masks work? Here are 49 scientific studies that explain why they do, December 2021
- Women in AMIA: AMIA as a Catalyst for Collaboration, August 2021

SKILLS

Research Methods

Qualitative Methods

- Interview, observational study, user study, grounded theory, wizard-of-oz

Quantitative Methods

- Survey, applied machine learning and deep learning, natural language processing, log analysis, social network analysis, statistical analysis (hypothesis testing, linear models, generalized linear models, longitudinal data analysis, linear mixed effect models, generalized estimating equation, survival analysis)

Programming Languages

- Python (proficient), R (medium), Matlab (medium), Java (medium), C/C++ (medium), SQL (medium), Lisp (familiar), Clojure (familiar), Go (familiar), Ruby (familiar)

Frameworks and Packages

- Python (scikit-learn, Numpy, Pandas, NLTK, Spacy, Gensim, Keras, PyTorch, Django, Tensorflow), R (ggplot, tidyverse, tidytext, dplyr, cluster, mltools, sna, igraph)

Databases

- MySQL, PostgreSQL

Languages

- Mandarin Chinese (Native), English (Full professional proficiency), Japanese (JLPT N3), German (Limited proficiency)

Last Updated: November 2022