

# Lu He

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Ph.D. Candidate  
Department of Informatics  
University of California, Irvine

## RESEARCH INTERESTS

Substantive: Health informatics, human-computer interaction, social media mining, health communication, computer-supported cooperative work (CSCW)

Methodological: Natural language processing, applied machine learning & deep learning, social network analysis, statistical analysis

## EDUCATION

2017-  
present      **University of California, Irvine**  
Ph.D. in Informatics  
Advisor: Kai Zheng, Ph.D.

2013-  
2017      **University of Minnesota, Twin Cities**  
Bachelor of Science with Distinction in Computer Science

## PUBLICATION

### Peer-reviewed Journals

- [J5]      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. Accepted to Computers in Human Behavior, to appear, 2021
- [J4]      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 Volume 5, CSCW (October 2021, forthcoming)
- [J3]      **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. J Am Med Inform Assoc. 2021. (\* equal contribution) PMID: [33690794](#)

### Editor's Choice & Featured

- [J2] **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. *J Am Med Inform Assoc*. 2021;28(6):1125–34. PMID: [33355353](#)
- [J1] 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 Volume 1, CSCW* (November 2017), 24 pages. DOI:<https://doi.org/10.1145/3134708>

#### Peer-reviewed Conference Proceedings

- [C7] **He L\***, Song T\*, Jiang Y, Yu P, Gong Y. To Improve Supportive Care for Patients Taking Oral Anticancer Agents. *Proceedings of the 2021 World Congress on Health and Biomedical Informatics* (Forthcoming, MEDINFO 2021). (\* equal contribution)
- [C6] **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. *AMIA Annu Symp Proc*. 2020;544–53. PMID: [33936428](#)

#### Student Paper Competition Finalist

- [C5] **He L**, Zheng K. How do general-purpose sentiment analyzers perform when applied to health-related online social media data? *Proceedings of the 2019 World Congress on Health and Biomedical Informatics* (MEDINFO 2019).

#### Student Best Paper Nomination

- [C4] 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 2019).
- [C3] Chi C, **He L**, Ravvaz K, Weissert J, P. Tonellato. Optimized Decision Support Rules of Precision Warfarin Treatment. *2018 Pacific Symposium on Biocomputing* (PSB 2018).
- [C2] Fan Y, **He L**, Zhang R. Evaluating Automatic Methods to Extract Patients' Supplement Use From Clinical Reports. *IEEE International Conference on Bioinformatics and Biomedicine* (BIBM 2017).
- [C1] Fan Y, **He L**, Pakhomov S, Melton G, Zhang R. Classifying Supplement Use Status in Clinical Notes. *2017 American Medical Informatics Association Joint Summits* (AMIA 2017).

#### 2nd Place in Student Paper Competition

**Extended abstracts, workshops, and posters**

- [A3] **He L**, Cheng Y, Zhou T, Xian Y. Investigating the Narratives of Anti-Asian Hate Speech on Twitter During the COVID-19 Pandemic. Podium Abstract accepted to AMIA Annu Symp Proc. 2021, to appear
- [A2] 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 2021)
- [A1] Yin, T, **He,L**. Challenges of applying sentiment analysis on health-related social media data. Southern California Natural Language Processing Symposium (SoCal 2019)

**Best Poster Award****EXPERIENCES (SELECTED)****2021 AMIA Workgroup Volunteer**

-present Advisor: Titus Schleyer, DMD, Ph.D.

Project: To conduct a comprehensive survey of the landscape of Fast Healthcare Interoperability Resources (FHIR) implementations.

**2020 Graduate Research Assistant**

-present Advisors: Caryn Bradley, PT, Ph.D., William Tang, Ph.D., Kai Zheng, Ph.D., Anton Palma, Ph.D.

Project: Working closely with researchers and practitioners in physical therapy, biomedical engineering, and biostatistics, I combine their medical knowledge to develop clinical algorithms to predict days to discharge for infants in Neonatal Intensive Care Unit (NICU) based on their feeding performance.

**2017 Graduate Research Assistant**

-present Department of Informatics, University of California, Irvine

Advisors: Kai Zheng, Ph.D., Yunan Chen, Ph.D.

Project 1: Conducted a systematic literature review on the use of computational tools for healthcare social media studies. Empirically evaluated the validity of tools. [C5, A1, J2]

Project 2: Characterized emergency department frequent attenders using cluster analysis. [C4]

Project 3: Developing computer-assisted qualitative analysis pipeline to extract useful information from free-text data. [C6]

Project 4: Analyzing public responses on social media to the COVID-19 pandemic. [J3, A3]

2018.6-9      **Bioinformatics Programmer**

Bakar Computational Health Sciences Institute (BCHSI),

University of California, San Francisco

Advisor: Gundolf Schenk, Ph.D.

Project: Developed test units for a program to identify Protected Health Information (PHI) in clinical notes. Improved the performance of the program to be able to run on 60 million notes.

**FELLOWSHIPS, HONORS & AWARDS**

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| 2021 | Editor's Choice of Journal of American Medical Informatics Association (JAMIA) [J3]                                  |
| 2020 | Student Paper Competition Finalist, American Medical Informatics Association Annual Symposium (AMIA 2020) [C6]       |
| 2019 | Best Poster Award (1/40), Southern California Natural Language Processing Symposium (SoCal 2019) [W1]                |
| 2019 | Student Best Paper Nomination, 2019 World Congress on Health and Biomedical Informatics (MedInfo '19) [C2]           |
| 2018 | CRA-W Grad Cohort Workshop, Computing Research Association   |
| 2017 | Graduate Dean Recruitment Fellowship, Department of Informatics, UC Irvine   |
| 2017 | Dean's Award, Department of Informatics, UC Irvine   |
| 2017 | 2nd Place in Student Paper Competition, 2017 American Medical Informatics Association Joint Summits (AMIA 2017) [C1] |
| 2014 | Undergraduate Special Recognition, Department of German, Nordic, Slavic and Dutch, University of Minnesota           |
| 2013 | Maroon Global Excellence Scholarship (four-year), University of Minnesota  |
| 2013 | Dean's List (three-year), University of Minnesota  |

**TEACHING**

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| 2018 | IN4MTX 151 (Project Management) |
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2017 CSci 1913 (Introduction to Algorithms and Data Structures)

## **SKILLS**

### **Research methods**

Qualitative

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

Quantitative

Applied machine learning & deep learning, natural language processing, social network analysis, statistical analysis, linear models, generalized linear models

### **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

### **Misc.**

LaTeX, Github, Jupyter Notebook, Amazon Web Services

### **Languages**

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

## **SERVICES**

### **Reviewer**

Conferences

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

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)

### **Volunteer**

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

## TALKS & PRESENTATIONS

### Invited Talks

2019.4.8 “Characterizing Frequent Attenders of Emergency Department Using Cluster Analysis”

*Medical Intelligence and Innovation Institute (MI3), Children Hospital of Orange County (CHOC)*

### Guest Lectures

2021.10.21 “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 (Host: Dr. Sahiti Myneni)*

### Conference Presentations

2021.11.3 Investigating the Narratives of Anti-Asian Hate Speech on Twitter During the COVID-19 Pandemic”

*AMIA Annual Symposium 2021, San Diego, California*

2020.11.16 “What Do Patients Care About? Mining Fine-grained Patient Concerns from Online Physician Reviews Through Computer-Assisted Multi-level Qualitative Analysis”

*AMIA Annual Symposium 2020, Virtual Event (Recorded, Co-present with Changyang He)*

2020.11.15 “What Do Patients Care About? Mining Fine-grained Patient Concerns from Online Physician Reviews Through Computer-Assisted Multi-level Qualitative Analysis”

*AMIA Annual Symposium 2020, Student Paper Competition (Virtual Live Presentation)*

2019.8.25 “Characterizing Frequent Attenders of Emergency Department Using Cluster Analysis”

*MedInfo 2019, Lyon, France*

2019.8.23 “How Do General-purpose Sentiment Analyzers Perform on Health-related Social Media Data?”

*MedInfo 2019, Lyon, France*

## **MEDIA COVERAGE**

2021.8      Women in AMIA: Episode 20 - AMIA as a Catalyst for Collaboration

## **MENTORING**

Tasmima Khan (Undergraduate, UCI, 2021.4-present)

Tingjue Yin (Undergraduate, UCI, 2019.3-2020.6) [A1, J2]

Peilin Gan (Undergraduate, UCI, 2020.1-2020.12)

Xinchen Zhang (Undergraduate, UCI, 2020.1-2020.6)

Tianyang Zhou (Undergraduate, UCI, 2020.3-2020.6) [A3]

Ya Cheng (Undergraduate, UCI, 2020.3-2020.6) [A3]

Yongxu Xian (Undergraduate, UCI, 2020.3-2020.6) [A3]

Daniel Davies (Undergraduate, UCI, 2019.1-2019.6)

Su In Lee (Undergraduate, I-SURF Program, 2019.6-2019.12)

Yiji Bae (Undergraduate, I-SURF Program, 2019.6-2019.12)

Joohee Kwon (Undergraduate, I-SURF Program, 2019.6-2019.12)

Haotian Hu (Undergraduate, UCI, 2019.10-2019.12)

Last Update: September 2021