

Ling Tong, PhD Candidate

Personal Website: <https://tongling.github.io>

Department of Health Informatics and Administration

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EDUCATION

PhD. Biomedical and Health Informatics, University of Wisconsin Milwaukee 2017 — 2022

Thesis: Transforming and Formalizing Electronic Health Records for Machine Learning Diagnostic Models

B.S. Computer Science, University of South China 2013 — 2017

Thesis: Classifying Weibo Tweets for Tracking Influenza

RESEARCH EXPERIENCE

Research Assistant, UWM Biodlp Lab (PI: Jake Luo) 2017 — 2022

- Data-driven predictive analysis using machine-learning algorithms such as data mining, natural language processing and knowledge representation and modelling.
- Discovering gaps between demographical, socioeconomic, and diagnostic factors from Electronic Health Records using Statistical Methods.

Research Assistant, University of South China 2015 – 2017

- I worked with Dr Lingyun Luo to develop experiment and design models provided for evaluating granularity balance of semantic relationships in medical terminology corpus.

TEACHING EXPERIENCE

Lecture Instructor: Computational Tools for Healthcare Professionals 2019 – 2022

- This lecture focused on healthcare introduction of computational tools for information management, including system architecture, process, and ethical concepts. The course incorporates training in Microsoft Excel application software.

Teaching Assistant, Health Big Data Processing Platforms. Instructor: Jake Luo 2018 Spring

- I helped students to deploy data analysis platform (Apache Spark), answer questions, and provide feedbacks.

PUBLICATIONS

1. Luo, J., **Tong, L.**, Crotty, B. H., Somai, M., Taylor, B., Osinski, K., & George, B. (2021). Telemedicine Adoption during the COVID-19 Pandemic: Gaps and Inequalities. *Applied Clinical Informatics*, 12(04), 836-844.
2. Anisuzzaman, D. M., Barzekar, H., **Tong, L.**, Luo, J., & Yu, Z. (2021). A deep learning study on osteosarcoma detection from histological images. *Biomedical Signal Processing and Control*, 69, 102931.
3. **Tong, L.**, Luo, J., Cisler, R., & Cantor, M. (2019, July). Machine learning-based modeling of big clinical trials data for adverse outcome prediction: A case study of death events. In *2019 IEEE 43rd Annual Computer Software and Applications Conference (COMPSAC)* (Vol. 2, pp. 269-274). IEEE.
4. Luo, L., **Tong, L.**, Zhou, X., Mejino Jr, J. L., & Liu, Y. (2017). Evaluating the granularity balance of hierarchical relationships within large biomedical terminologies towards quality improvement. *Journal of biomedical informatics*, 75, 129-137.
5. **Ling Tong**, Jake Luo, Xiaoyu Liu, David Friedland, Using Clustering-Aided Approach to support a better diagnosis prediction: A case study of elderly fall, *2022 IEEE 46th Annual Computer Software and Applications Conference (COMPSAC)*. IEEE.
6. Thomas, A., Flanary, V., Friedland, D. R., Adams, J. A., **Tong, L.**, Osinski, K., & Luo, J. (2021). The impact of social determinants of health and clinical comorbidities on post-tympanotomy tube otorrhea. *International Journal of Pediatric Otorhinolaryngology*, 110986.
7. Shane W. White, Jonathan M. Bock, Joel H. Blumin, David R. Friedland, Jazzmyne A. Adams, **Ling Tong**, Kristen Osinski, Jake Luo. (2021). Analysis of socioeconomic factors in laryngology clinic utilization for treatment of dysphonia, *Laryngoscope Investigative Otolaryngology*.
8. **Tong, L.**, Hernandez, L. V., & Luo, J. (2020). 41 Predicting Gastrointestinal (Gi) Hemorrhage Using A Machine Learning Approach: Risk Factors And Predictive Analysis In Clinical Studies. *Gastroenterology*, 158(6), S-16.
9. **Tong, L.**, Hernandez, L. V., Cofino, J., Johannessen, J. O., Guda, N. M., & Luo, J. (2020). Tu1981: Association modeling between patients' age and complication rate for endoscopic procedures.
10. Poetker, D. M., Friedland, D. R., Adams, J. A., **Tong, L.**, Osinski, K., & Luo, J. (2021). Socioeconomic Determinants of Tertiary Rhinology Care Utilization. *OTO open*, 5(2), 2473974X211009830.
11. Ye Xiao, **Ling Tong**, Construction and Application of Chinese-English Bilingual Corpus for Traditional Chinese Medicine Terminologies. (Chinese) *Modern Linguistics*, 2019, 7(2): 207-211.
doi.org/10.12677/ML.2019.72027
12. Hernandez, L., **Tong, L.**, Cofino, J., Johannessen, J. O., Guda, N. M., Muddana, V., & Luo, J. (2020). Tu1058 Association Between Attending Endoscopists' experience And Complication Rates for All Endoscopic Procedures: A 10-Year Longitudinal Study. *Gastrointestinal Endoscopy*, 91(6), AB525.

SUBMITTED MANUSCRIPTS

1. **Ling Tong**, Jake Luo, Jazzmyne Adams, Kristen Osinski, Xiaoyu Liu, David Friedland, Interpretable Machine Learning Text Classification for CT reports – A Case Study of Temporal Bone Fracture,
2. Xiaoyu Liu, **Ling Tong**, Lei Yao, Susan Mcroy, AI-based Techniques for Combating Health Misinformation: A Systematic Review
3. **Ling Tong**, Masoud Khani, Jake Luo, Multi-class Image Classification of Diabetic Retinopathy Using Neural Networks
4. Disparities in Telemedicine Adoption: Patient Characteristics and Remote Oncology Care During the COVID-19 Pandemic.
5. Obesity, a Risk Factor of COVID-19 Severity: Evaluation of Mortality and Adverse Outcomes Among Diagnosed Patients

INVITED REIVEWS AS A REFEREE

1. M-CSAFN: Multi-color Space Adaptive Fusion Network for Automated Port-wine Stains Segmentation, Jinrong Mu, Yucong Lin*, Xianqi Meng, Jingfan Fan, Danni Ai, Defu Chen, Haixia Qiu, Jian Yang, Ying Gu. IEEE Journal of Biomedical and Health Informatics. 2022.
2. Jung, E., Jain, H., Sinha, A. P., & Gaudioso, C. (2021). Building a specialized lexicon for breast cancer clinical trial subject eligibility analysis. Health Informatics Journal, 27(1), 1460458221989392.
3. Kreimeyer, K., Dang, O., Spiker, J., Muñoz, M. A., Rosner, G., Ball, R., & Botsis, T. (2021). Feature Engineering and Machine Learning for Causality Assessment in Pharmacovigilance: Lessons Learned from Application to the FDA Adverse Event Reporting System. Computers in Biology and Medicine, 104517.
4. Shikha Dhyani, Adesh Kumar, Sushabhan Choudhury, Arrhythmia Disease Classification Utilizing ResRNN, Biomedical Signal Processing and Control. 2022.
5. Factors Associated With the Utilization of Outpatient Virtual Clinics: Retrospective Observational Study Using Multilevel Analysis, Yun-Hsuan Tzeng , Wei-Hsian Yin , Kuan-Chia Lin , Jeng Wei , Hao-Ren Liou , Hung-Ju Sung , Hui-Chu Lang, Journal of Medical Internet Research, 2022.
6. Home Monitoring Programs for Patients Testing Positive for SARS-CoV-2: An Integrative Literature Review, Applied Clinical Informatics. 2022.
7. Evaluating the Workflow and Usability Impacts of AI Imaging Diagnostic Medical Decision Support Systems In Radiology: a Research Study Protocol, David Hua et al, AMIA 2022 Annual Symposium
8. Linking Network Camera Data and Pedestrian Simulations to Analyze Infection Risk in Crowded Locations, Kavya Karnati et al., AMIA 2022 Annual Symposium
9. Identifying Cancer Symptoms in Clinical Notes Using Natural Language Processing, Stephaniea Gilbertson-White et al, AMIA 2022 Annual Symposium
10. Flasch, Kevin, "Predicting Occurrence of the Term Sarcopenia with Semi-Supervised Machine Learning" (2021). Thesis. University of Wisconsin Milwaukee Library, 2782.
11. Ahmet Reşit KAVSAOĞLU,(2022) A Novel Study to Classify Breath Inhalation and Breath Exhalation Using Audio Signals from Heart And Trachea. Biomedical Signal Processing and Control.

12. Ferreira, R. C., Torres, T. S., Ceccato, M. D. G. B., Bezerra, D. R., Thombs, B. D., Luz, P. M., & Harel, D. (2022). Development and Evaluation of Short-Form Measures of the HIV/AIDS Knowledge Assessment Tool Among Sexual and Gender Minorities in Brazil: Cross-sectional Study. *JMIR Public Health and Surveillance*, 8(3), e30676.

INVITED PRESENTATIONS

1. **Ling Tong**, Jake Luo, Jazzmyne adams, Kristen Osinski, Xiaoyu Liu, David Friedland, A Clustering-Aided Approach for Diagnosis Prediction: A Case Study of Elderly Fall. (2022) IEEE 46th Annual Computers, Software, and Applications Conferences COMPSAC.
2. **Ling Tong**, Predicting the Clinical Outcomes from Clinical Trial Data using Machine Learning, presenting at 2019 Health Research Symposium at University of Wisconsin Milwaukee.
3. **Ling Tong**, Jake Luo, Ron Cisler, Michael N. Cantor, Machine Learning-based Prediction of Death Events in Clinical Studies Using Big Clinical Trial Data, In 2019 IEEE 43rd Annual Computer Software and Applications Conference (COMPSAC)
4. **Ling Tong**, Jake Luo, From Phone to Medical Database: An Automatic Document Processing System for Clinical Laboratory Test, Presenting at 2019 Research Poster Competition, University of Wisconsin Milwaukee.
5. Neil K. Osafo, BS; David R. Friedland, MD, PhD; Michael S. Harris, MD; Jazzmyne Adams, MPH; Chasity Davis; **Ling Tong**; Jake Luo, PhD, Standardization of Outcome Measures for Intratympanic Steroid Treatment for Idiopathic Sudden Sensorineural Hearing Loss (podium), Combined Otolaryngology Specialties Meeting (COSM), Dallas, TX, 04/27/2022 - 05/01/2022
6. Erin Harvey, MD; Katarina Stark, BS; David R. Friedland, MD, PhD; Jazzmyne A. Adams, Michael S. Harris, MD, **Ling Tong** MS, Jake Luo PhD, Impact of Demographics and Clinical Features on Initial Treatment Decision Making in Vestibular Schwannoma, 57th Annual Ans Spring Meeting, Dallas, TX, 04/29/2022 - 05/01/2022
7. **Ling Tong**, Jake Luo, Ron Cisler, Michael N. Cantor, Machine Learning-based Prediction of Death Events in Clinical Studies Using Big Clinical Trial Data, 2018 Health Research Symposium University of Wisconsin Milwaukee.

WORK EXPERIENCES

Data Analysis Engineer: I worked part-time on data analysis, visualizations, and development of predictive model for [DNC project](#): A Big Data Lens on the Elections. PI: Purushottam Papatla
 We tracked the major issues engaging both candidates and voters in the 2020 US election cycle.
 We applied a social curation technique to multiple sources of data ranging from traditional political polls and debate transcripts to political advertising and social media dialogue.

Test Engineer – Software Test Center of Hunan Province, China

June 2016

- (1) Automated test script and performance analysis by document management tool

- (2) Git: Conducting corresponding use-case testing and defects maintenance work.

Intern: Front End Developer -ZTEICT Network Technology Co LTD, China

June 2015

- Big data analysis of weather system in “Digital Hengyang” Projects
- Fundamentals and deployment of Hadoop Distributed File system

STUDENTS MENTORED

Ms Navagally, Sneha. Medical College of Wisconsin.

2021 - 2022

Mr Khani, Masoud. Center for Biomedical Data and Language Processing Lab. University of Wisconsin Milwaukee

2021 - 2022

AWARDS AND FELLOWSHIP

Chancellor’s Graduate Student Awards by University of Wisconsin Milwaukee (\$8,000)

2017 - 2019

Hunan Province Undergraduate Student Research and Innovative experiment Project (\$10,000)

2016 - 2017

CERTIFICATES

Basic Life Support Provider – Authorized by American Heart Association

2022

Certified Medical Coder - American Association of Professional Coders (AAPC)

2022

Professional Data analytics – Google’s Professional Certificate

2019

Member - American Medical Informatics Association

2019

Data Science Specialization - Coursera

2017

Member – IEEE (Institute of Electrical and Electronics Engineers)

2017

REFERENCES

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