

EMPLOYMENT

Assistant Professor	Area of Information Systems and Quantitative Sciences, Rawls College of Business, Texas Tech University	Lubbock, TX	Aug. 2019 – Present
Research Associate	Artificial Intelligence Lab, University of Arizona	Tucson, AZ	Aug. 2014 – May 2019

EDUCATION

Doctor of Philosophy (Ph.D.)	Major: Management Information Systems Minor: Computational Linguistics	University of Arizona	2014-2019
Bachelor of Science (B.S.)	Major: Management Information Systems Minor: Computer Science	Tsinghua University	2010-2014

RESEARCH INTERESTS

Applications: Mobile Health Analytics – Precise, prompt, and personalized healthcare based on sensor technologies
Business Analytics – Knowledge discovery for social media, e-commerce, and cybersecurity applications

Methods: Data mining, deep learning, text mining

DISSERTATION

Title: Mobile Health Analytics for Senior Care: A Data Mining and Deep Learning Approach

Committee Members: Dr. Hsinchun Chen (Chair), Drs. Sue Brown, Jay Nunamaker, and Daniel Zeng (Members)

Dissertation Summary: Senior citizens face many challenges to their independent living, including a decline in mobility and chronic conditions. Although there have been clinical assessment tools aiming at providing interventions to alleviate condition threats, such approaches require physicians' involvement. With the advance of mobile sensing technologies, wearable sensors have emerged to provide precise, prompt, and personalized assessment for falls and other conditions. Medical professionals and information systems (IS) researchers have sought to apply data mining techniques to develop more effective risk assessment systems. Given the societal importance of senior care, my dissertation aims to address the following four research questions:

- How can we detect senior citizens' adverse events to alleviate consequences?
- How can we assess senior citizens' health risks to provide proper interventions?
- How can we leverage multiple sources of sensor data to provide more holistic care?
- How can we monitor senior citizens' health progression to provide more personalized care?

JOURNAL PUBLICATIONS

1. **Yu, S.**, Chen, H., & Brown, R. (2018). Hidden Markov Model-Based Fall Detection with Motion Sensor Orientation Calibration: A Case for Real-Life Home Monitoring. *IEEE Journal of Biomedical and Health Informatics (JBHI)*, 22(6), 1847-1853.
2. **Yu, S.**, Zhu, H., Jiang, S., Zhang, Y., Xing, C., & Chen, H. (2019). Emoticon Analysis for Chinese Social Media and E-commerce: The AZemo System. *ACM Transactions on Management Information Systems (TMIS)*, 9(4), 16.
3. Samtani, S., **Yu, S.**, Zhu, H., Patton, M., Matherly, J., & Chen, H. (2018). Identifying Supervisory Control and Data Acquisition (SCADA) Devices and their Vulnerabilities on the Internet of Things (IoT): A Text Mining Approach. *IEEE Intelligent Systems*, 33(2), 63-73.
4. Samtani, S., Zhu, H., & **Yu, S.** (2019). Fear Appeals and Information Security Behaviors: An Empirical Study on Mechanical Turk. *AIS Transactions on Replication Research (TRR)*, 5(5), 1-22.

JOURNAL PUBLICATIONS UNDER REVIEW

1. **Yu, S.**, Chen, H., Sherman, S., & Brown, R. Motion Sensor-Based Health Condition Risk and Severity Assessment: A Deep Multi-Source Multi-Task Learning Approach. **Revise and Resubmit at** *Management Information Systems Quarterly (MISQ)*.

2. Chai, Y., **Yu, S.**, Samtani, S., Liu, H., & Chen, H. Motion Sensor-Based Fall Prediction and Detection: A Hidden Markov Model and Generative Adversarial Network Approach. **Revise and Resubmit at *Information Systems Research (ISR)*.**

WORKING JOURNAL PAPERS

1. **Yu, S.**, Chen, H., Brown, R., & Sherman, S. Risk Prediction for Mobile Health: A Deep Learning Approach. **Targeted at *Journal of Management Information Systems (JMIS)*.**
2. **Yu, S.**, & Chen, H. Motion Sensor-Based Health Profiling for Senior Care: Adaptive Time-aware Convolutional Long Short Term Memory (ATCLSTM). **Targeted at *Journal of Management Information Systems (JMIS)*.**

REFEREED CONFERENCE PROCEEDINGS (* indicates that I was the presenting author)

1. ***Yu, S.**, Chen, H., Brown, R., & Sherman, S. (2018, June). Motion Sensor-Based Assessment on Fall Risk and Parkinson's Disease Severity: A Deep Multi-source Multi-task Learning (DMML) Approach. *Proceedings of 2018 IEEE International Conference on Health Informatics (ICHI)*. New York City, NY.
2. Maimoon, L., Chuang, J., Zhu, H., **Yu, S.**, Peng, K. S., Prayakarao, R., Bai, J., Zeng, D., Li, H., Lu, H., & Chen, H. (2016, December). SilverLink: Developing an International Smart and Connected Home Monitoring System for Senior Care. *Proceedings of 2016 International Conference on Smart Health (ICSH)*. Haikou, China.
3. ***Yu, S.**, & Chen, H. (2016, November). Fall Detection with Orientation Calibration Using a Single Motion Sensor. *Proceedings of 2016 International Conference on Wireless Mobile Communication and Healthcare (MobiHealth)*. Milan, Italy.
4. Samtani, S., **Yu, S.**, Zhu, H., Patton, M., & Chen, H. (2016, September). Identifying SCADA Vulnerabilities using Passive and Active Vulnerability Assessment Techniques. *Proceedings of 2016 IEEE Conference on Intelligence and Security Informatics (ISI)*. Tucson, AZ.
5. Chuang J., Maimoon L., ***Yu, S.**, Zhu, H., Nybroe, C., Hsiao, O., Li, H., Lu, H., & Chen, H. (2015, November). SilverLink: Smart Home Health Monitoring for Senior Care. *Proceedings of 2015 International Conference on Smart Health (ICSH)*. Phoenix, AZ.
6. ***Yu, S.**, Zhu, H., Jiang, S., & Chen, H. (2014, July). Emoticon Analysis for Chinese Health and Fitness Topics. *Proceedings of 2014 International Conference on Smart Health (ICSH)*. Beijing, China.

GRANT WRITING EXPERIENCE

1. **Year:** 2018 (December). **Funding Source:** National Science Foundation. **Grant Title:** SCH: INT: Deep Learning-based Mobile Analytics and Health Technology Acceptance Model for Chronic Care: A Case for Parkinson's Disease Risk Assessment. **Funding Amount:** \$1M. **Status:** Rejected; Not Competitive. **Role:** Primary Grant Writer.
2. **Year:** 2018 (June). **Funding Source:** National Science Foundation. **Grant Title:** SCH: INT: Deep Learning-based Mobile Analytics and Health Technology Acceptance Model for Chronic Care: A Case for Parkinson's Disease Risk Assessment. **Funding Amount:** \$1M. **Status:** Rejected; Low Competitive. **Role:** Primary Grant Writer.
3. **Year:** 2017. **Funding Source:** National Science Foundation. **Grant Title:** STTR Phase II: Advanced Analytics for Health Progression Monitoring and Fall Detection in a Novel Home Health Monitoring System. **Funding Amount:** \$750,000. **Status:** Rejected. **Role:** Assisting Grant Writer.
4. **Year:** 2016. **Funding Source:** National Science Foundation. **Grant Title:** STTR Phase I: Advanced Analytics for Health Progression Monitoring and Fall Detection in a Novel Home Health Monitoring System. **Funding Amount:** \$225,000. **Status:** Awarded. **Role:** Assisting Grant Writer.

INVITED TALKS AND EXTERNAL PRESENTATIONS

1. University of Texas at Austin. **Presentation Title:** Fall Risk Prediction with Mobile Health Analytics: A Deep Learning Approach. Austin, TX. November 14, 2018.
2. Texas Tech University. **Presentation Title:** Fall Risk Prediction with Mobile Health Analytics: A Deep Learning Approach. Lubbock, TX. October 26, 2018.

3. Florida State University. **Presentation Title:** Fall Risk Prediction with Mobile Health Analytics: A Deep Learning Approach. Tallahassee, FL. October 11, 2018.
4. University of Arizona, Bio5 Wearables Workshop. **Poster Title:** Fall Detection with Orientation Calibration Using a Single Motion Sensor. Tucson, AZ. August 12, 2016.
5. University of Arizona, UA – Tsinghua University Business Analytics Workshop. **Presentation Title:** Emoticon Analysis for Chinese Social Media: The AZEmo System. Tucson, AZ. May 19 – 21, 2015.
6. University of Arizona, UA – Tsinghua University Business Analytics Workshop. **Presentation Title:** Emoticon Analysis for Chinese E-Commerce Websites. Beijing, China. May 5 – 7, 2014.

TEACHING EXPERIENCE

Lecturer	MIS 111: Computers and the Interneted Society Class Size: 24 Overall Teaching Effectiveness: 4.32 / 5.00	University of Arizona	Summer 2017
Certificate	Certificate in College Teaching 10-credit-hour certificate in learner-centered teaching	University of Arizona	Fall 2017

PROFESSIONAL SERVICE

1. **Reviewer** – Workshop on Information Technology and Systems (WITS), 2019, Munich, Germany.
2. **Reviewer** – *Electronic Commerce Research and Applications*, 2019.
3. **Reviewer** – International Conference on Information Systems (ICIS), 2019, Munich, Germany.
4. **Reviewer** – International Conference on Design Science Research in Information Systems and Technology (DESRIST), 2019, Worcester, MA.
5. **Reviewer** – *Electronic Commerce Research*, 2018.
6. **Reviewer** – INFORMS Workshop on Data Science, 2018, Lausanne, Switzerland.
7. **Reviewer** – International Conference on Smart Health (ICSH), 2018, Wuhan, China.
8. **Reviewer** – International Conference on Information Systems (ICIS), 2017. Seoul, Korea.
9. **Volunteer** – IEEE Intelligence and Security Informatics (ISI), 2016. Tucson, AZ.

AWARDS

1. INFORMS Information Systems Society (ISS) Nunamaker-Chen Dissertation Award (NCDA), Third Runner-up. 2019.
2. International Conference on Information Systems (ICIS) Doctoral Consortium Fellow. 2018.
3. Conference on Health IT and Analytics (CHITA) Doctoral Consortium Fellow. 2018.
4. Americas Conference on Information Systems (AMCIS) Doctoral Consortium Fellow. 2018.
5. University of Arizona, Nunamaker-Chen Doctoral Student Scholarship. 2014.

PROFESSIONAL AFFILIATIONS

1. Association for Information Systems (AIS), Student Member
2. Institute for Operations Research and the Management Sciences (INFORMS), Student Member

RELEVANT TECHNICAL SKILLS

1. **Databases:** Oracle, MySQL, MongoDB
2. **Programming Languages:** Python, Java, C++, R
3. **Deep Learning Programming Frameworks:** TensorFlow, Keras
4. **Data Mining Tools:** Scikit-learn, Weka
5. **Motion Sensor Data Collection:** Specialized Platforms (e.g., SilverLink), iOS, Android

PROFESSIONAL REFERENCES

1. Hsinchun Chen, Ph.D. (Dissertation Committee Chair)

Regents' Professor and Thomas R. Brown Chair of Management and Technology

Director, Artificial Intelligence Lab

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2. Susan A. Brown, Ph.D. (Dissertation Committee Member)

APS Professor of MIS

Management Information Systems Department Head

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3. Jay F. Nunamaker Jr., Ph.D. (Dissertation Committee Member)

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