Jason Lin

CONTACT

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RESEARCH INTERESTS

Document Analysis, Mathematical Language Processing, Geospatial Intelligence, Quantum Cryptography

EDUCATION

Texas A&M University, College Station, TX   May 2020 (Expected)

Ph.D. in Computer Science and Engineering

- Dissertation: *"Modeling of Reasoning Flows in Scientific Publications"*
- Advisor: Dr. Jyh-Charn (Steve) Liu

National Cheng Kung University, Tainan, Taiwan   Jun. 2011

M.S. in Computer Science and Information Engineering

- Thesis: *"Quantum Secret Sharing Protocols"*
- Advisor: Dr. Tzonelih Hwang
- GPA: 92/100

Feng Chia University, Taichung, Taiwan   Jun. 2009

B.S. in Information Engineering and Computer Science

- Project: *"A New Secure Data Hiding Scheme by Using a Secret Location Map"*
- Advisor: Dr. Wei-Bin Lee, Dr. Tung-Shou Chen
- GPA: 3.8/4.0

PROFESSIONAL EXPERIENCES

Real Time Distributed Systems Laboratory (RTDS), Texas A&M University   Aug. 2013 – Present

Graduate Research Assistant

- Mathematical Expression Content Analysis Software
  - Developed a graphic organizer system of mathematical expressions and their physical semantics in PDF documents.
- Probabilistic Forecast Tracking and Calibration Software System
  - Developed a web application to help users measure and improve their ability to assess uncertainty.
- 3D Multi-view Geographic Information Systems
  - Design and implement a DBMS with PostgreSQL to manage and handle multiple-user positioning on Google map API requested from different Microsoft HoloLens devices.

- MECH: Algorithms and Tools for Automated Assessment of Potential Attack Locations
  - Model the tactical behavior (Monitor, Emplacement, and Control in a Halo) in asymmetric warfare based on their perception of environmental elements and conflict events.

Department of Computer Science and Engineering, Texas A&M University   Sep. 2014 – Present

Graduate Teaching Assistant

- CSCE-121: Introduction to Program Design and Concepts (Fall 2018) (Spring 2019) (Fall 2019)
  - Guiding students in lab activities using C++, grading exams, and hosting office hours.
- CSCE-221: Data Structures and Algorithms (Spring 2016)
  - Work with students in lab activities to implement data structures using C++ and provide students assistance in final projects.
- CSCE-411/629: Design and Analysis of Algorithms (Spring 2015) (Fall 2015)
  - A methodology course in understanding the techniques such as dynamic programming and greedy approach to deal with algorithmic problems.
- CSCE-222: Discrete Structures for Computing (Fall 2014)
  - Duties included creating homework solutions in LaTeX, grading assignments, and hosting office hours to help students in discrete mathematics.

PROGRAMMING SKILLS

General-purpose Programming: C, C++, Java, Python

Relational Database: PostgreSQL, MySQL

Web Development: HTML, CSS, JavaScript, Django

Numerical Computing: MATLAB

REFEREED PUBLICATIONS

1. **J. Lin**, X. Wang, Z. Wang, D. Beyette, and J.-C. Liu, "Prediction of mathematical expression declarations based on spatial, semantic, and syntactic analysis," *Proceedings of the 19th ACM Symposium on Document Engineering,* Berlin, Germany, Sept. 23-26, 2019.
2. D. Beyette, Z. Wang, **J. Lin**, and J.-C. Liu, "Semi-automatic LaTeX-based labeling of mathematical objects in PDF documents: MOP data set," *Proceedings of the 19th ACM Symposium on Document Engineering*, Berlin, Germany, Sept. 23-26, 2019.
3. Z. Wang, D. Beyette, **J. Lin**, and J.-C. Liu, "Extraction of math expressions from PDF documents based on unsupervised modeling of fonts," *Proceedings of the 15th International Conference on Document Analysis and Recognition*, Sydney, Australia, Sept. 20-25, 2019.
4. D. Beyette, M. Rugh, **J. Lin**, X. Wang, Z. Wang, J.-C. Liu, and R. Capraro, "DIME: A dynamic interactive mathematical expression tool for STEM education," *Proceedings of the 126th ASEE Annual Conference and Exposition*, Tampa, Florida, June 16-19, 2019.
5. S.-H. Kao, **J. Lin**, C.-W. Tsai, and T. Hwang, "An improved protocol for controlled deterministic secure quantum communication using five-qubit entangled state" *International Journal of Theoretical Physics*, Vol. 57, No 6, pp. 1894-1902, Mar 2018.

6.   **J. Lin**, X. Wang, and J.-C. Liu, "Prediction of mathematical expression constraints (ME-Con)," *Proceedings of the 18th ACM Symposium on Document Engineering*, Halifax, Nova Scotia, Canada, Aug. 28-31, 2018.

7.   X. Wang, **J. Lin**, R. Vrecenar, and J.-C. Liu, "QuQn Map: Qualitative-Quantitative mapping of scientific papers," *Proceedings of the 18th ACM Symposium on Document Engineering*, Halifax, Nova Scotia, Canada, Aug. 28-31, 2018.

8.   X. Wang, **J. Lin**, R. Vrecenar, and J.-C. Liu, "Syntactic role identification of mathematical expressions," *Proceedings of the Twelfth International Conference on Digital Information Management*, pp. 179-184, Fukuoka, Japan, Sept 12-14, 2017.

9.   C.-W. Tsai and **J. Lin**, "Fault-tolerant remote quantum entanglement establishment for secure quantum communications," *International Journal of Theoretical Physics*, Vol. 55, No. 7, pp. 3200-3206, July 2016.

10. **J. Lin**, X. Wang, B. Qu, S. George, and J.-C. Liu, "Strategic planning and tactical situational awareness using MECH," *Proceedings of the 20th International Command and Control Research and Technology Symposium*, Annapolis, Maryland, June 16-19, 2015.

11. X. Wang, **J. Lin**, S. George, and J.-C. Liu, "DT-GIS system for tactical pattern exploration in asymmetric conflicts," *Proceedings of the 20th International Command and Control Research and Technology Symposium*, Annapolis, Maryland, June 16-19, 2015.

12. X. Wang, S. George, **J. Lin**, and J.-C. Liu, "Quantifying tactical risk: A framework for statistical classification using MECH," *Proceedings of the 8th International Conference on Social Computing, Behavior-Cultural Modeling and Prediction*, Washington, D.C., LNCS Vol. 9021, pp. 446-451, Mar 31-Apr 3, 2015.

13. **J. Lin**, B. Qu, X. Wang, S. George, and J.-C. Liu, "Risk management in asymmetric conflict: using predictive route reconnaissance to assess and mitigate threats," *Proceedings of the 8th International Conference on Social Computing, Behavior-Cultural Modeling and Prediction*, Washington, D.C., LNCS Vol. 9021, pp. 350-355, Mar 31-Apr 3, 2015.

14. J. Chen, T.-S. Chen, C. Lin, S.-Y. Chen, and **J. Lin**, "A simple JPEG-LS compressed technique for 2DGE image with ROI emphasis", *The Imaging Science Journal*, Vol. 63, No. 2, pp. 76-80, Feb 2015.

15. **J. Lin**, C.-W. Yang, and T. Hwang, "Quantum private comparison of equality protocol without a third party," *Quantum Information Processing*, Vol. 13, No. 2, pp. 239-247, Feb 2014.

16. **J. Lin** and T. Hwang, "Bell state entanglement swappings over collective noises and their applications on quantum cryptography," *Quantum Information Processing*, Vol. 12, No. 2, pp.1089-1107, Feb 2013.

17. **J. Lin** and T. Hwang, "New circular quantum secret sharing for remote agents," *Quantum Information Processing*, Vol. 12, No. 1, pp. 685-697, Jan 2013.

18. **J. Lin**, C.-W. Yang, C.-W. Tsai, and T. Hwang, "Intercept-resend attacks on semi-quantum secret sharing and the improvements," *International Journal of Theoretical Physics*, Vol. 52, No. 1, pp. 156-162, Jan 2013.

19. H.-Y. Tseng, **J. Lin**, and T. Hwang, "New quantum private comparison protocol using EPR pairs," *Quantum Information Processing*, Vol. 11, No. 2, pp. 373-384, Apr 2012.

20. **J. Lin**, H.-Y. Tseng, and T. Hwang, "Intercept-resend attacks on Chen et al.'s quantum private comparison protocol and the improvements," *Optics Communications*, Vol. 284, No. 9, pp. 2412-2414, May 2011.

21. **J. Lin** and T. Hwang, "An enhancement on Shi et al.'s multiparty quantum secret sharing protocol," *Optics Communications*, Vol. 284, No. 5, pp. 1468-1471, Mar 2011.

22. C.-N. Lin, C.-C. Chang, W.-B. Lee, and **J. Lin**, "A novel secure data hiding scheme using a secret reference matrix," *Proceedings of the Fifth International Conference on Intelligent Information Hiding and Multimedia Signal Processing*, Kyoto, Japan, pp. 369-373, Sept 12-14, 2009.

HONORS

2019: Graduate Student Travel Award

2019: ACM DocEng Best Student Paper Award

2015: SBP Student Travel Award

2010: National Finalist, Microsoft Imagine Cup, Creative Digital Group

2009: First Prize Award, Chunghwa Telecom Innovation & Application Contest, MOD Group

PROFESSIONAL SERVICES

2019 – Present: Reviewer, Modern Physics Letters A

2012 – 2019: Reviewer, Quantum Information Processing

2015 – 2016: Reviewer, International Journal of Theoretical Physics

GRANTS

"Timing Intrusion Management Ensuring Resiliency (TIMER)"
- DOE, Jyh-Charn Liu (Co-PI), 2016-2019, $4.4 million.

"Probabilistic Forecast Tracking and Calibration Software System"
- Apache Corporation, Jyh-Charn Liu (Co-PI), 2017-2018, $112k.

"Context-Aware Mission Auditing System"
- AFRL, Jyh-Charn Liu (PI), 2016-2017, $35k.

"MECH: Algorithms and Tools for Automated Assessment of Potential Attack Locations"
- ONR, Jyh-Charn Liu (PI), 2012-2015, $622k.

EXTRACURRICULAR ACTIVITIES

Member, Taiwanese Student Association, 2013-2020

Captain, Taiwanese Badminton Club, 2015-2016