

Nathan W. Twyman, Ph.D.

Assistant Professor of Information Systems
Brigham Young University

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Short Bio

Nathan W. Twyman is an Assistant Professor of Information Systems at Brigham Young University. He received his Ph.D. in Management Information Systems from the University of Arizona. Nathan's research interests are in transformative information systems. Data analytics, human behavior sensing, and gamification tend to play key roles in his pursuits. He has particular expertise in eye, body, and face metrics for human behavior analytics. His project domains have been in health, intelligence, cybersecurity, auditing, and forensic investigation. His research has been published in *Management Information Systems Quarterly*, *Journal of Management Information Systems*, *Journal of the Association for Information Systems*, *Information & Management*, *AIS Transactions on Human-Computer Interaction*, and in popular media outlets.

Scholarship and Teaching Summary Metrics

	Metric	Total
Journal Articles (peer reviewed)	12	(8 are top-tier; 7 are FT50*)
Conference Articles (peer reviewed)	34	
Other Publications (not peer reviewed)	8	
Average Instructor Rating (adjusted to a 1-5 scale)	4.3	

*Note: The FT50 list of journals is considered by a preponderance of accredited business schools to be the most stringent and most highly regarded journals across all business disciplines.

ACADEMIC EMPLOYMENT

Position	Institution	Appointment
Assistant Professor	Brigham Young University	2019-present
Assistant Professor	Missouri University of Science & Technology	2014-2019
Postdoctoral Researcher	University of Arizona	2012-2014
Research Associate	University of Arizona	2008-2012

ACADEMIC EXPERIENCE

Ph.D., 2012, Management Information Systems, University of Arizona, Tucson, Arizona. Psychology Minor.

Dissertation: "Automated Human Screening for Detecting Concealed Knowledge"

Major Advisors: [Jay F. Nunamaker, Jr.](#), and [Judee K. Burgoon](#)

Minor Advisor: [Mary Peterson](#)

Term: 2008-2012, Postdoctoral Scholar 2012-2014

M.S. & B.S., 2007, Information Systems Management, Brigham Young University, Provo, Utah.

Term: 2003-2007

SCHOLARLY CONTRIBUTIONS

Google Scholar Profile: <https://scholar.google.com/citations?user=VDASAa8AAAAJ&hl=en>

Citations: 768

h-index: 12

i10-index: 14

AIS worldwide ranking for top 4 journal publications 2012-2020:

46th

Journal Articles

1. Nathan W. Twyman, Steven J. Pentland, and Lee Spitzley (2020). "Design Principles for Signal Detection in Modern Job Application Systems: Identifying Fabricated Qualifications." *Journal of Management Information Systems*, 37:3, 849-874. <https://doi.org/10.1080/07421222.2020.1790201>. **Contribution: 45%**. (*JMIS* is a top-tier journal in my discipline and in the top 50 top journals for all business disciplines. The journal's 5-year impact factor: 5.399)
2. Nathan W. Twyman, Jeffrey G. Proudfoot, Ann-Frances Cameron, Eric Case, Judee K. Burgoon, and Douglas P. Twitchell (2020). "Too Busy to Be Manipulated: How Multitasking with Technology Improves Deception Detection in Collaborative Teamwork." *Journal of Management Information Systems*, 37:2, 377-395. <https://doi.org/10.1080/07421222.2020.1759938>. **Contribution: 70%**. (*JMIS* is a top-tier journal in my discipline and in the top 50 top journals for all business disciplines. The journal's 5-year impact factor: 5.399)
3. Svetlana N. Yanushkevich, Kelly W. Sundberg, Nathan W. Twyman, Richard M. Guest, and Vlad P. Shmerkoa (2019). "Cognitive Checkpoint: Emerging Technologies for Biometric-Enabled Watchlist Screening" *Computers & Security*. <https://doi.org/10.1016/j.cose.2019.05.002>. **Contribution: 10%**.
4. Sarah M. Stanley, Cassandra C. Elrod, Nathan W. Twyman, and Cui Zou. (2018). "Shopping on the Go: How Walking Influences Mobile Shopping Performance." *International Journal of Electronic Marketing and Retailing*. (9):4. pp. 307-319. <https://doi.org/10.1504/IJEMR.2018.094985>. **Contribution: 10%**.
5. Steven J. Pentland, Nathan W. Twyman, Christopher B. R. Diller, Judee K. Burgoon, and Jay F. Nunamaker. (2017). "A Video-Based Screening System for Automated Risk Assessment Using Nuanced Facial Features." *Journal of Management Information Systems*. (37):4. pp. 970-993. <https://doi.org/10.1080/07421222.2017.1393304>. **Contribution: 40%**. (*JMIS* is a top-tier journal in my discipline and in the top 50 top journals for all business disciplines. The journal's 5-year impact factor: 5.399)
6. Jay F. Nunamaker Jr., Nathan W. Twyman, Justin Giboney, and Robert O. Briggs. (2017). "Creating High-value Real-world Impact through Systematic Programs of Research." *Management Information Systems Quarterly*. (41):2. <https://doi.org/10.25300/MISQ/2017/41.2.01>. **Contribution: 75%**. (*MISQ* is a top-tier journal in my discipline and in the top 50 top journals for all business disciplines. The journal's 5-year impact factor: 9.917.)
7. Matthew Jensen, Adame Bradley, Norah Dunbar, Cameron Piercy, Claude Miller, Scott Wilson, Javier Elizondo Cecena, Nathan W. Twyman, and Joseph Valacich. (2016). "Exploring Failure and Engagement in a Complex Digital Training Game: A Multi-method Examination." *AIS Transactions on Human-Computer Interaction*. (8):1. pp. 1-20. <https://doi.org/10.17705/1thci.08102>. **Contribution: 10%**.
8. Nathan W. Twyman, Jeffery Gainer Proudfoot, Ryan M. Schuetzler, Aaron C. Elkins, and Douglas C. Derrick. (2015). "Robustness of Multiple Indicators in Automated Screening Systems for Deception Detection." *Journal of Management Information Systems*. (32):4. pp. 215-245. <https://doi.org/10.1080/07421222.2015.1138569>. **Contribution: 75%**. (*JMIS* is a top-tier journal in my discipline and in the top 50 top journals for all business disciplines. The journal's 5-year impact factor: 5.399)
9. Nathan W. Twyman, Paul Benjamin Lowry, Judee K. Burgoon, and Jay F. Nunamaker. (2014). "Autonomous Scientifically Controlled Screening Systems for Detecting Information Purposely Concealed by Individuals." *Journal of Management Information Systems*. (31):3. pp. 106-137. <https://doi.org/10.1080/07421222.2014.995535>. **Contribution: 75%**. (*JMIS* is a top-tier journal in my discipline and in the top 50 top journals for all business disciplines. The journal's 5-year impact factor: 5.399)
10. Paul Benjamin Lowry, Jeffery L. Jenkins, Nathan W. Twyman, and Matthew Pickard. (2014). "Proposing the Affect-Trust Infusion Model (ATIM) to Explain and Predict the Influence of High and Low Affect Infusion on Web-Vendor Trust." *Information & Management*. (51):5. pp. 579-594. <https://doi.org/10.1016/j.im.2014.03.005>. **Contribution: 25%**.
11. Nathan W. Twyman, Aaron C. Elkins, Judee K. Burgoon, and Jay F. Nunamaker. (2014). "A Rigidity Detection System for Automated Credibility Assessment." *Journal of Management Information Systems*. (31):1. pp.173-202. <https://doi.org/10.2753/MIS0742-1222310108>. **Contribution: 75%**. (*JMIS* is a top-tier journal in my discipline and in the top 50 top journals for all business disciplines. The journal's 5-year impact factor: 5.399)

12. Paul Benjamin Lowry, James Gaskin, Nathan W. Twyman, Bryan Hammer and Tom L. Roberts. (2013). "Taking 'Fun and Games' Seriously: Proposing the Hedonic-Motivation System Adoption Model (HMSAM)." *Journal of the Association for Information Systems*. (14):11. <https://doi.org/10.17705/1jais.00347>. **Contribution: 20%**. (JAIS is a top-tier journal in my discipline. The journal's 5-year impact factor: 4.644)

Conference Papers

1. James Gaskin, Mark J. Keith, Thomas O. Meservy, Nathan W. Twyman, and Taylor M. Wells. (2021). "Crowdfunding Deception Perception: What Makes Would-Be Contributors Perceive Fakeness in Crowdfunding Campaigns?" in *Proceedings of the 2021 Americas Conference on Information Systems*. August 9-13, 2021.
2. Nathan W. Twyman, Jeffrey G. Proudfoot, Eric Case, Ann-Frances Cameron, Judee K. Burgoon, and Douglas P. Twitchell (2019). "Information-Rich but Attention-Poor: Investigating Deception Detection Accuracy in an Increasingly Polychronic World," in *Proceedings of the HICSS-51 Credibility Assessment and Screening Technologies Symposium*, January 2018.
3. Nathan W. Twyman, Steven J. Pentland, and Lee Spitzley (2018). "Deception detection in online automated job interviews," in F. Nah, & C. Tan (editors), "HCI 2018 Proceedings: HCI in Business, Government and Organizations," *Lecture Notes in Computer Science*, Volume 23, Springer-Verlag. <https://doi.org/10.17705/1jais.00347>.
4. Nathaniel Williams, Jake Mondschein, Mark Farmer, and Nathan W. Twyman (2018). "Mobile Course Feedback System for Improving Student Engagement." In *MWAIS 2018 Proceedings*: Article 28. https://doi.org/10.1007/978-3-319-91716-0_16.
5. Cameron Burns and Nathan W. Twyman (2018). "Password Memorability and Strength Using an Image." *MWAIS 2018 Proceedings*: Article 21. <http://aisel.aisnet.org/mwais2018/21>.
6. Yizhi Ma and Nathan W. Twyman (2018). "Cybersecurity: Personal Information and Password Setup" in *MWAIS 2018 Proceedings*: Article 20. <http://aisel.aisnet.org/mwais2018/20>.
7. Andrew Long, Mitchell Ramirez, Coltin Shields, and Nathan W. Twyman (2018). "Informational Video Gaming in the Waiting Room" in *MWAIS 2018 Proceedings*: Article 8. <http://aisel.aisnet.org/mwais2018/8>.
8. Chandana Mallapragada, Daniel Feissle; Sonia Kapoor, Tylor Brom, and Nathan W. Twyman (2017). "Methods in User Data Searches: A Simplified Approach to Web Searches" *MWAIS 2017 Proceedings*: Article 4. <http://aisel.aisnet.org/mwais2017/4>.
9. G. Mark Grimes, Jeffrey G. Proudfoot, Joseph S. Valacich, Jeffrey S. Jenkins, Nathan W. Twyman, and Judee K. Burgoon (2017). "Controlled Realism in Deception Research." *Hawaii International Conference on System Sciences (HICSS)*.
10. Craig C. Claybaugh, P. Haried, Langtao Chen, and Nathan W. Twyman (2017). "Dueling for Trust in the Online Fantasy Football Industry: Fame, Fortune, and Pride for the Winners" *Proceedings of HCI International 2017*, Vancouver, Canada, 12-14 July, Thematic Area: HCI in Business, Government, and Organizations. https://doi.org/10.1007/978-3-319-58484-3_16.
11. Raheel Hassan, Nathan W. Twyman, Fiona Fui-Hoon Nah, and Keng Siau (2016). "Patient Engagement in the Medical Facility Waiting Room Using Gamified Healthcare Information Delivery," in F. Nah, & C. Tan (editors), "HCI in Business, Government and Organizations: Information Systems (Part II)," *Lecture Notes in Computer Science*, Volume 22, Springer-Verlag. https://doi.org/10.1007/978-3-319-39399-5_39.
12. Aaron C. Elkins, Jeffrey G. Proudfoot, Nathan W. Twyman, Judee K. Burgoon, and Jay F. Nunamaker, Jr. (2016). "Embodied Conversational Agent-based Deception Detection." In: Bi Y., Kapoor S., Bhatia R. (eds) *Proceedings of the SAI / IEEE Intelligent Systems Conference*, Sep 21-22, 2016. London, UK, Lecture Notes in Networks and Systems, Vol. 16. Springer, Cham, pp. 797-803. https://doi.org/10.1007/978-3-319-56991-8_22.
13. David W. Wilson, Jeff Jenkins, Nathan W. Twyman, Matthew Jensen, Joe Valacich, Norah Dunbar, Scott Wilson, Claude Miller, Bradley Adame, Yu-Hao Lee, Judee Burgoon, and Jay F. Nunamaker (2016). "Serious Games: An Evaluation Framework and Case Study," in *Proceedings of the 49th Hawaii International*

Conference on System Sciences (HICSS), Koloa, Hawaii, January 5-8, pp. 638-647.
<https://doi.org/10.1109/HICSS.2016.85>.

14. Steven J. Pentland, Nathan W. Twyman, and Judee K. Burgoon (2016). "In Search of Reliable Facial Cues for Deception Detection," in *Proceedings of the HICSS-49 Credibility Assessment and Screening Technologies Symposium*, Koloa, HI. January 2016.
15. Judee K. Burgoon, J. Pete Blair, Lauren M. Hamel, Tiantian Qin, and Nathan W. Twyman (2016). "Effects of Motivation and Modality on Deceptive Messages and their Detection," in *Proceedings of the HICSS-49 Credibility Assessment and Screening Technologies Symposium*, Koloa, HI. January 2016.
16. Steven J. Pentland, Judee K. Burgoon, and Nathan W. Twyman (2015). "Face and Head Movement Analysis Using Automated Feature Extraction Software." Paper presented at the *48th Annual Hawaii International Conference on System Sciences*, Kauai, Hawaii, January 5-8.
17. Eric Case and Nathan W. Twyman (2015). "Embodied Conversational Agents: Social or Nonsocial?" *HICSS-48 Proceedings of the Rapid Screening Technologies, Deception Detection, and Credibility Assessment Symposium*, Kauai, Hawaii, January 5-8. <https://doi.org/10.1109/HICSS.2015.65>.
18. Mark Grimes, Jeffrey G. Proudfoot, Joseph Valacich, Jeffrey L. Jenkins, Nathan W. Twyman, Judee K. Burgoon, and Jim Marquardson (2015). "Lessons Learned from Successive Deception Experiments." *Proceedings of the HICSS-48 Symposium on Credibility Assessment and Information Quality in Government and Business*. Kauai, Hawaii, January 5-8.
19. Nathan W. Twyman, Ryan Schuetzler, Jeffrey G. Proudfoot, and Aaron C. Elkins (2013). "A Systems Approach to Countermeasures in Credibility Assessment Interviews." *Proceedings of the International Conference on Information Systems*, Milan, Italy, December 15-18.
20. Jay F. Nunamaker, Jr., Nathan W. Twyman, and Justin Scott Giboney (2013). "Breaking out of the Design Science Box: High-Value Impact through Multidisciplinary Design Science Programs of Research." *Proceedings of the 2013 Americas Conference on Information Systems*. Chicago, Illinois, August 15-17.
21. Nathan W. Twyman, Judee K. Burgoon, Aaron C. Elkins, and Jeffrey G. Proudfoot (2013). "Alternative Cues in Concealed Information Testing." *HICSS-46 Proceedings of the Rapid Screening Technologies, Deception Detection, and Credibility Assessment Symposium*, Maui, Hawaii, Jan 7-8.
22. Jeffrey G. Proudfoot, Nathan W. Twyman, and Judee K. Burgoon (2013). "Eye Tracking and the CIT: Utilizing Oculometric Cues to Identify Familiarity with Wanted Persons." *HICSS-46 Proceedings of the Rapid Screening Technologies, Deception Detection, and Credibility Assessment Symposium*, Maui, Hawaii, Jan 7-8.
<https://doi.org/10.1109/EISIC.2012.11>.
23. Jeffrey G. Proudfoot, Nathan W. Twyman, and Judee K. Burgoon (2012). "A Comparison of Invasive and Noninvasive Sensors in the Concealed Information Test." *Proceedings of the Workshop on Innovation in Border Control (WIBC) at the European Intelligence and Security Informatics Conference (EISIC)*, Odense, Denmark, August 22-24.
24. Jeffrey G. Proudfoot, Nathan W. Twyman, and Judee K. Burgoon (2012). "Familiarity Recognition in Automated Screening Environments: Utilizing Eye-Tracking Technology as an Intelligence-Gathering Tool." *HICSS-45 Symposium on Credibility Assessment and Information Quality in Government and Business*, Maui, Hawaii, USA, Jan 4-7.
25. Paul Benjamin Lowry, Jeffrey L. Jenkins, Nathan W. Twyman, and Matthew D. Pickard (2011). "Proposing the Affect-Trust Infusion Model (ATIM) to Explain and Predict the Influence of High- and Low-Affect Infusion on Web Vendor Trust." *ICIS 2011 JAIS Sponsored Theory Development Workshop*. Shanghai, China, December 3.
26. Nathan W. Twyman, Aaron Elkins, and Judee K. Burgoon (2011). "A Rigidity Detection System for the Guilty Knowledge Test." *HICSS-44 Symposium on Credibility Assessment and Information Quality in Government and Business*, *44th Annual Hawaii International Conference on System Sciences (HICSS)*, Koloa, Hawaii, USA, Jan 4-7.
27. Nathan W. Twyman, Judee K. Burgoon, and Jay F. Nunamaker (2011). "Non-invasive Screening for Concealed Information." *HICSS-44 Symposium on Credibility Assessment and Information Quality in Government and*

Business, *44th Annual Hawaii International Conference on System Sciences (HICSS)*, Koloa, Hawaii, USA, Jan 4-7.

28. Nathan W. Twyman (2011). “Non-Invasive Screening to Discover Concealed Knowledge: A System and Protocol for Automated Human Security Screening.” *International Conference on Information Systems (ICIS) 2011 Doctoral Consortium*. Shanghai, China, November 30 – December 3.
29. Nathan W. Twyman (2011). “A Framework for Non-Invasive Screening for Concealed Knowledge.” *Americas Conference on Information Systems (AMCIS) 2011 Doctoral Consortium*. Detroit, Michigan, USA, August 3-4.
30. Nathan W. Twyman, Jeffrey L. Jenkins, Katherine Carl, and Jay F. Nunamaker, Jr. (2011). “Knowledge Sourcing and Knowledge Consumption in Computer-Mediated Complex Decision Making.” *44th Annual Hawaii International Conference on System Sciences (HICSS)*, Koloa, Hawaii, Jan 4-7.
<https://doi.org/10.1109/HICSS.2011.276>.
31. Nathan W. Twyman, Kevin Moffitt, Judee K. Burgoon, and Frank Marchak (2010). “Using Eye Tracking Technology as a Concealed Information Test.” HICSS-43 Symposium on Credibility Assessment and Information Quality in Government and Business, *43rd Annual Hawaii International Conference on System Sciences (HICSS)* Koloa, Hawaii, USA, January 5-8.
32. Judee K. Burgoon, Matthew Jensen, Nathan W. Twyman, Thomas O. Meservy, Dmitris N. Metaxas, Nicholas Michael, Koren Elder, and Jay F. Nunamaker, Jr. (2010). “Automated Kinesic Analysis for Deception Detection” HICSS-43 Symposium on Credibility Assessment and Information Quality in Government and Business, *43rd Annual Hawaii International Conference on System Sciences (HICSS)* Koloa, Hawaii, USA, January 5-8.
33. Paul Benjamin Lowry, Nathan W. Twyman, James Gaskin, Bryan Hammer, Aaron Bailey, and Tom L. Roberts (2007). “Proposing the Interactivity-Stimulus-Attention Model (ISAM) to Explain and Predict Enjoyment, Immersion, and Adoption of Purely Hedonic Systems,” *Special Interest Group on Human-Computer Interaction (SIG-HCI) 2007 Pre-ICIS Workshop* (best-paper nomination), Montréal, Canada, December 8.
34. Paul Benjamin Lowry, Jeffrey L. Jenkins, Nathan W. Twyman, Bryan Hammer, James Gaskin, and Martin Hassell (2008). “Proposing the Hedonic Affect Model (HAM) to Explain how Stimuli and Performance Expectations Predict Affect in Individual and Group Hedonic Systems Use,” *Journal of the Association for Information Systems (JAIS) Pre-ICIS Theory Development Workshop*.

Books and Book Chapters

1. Nathan W. Twyman (2020). *American Twyman*. H. Leon Twyman, (ed.). Independently published under CC license BY-NC-SA 4.0. <https://www.amazon.com/American-Twyman-Nathan-W/dp/B08MVM3BZ9/> and <https://archive.org/details/american-twyman>
2. Judee K. Burgoon, Lauren M. Hamel, J. Pete Blair, and Nathan W. Twyman (2020). “Factors that Facilitate or Impair Kinesic and Vocalic Nonverbal Behaviors during Interpersonal Deception.” in: Robert J. Sternberg & Aleksandra Kostić (eds.), *Social Intelligence and Nonverbal Communication*, Palmgrave Macmillan.

Other Publications

1. Steven J. Pentland, Nathan W. Twyman, and Judee K. Burgoon (2014). “Automated Analysis of Guilt and Deception from Facial Affect in a Concealed Information Test.” Poster presented at the 15th Annual Conference of the Society for Personality and Social Psychology; 2014 February 13-15; Austin, TX.
2. Jay F. Nunamaker, Elyse Golob, Douglas C. Derrick, Aaron C. Elkins, and Nathan W. Twyman (2013). *Field Tests of an AVATAR Interviewing System for Trusted Traveler Applicants*. Technical report published by the Center for Border Security and Immigration.
<http://www.borders.arizona.edu/cms/sites/default/files/FieldTestsofanAVATARInterviewingSystemforTrustedTravelerApplicants.pdf>.
3. Nathan W. Twyman, Matthew D. Pickard, and Mary B. Burns (2012). “Credibility Screening Systems for Auditing Interviews.” Proceedings of the *Brigham Young University 9th Annual Accounting Research Symposium*, Provo, Utah, Sep 27-29.

4. Nathan W. Twyman, Matthew D. Pickard, and Mary B. Burns (2012). "Proposing Automated Human Credibility Screening Systems to Augment Forensic Interviews and Fraud Auditing." Proceedings of the *Strategic and Emerging Technologies Workshop* at the *American Accounting Association Annual Meeting*, Washington D.C., August 4.
5. Jay F. Nunamaker Jr., Judee K. Burgoon, Nathan W. Twyman, Jeffrey G. Proudfoot, Ryan Schuetzler, and Justin G. Giboney (2012). "Establishing a Foundation for Automated Human Credibility Screening." Proceedings of the *Developing Technologies and Tools for Border Security Applications* workshop at the *IEEE Conference on Intelligence and Security Informatics (ISI)*, Washington, D. C., June 11.
6. Nathan W. Twyman and Douglas C. Derrick. "Non-invasive Screening for Concealed Information." Proceedings of the *Fifth Annual University Network Summit*. Washington, D.C., March 2011.

Presentations

1. James Gaskin, Mark J. Keith, Thomas O. Meservy, Nathan W. Twyman, and Taylor M. Wells. "Crowdfunding Deception Perception: What Makes Would-Be Contributors Perceive Fakeness in Crowdfunding Campaigns?" Presented at the *Americas Conference on Information Systems*. Montreal, Canada, August 2021.
2. Jay F. Nunamaker, Nathan W. Twyman, and Justin Giboney. "Breaking out of the Design Science Box: High-Value Impact through Multidisciplinary Design Science Programs of Research." Presented at the *Americas Conference on Information Systems*, Chicago, Illinois, August 2013.
3. Nathan W. Twyman, Ryan Schuetzler, Jeffrey G. Proudfoot, Aaron C. Elkins, and Judee K. Burgoon. "Resilience of Deception Detection Sensors." Presented at the semi-annual meeting for the Center for Identification Technology Research (CITeR), Virginia, May 2013.
4. Nathan W. Twyman, Matthew D. Pickard, and Mary B. Burns. "Credibility Screening Systems for Auditing Interviews." Presented at the *Brigham Young University 9th Annual Accounting Research Symposium*, Provo, Utah, September 2012.
5. Nathan W. Twyman, Matthew D. Pickard, and Mary B. Burns. "Proposing Automated Human Credibility Screening Systems to Augment Forensic Interviews and Fraud Auditing." *Strategic and Emerging Technologies Workshop* at the *American Accounting Association Annual Meeting*, Washington D.C., August 2012.
6. Aaron C. Elkins, Douglas C. Derrick, Nathan W. Twyman, and Jay F. Nunamaker. "Establishing a Foundation for Automated Human Security Screening." *Developing Technologies and Tools for Border Security Applications* workshop at the *IEEE Conference on Intelligence and Security Informatics (ISI)*, Washington D. C., June 2012.
7. Nathan W. Twyman, Aaron C. Elkins, and Judee K. Burgoon. "Automated Rigidity Analysis for Automated Screening." Presented at the semi-annual meeting for the Center for Identification Technology Research (CITeR), Suffolk, Virginia, May 2012.
8. Nathan W. Twyman, Judee K. Burgoon, and Jay F. Nunamaker Jr. "Non-Invasive Screening to Discover Concealed Knowledge." Presented at the ICIS 2011 Doctoral Consortium, Shanghai, China, Nov 30 – Dec 3, 2011.
9. Nathan W. Twyman and Jay F. Nunamaker Jr. "Non-invasive Screening for Concealed Information." Presented at the *AMCIS 2011 Doctoral Consortium*, Oakland, Michigan, USA, Aug 3-4, 2011.
10. Nathan W. Twyman, Aaron Elkins, and Judee K. Burgoon. "Automated Rigidity Detection for Automated Screening." Presented at the semi-annual meeting for the Center for Identification Technology Research (CITeR), Tucson, Arizona, May 2011.
11. Nathan W. Twyman and Douglas C. Derrick. "Non-invasive Screening for Concealed Information." Presented at DHS Science Conference – Fifth Annual University Network Summit. Washington, D.C., March 2011.
12. Nathan W. Twyman, Aaron Elkins, and Judee K. Burgoon. "A Rigidity Detection System for the Guilty Knowledge Test." Presented at the *HICSS-44 Symposium on Credibility Assessment and Information Quality in Government and Business*, Koloa, Hawaii, January 2011.

13. Nathan W. Twyman, Judee K. Burgoon, and Jay F. Nunamaker, Jr. "Non-invasive Screening for Concealed Information." Presented at the *HICSS-44 Symposium on Credibility Assessment and Information Quality in Government and Business*. Koloa, Hawaii, January 2011.
14. Nathan W. Twyman, Jeffery L. Jenkins, Katherine Carl, and Jay F. Nunamaker, Jr. "Knowledge Sourcing and Knowledge Consumption in Computer-Mediated Complex Decision Making." Presented at *44th Annual Hawai'i International Conference on System Sciences (HICSS)*, Koloa, Hawaii, January 2011.
15. Nathan W. Twyman, Judee K. Burgoon, and Jay F. Nunamaker, Jr. "It's The Network: Knowledge Sharing Systems for Credibility Assessment." Presented at the semi-annual meeting for the Center for Identification Technology Research (CITeR), Fall 2009, Tucson, Arizona.

RESEARCH IN PROGRESS

1. *Motives & Ethicality in Cause-Related Marketing*. R&R at Journal of Marketing Theory and Practice.
2. *Controlled Realism in Information Systems Research: Ten Lessons for Designing Laboratory Experiments that Engender both Control and Realism*. Under first round of review at CAIS.
3. *Crowdfunding Deception Perception: What Makes Would-Be Contributors Perceive Fakeness in Crowdfunding Campaigns?* Improving on an accepted conference paper; expect to submit to an A- journal in 2021.
4. *Deception Signaling During Grouchy Interviewing*. Data analysis nearly complete. Writing stage beginning Fall 2021.
5. *Privacy and Power in Automated Deception Detection*. Data analysis nearly complete. Writing stage beginning Fall 2021 or Winter 2022.
6. *Interrupting Performance Improvements*. Student-driven research currently in data collection stage.
7. *Search Tool for Accounting and Finance Oversight Publications*. Local implementation built; transitioning to cloud services before writing stage.

RESEARCH GRANTS AND CONTRACTS (PRINCIPAL INVESTIGATOR)

University of Missouri System Research Board (\$16K awarded January 2018). *Non-Invasive Human Risk Assessment for Security*.

~1-year grants through the NSF Center for Identification Technology Research:

1. Judee K. Burgoon, Steven Pentland, and Nathan W. Twyman (\$40K awarded November 2013). *Deception Detection using Computer Expression Recognition*.
2. Jeffrey G. Proudfoot, Judee K. Burgoon, Aaron C. Elkins, and Nathan W. Twyman (\$40K awarded November 2013). *Covert Detection of Strategic and Nonstrategic Deception Cues with a Bogus Concealed Information Test*.
3. Judee K. Burgoon, Joseph Valacich, Nathan W. Twyman, Jeffrey G. Proudfoot, and Mark Grimes (\$55K awarded December 2012). *Detecting Impostership through Soft Biometrics and Cognitive Metrics*.
4. Jeffrey G. Proudfoot, Judee K. Burgoon, Nathan W. Twyman, Aaron C. Elkins, and Jay F. Nunamaker (\$52K awarded May 2012). *Testing the Use of Noninvasive Sensors to Conduct the Concealed Information Test*.
5. Nathan W. Twyman, Ryan Schuetzler, Jeffrey G. Proudfoot, Aaron C. Elkins, and Judee K. Burgoon (\$45K awarded May 2012). *Resilience of Deception Detection Sensors*.
6. Ryan Schuetzler, Nathan W. Twyman, Jeffrey G. Proudfoot, and Jay F. Nunamaker (\$40K awarded May 2011). *Evaluating the Robustness of Eye Tracking to Mental and Physical Countermeasures*.
7. Nathan W. Twyman, Aaron C. Elkins, and Judee K. Burgoon (\$40K awarded May 2011). *Automated Rigidity Detection for Automated Screening*.

8. Nathan W. Twyman, Douglas C. Derrick, Jay F. Nunamaker, & Jeffrey Proudfoot (\$50K awarded October 2010). *Establishing Deceptive-Behavior Baselines for Eye-Tracking Systems*.

Other Funded Research Activities (Contributor)

1. Experimental evaluation of the effects of multitasking on deception detection (funding provided by SSHRC), HEC Montreal, 2014.
2. Trusted Traveler program field implementation for an avatar screening program (funding provided by the Department of Homeland Security National Center of Excellence in Border Security and Immigration (BORDERS)), University of Arizona, 2011-2013.
3. European Union Frontex Workshop and Innovation Showcase (hooligan detection using automated screening kiosks; funding provided by Frontex), Apeldoorn, Netherlands, September 2012.
4. Credibility Assessment and Intelligence Training in a Serious Game (funding provided by the Intelligence Advanced Research Projects Activity (IARPA)), Center for the Management of Information, University of Arizona, 2011-2013. \$10.7M
5. Multimodal Fusion for Stand-off Identity and Intent for 10-25 Meters (Consultant collaborating with Clarkson University, funded by Center for Identification Technology Research (CITeR)), 2011-2012.
6. Lead and Manage 16 Research Institutions, Department of Homeland Security Center of Excellence for Border Security and Immigration, BORDERS (funding provided by the Department of Homeland Security (DHS)), 2009-Present. \$15M
7. Development of Interviewing and Deception Detection Techniques for Rapid Screening and Credibility Assessment (funding provided by the Department of Homeland Security National Center of Excellence in Border Security and Immigration (BORDERS)), University of Arizona, 2008-2014.
8. Noninvasive, Multimodal Assessment of Credibility during Interviews (funded by the National Center for Credibility Assessment NCCA), Collect and analyze deceptive behavior data after participants took part in a mock crime. Center for the Management of Information, University of Arizona, 2008-2012. \$1.2M
9. Rapid Noncontact Credibility Assessment (funding provided by Counterintelligence Field Activity (CIFA)), Examine the differences between cultural non-verbal gestures when people deceive. Center for the Management of Information, University of Arizona, 2008-2012.

MENTORED STUDENT-INDUSTRY PARTNERED PROJECTS

I develop and mentor many undergraduate and graduate research projects that have industry partnerships. These usually involve iterative experience design with qualitative and quantitative evaluations.

MISM Capstone projects in collaboration with HomeAid, Eide Bailly, Utah Refugee Connection (2019-2020).

Patient Engagement in the Waiting Room (2016): In partnership with PCRMC.

Improving Breastfeeding outcomes through Gamified Information Delivery (2017): In partnership with PCRMC Women's Health Center.

Encouraging Immunization through Waiting Room Games (2017-2018): In partnership with the Rolla Dermatology Center.

Re-envisioning Vitals Monitoring in Telemedicine (2018): In partnership with 1904Labs.

OTHER MENTORED STUDENT PROJECTS

As the main responsibility of a capstone course I teach, I mentor many student capstone projects. At BYU I oversee and provide guidance to 20 or more projects each year, with support from other information systems faculty. Some example projects follow:

- **Communikid:** App for helping autistic children communicate
- **TherAppy:** A mental health chatbot
- **Sidekick:** An app for helping teenagers self-monitor their mental health by analyzing their social media activity
- **Epilepsy App:** An app for helping manage epilepsy
- **Traffick Stop:** An app for helping discover and report human trafficking
- **Be There Virtual Weddings:** An app for helping families have meaningful virtual interactions at weddings
- **OkWellThen:** An app for helping people wade through health care costs
- **Dollar4Good:** An app facilitating small-dollar charitable donations
- **Women retention in STEM education:** Interventions for encouraging women retention in STEM programs
- **Charity Analytics:** A course for helping non-profits know how to leverage analytics

I also involve undergraduate and graduate students in my research projects. I have mentored dozens of student researchers and as of June 2021 I have published papers with 13 different student authors, and have one more in progress.

AWARDS AND HONORS

1. Since 2012 (graduation), #1 worldwide for *JMIS* first-author publications.
2. Best paper award (2nd place) for “Mobile Course Feedback System for Improving Student Engagement.” *MWAIS 2018*.
3. Competitively selected to be a panelist and presenter at the DHS Fifth Annual University Network Summit, Catastrophes & Complex Systems: Transportation. Washington, D.C., March 2011.
4. Best paper nomination for “Proposing the Interactivity-Stimulus-Attention Model (ISAM) to Explain and Predict Enjoyment, Immersion, and Adoption of Purely Hedonic Systems,” *Special Interest Group on Human-Computer Interaction (SIG-HCI) 2007 Pre-ICIS Workshop*, Montréal, Canada, December 8, 2007.

PROFESSIONAL SERVICE AND SOCIETY MEMBERSHIPS

Member of the Association for Computing Machinery (ACM), the Association for Information Systems (AIS), and the AIS Special Interest Group for Computer-Human Interaction (SIGCHI).

1. 2021 AMCIS Cognitive, Affective, and Conversational HCI Minitrack co-chair
2. 2020 AMCIS Cognitive, Affective, and Conversational HCI Minitrack co-chair
3. 2019 AMCIS Cognitive, Affective, and Conversational HCI Minitrack co-chair
4. 2018 ICIS Associate editor, Human Behavior and Information Systems track
5. 2018 HCII conference Program Committee member
6. 2018 AMCIS Cognitive, Affective, and Conversational HCI Minitrack co-chair
7. 2018 MWAIS Program Committee member
8. 2017 ICIS Associate editor, HCI, Design Issues and Design Science Research track
9. 2017 ICIS Associate editor, Human Behavior and Information Systems track
10. 2017 HCII conference Program Committee member
11. 2017 MWAIS Program Committee member
12. 2017 AMCIS Cognitive and Affective HCI Minitrack founder and chair
13. 2016 HCII conference Program Committee member
14. 2015 AMCIS Crowdsourcing Minitrack chair & session chair
15. Reviewer for *MISQ*, *JMIS*, *EJIS*, *JSIS*, *I&M*, *CAIS*, *THCI*, *GDN*, *IJHCI*, *JASIST*, *JDM*, *Transactions on Affective Computing (TAC)*, *International Journal of Electronic Commerce (IJEC)*, and many reviews for various IEEE conferences and major MIS conferences, including *ICIS*, *AMCIS*, *HICSS*, *PACIS*, *MWAIS*. I estimate about 15 reviews completed per year.
16. Editorial Review Board member for the *Journal of Database Management (JDM)* (2020-present)
17. Group support systems (GSS) facilitator--clients have ranged from academic (e.g., university deans) to private (e.g., local businesses)
18. Workshop Review Coordinator for the *Workshop on Innovation in Border Control (WIBC) 2012*

DEPARTMENT AND UNIVERSITY SERVICE

1. IS MISM Committee (2020-2021)
2. MSB research coordinator search committee (2021)
3. IS Alumni Outreach Committee (2020-2021)
4. IS 693R advisor for 2 MISM students (W2021)
5. IS Socials chair BYU (2019-2020)
6. IS Social Networking chair BYU (2019-2020)
7. IST Curriculum Committee member S&T (2018-2019).
8. IST Doctoral Program Committee member S&T (2014-2018).
9. Graduate Thesis committee member for Ang Chen, Tracy Zuo, Prashanth Kumar Lakkapragada, and Sri Chaitanya Sanaboina S&T (2015-2018).
10. Undergraduate research (OURE) project advisor for Nick Rollins and Lindsay Carlson S&T (2015-2016).
11. IST Faculty Search Committee S&T (2015-2016).
12. AACSB Faculty Qualification Committee S&T (2014-2018).
13. Associated faculty member and student team advisor for the S&T Laboratory for Information Technology Evaluation (LITE) (2014-2019).
14. Review coordinator for Workshop on Innovation in Border Control (WIBC) (2012).
15. Graduate thesis mentor for Irvin Hsu at the University of Arizona (2011-2012).

CAMPUS COMMUNITY SERVICE

1. Missouri S&T-affiliated Campus Ministries Association representative (2014-2019) and vice president (2018-2019).
2. Missouri S&T Registered Student Organization LDSSA advisor (2014-2019).
3. BSA Team Advisor (2003-2004, 2008-2010, 2014-2015), Scoutmaster (2015-2016)

TEACHING

1. MISM Capstone Projects (IS 552) at Brigham Young University. A required graduate course. Shepherding 20+ graduate student capstone projects that have a knowledge discovery as a primary objective. Winter 2020 (4.4/5); Winter 2021 (4.4/5).
2. MISM User Experience Design and Technology Leadership (IS 551) at Brigham Young University. A required graduate course. Fall 2020 (4.3/5).
3. MISM Capstone Introduction (IS 550) at Brigham Young University. A required graduate course. Graduate students' planning phase for self-driven graduate capstone project. Fall 2019 (4.4/5); Fall 2020 (4.3/5).
4. *Foundations of Internet Computing* (IST 6336) at Missouri University of Science and Technology. A required graduate course. Computer networking, websites and e-commerce. Spring 2016: (3.5/4); Spring 2017: (3.3/4); Spring 2018: (3.8/4).
5. *Human and Organizational Factors in Cybersecurity* (IST 4780/6780) at Missouri University of Science and Technology. An elective undergraduate/graduate mix course. Investigating relationships between human and organizational factors and information security and assurance. Research project final deliverable. Spring 2016: (4/4); Fall 2017: (4/4).
6. *Prototyping Human-Computer Interactions* (IST 5886) at Missouri University of Science and Technology. An elective undergraduate/graduate mix course. Iterative project-based prototyping class emphasizing synergy among human, technology, and organizational factors. Fall 2015: (3.6/4); Fall 2016 (3.6/4); Fall 2017 (2.5/4).
7. *Network Performance Design and Management* (IST 3321) at Missouri University of Science and Technology. An elective undergraduate course. Advanced Data Networking and prep for CCNA. Spring 2015: (4/4).
8. *Introduction to Telecommunications Networks* (IST 3333) at Missouri University of Science and Technology. Renamed *Introduction to Networking and Information Security* after Fall 2015 course redesign. A required

undergraduate course. Introductory networking and cybersecurity. Fall 2014: (1.3/4); Fall 2015: (3.4/4); Summer 2016 (no feedback); Fall 2016: (3.4/4); Spring 2017: (2.8/4); Spring 2018: (3.1/4).

9. *Human Deception in Business and Society* (OMBA/MIS 529E) at the University of Arizona, Fall 2013 through Fall 2015. An elective graduate course. Online MBA-oriented course on deception and deception detection systems. First offering. Overall student ratings: (3.4/4).
10. *Database Management Systems* (MIS 331) at the University of Arizona, Fall 2010. A required undergraduate course. Introductory database class covering requirements analysis, entity-relationship diagrams, relational modeling, SQL, and implementation (using Oracle). Students gathered requirements, designed, and built a working database prototype for their final project. Overall student ratings: (3.4/4).
11. *Using and Managing Information Systems* (MIS 304) at the University of Arizona, Summer 2011. A required undergraduate course. 2nd-level information systems course exploring topics covered in introductory information systems course more in-depth. Example topics included: information systems strategy, system development, project management, data mining and business intelligence, Security, and HCI. Students proposed IS solutions to real-world business problems for their final project. Overall student ratings: (3.1/4).
12. *ERP training* modules at BurrellesLuce Information Services, 2006-2008. Required training courses for employees. Specialized training for operation of company-specific ERP. Positive feedback and results.

RELEVANT PROFESSIONAL EXPERIENCE

BurrellesLuce Information Services

Order processing and quality assurance unit creation, organization, and management, order processing and quality assurance process development, ERP implementation SME, database maintenance and administration, training course developer and administrator, and internal consultant (2005-2008); external consultant (2008-2012).

Information Systems Department, Brigham Young University

Research Assistant, investigating influence of Affect Infusion on system adoption using the Expectation-Disconfirmation paradigm. Investigated potential of color choice on websites as an indicator of individual demographics (2007-2008).

Center for the Management of Information, University of Arizona

Research Specialist Senior (August 2014), Postdoctoral Research Scientist (2012-2014), and Research Associate (2008-2012), investigating topics in automated interviewing systems, credibility assessment systems, and collaboration systems. Wrote grant proposals and applications. Presented a considerable number of on-site research demonstrations. Facilitated large-group collaboration sessions. Assisted with systems troubleshooting and maintenance. (2008-2012).

SAMPLE POPULAR PRESS COVERAGE

“[Lie-Detecting Airport Robots](#)” in *Top of Mind with Julie Rose* radio broadcast, 18 July 2018.

“[Automated security kiosk to shorten lines at airports, border crossings](#)” in Homeland Security News Wire, 17 July 2017.

“Border Battle” on KSAZ Fox news, August 2012.