

MICHAEL T. LASH

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RESEARCH INTERESTS

Utility-based machine learning, reinforcement learning, graph-based learning, decision making with machine learning, outcome optimization, causal learning, predictive and prescriptive analytics.

EDUCATION

University of Iowa, Iowa City, Iowa USA *Dec. 2018*
PhD., Computer Science
Advisors: W. Nick Street and Alberto M. Segre

University of Iowa, Iowa City, Iowa USA *May 2017*
M.S., Computer Science

University of Iowa, Iowa City, Iowa USA *May 2014*
B.A., Geoinformatics

PROFESSIONAL EXPERIENCE

Assistant Professor *Aug. 2019 - Present*
Analytics, Information, and Operations Management Area, School of Business
University of Kansas, Lawrence, KS

Visiting Assistant Professor *Jan. 2019 - May 2019*
Business Analytics Department, Tippie College of Business
University of Iowa, Iowa City, IA

Graduate Instructor/Graduate Assistant *Aug. 2014 - Dec. 2018*
Department of Computer Science/Department of Business Analytics (Tippie College of Business)
University of Iowa, Iowa City, IA

HONORS AND AWARDS

- University of Kansas New Faculty General Research Fund Award, 2020.
- University of Iowa Graduate College Post-Comprehensive Research Award, 2017.
- University of Iowa Graduate College Summer Fellowship, 2017.
- NSF Graduate Research Fellowship Honorable Mention, 2016.
- John Deere Scholarship, Department of Computer Science, University of Iowa, 2013-2014

PUBLICATIONS

Under Review and In-Preparation

- U.4 B. Lim, **M.T. Lash**, A. Maeng, P. Aggarwal, “Product Face Ratios, Stereotypes, and Political Orientation: Field Data on Consumer Evaluations“, Under review (Journal of Marketing; major revision received).
- U.3 X. Zhu, S. Li, K. Srinivasan, **M.T. Lash**, “Impact of the COVID-19 Pandemic on the Stock Market and Investor Online Word of Mouth“, Under review (Decision Support Systems; 2nd round).
- U.2 **M.T. Lash**, “HEX: Human-in-the-loop Explainability via Deep Reinforcement Learning“, Under review (Management Science special issue on the Human-Algorithm Connection).

- U.1 Amin Abassi Pooya*, **M.T. Lash**, “The Third Party Logistics Provider Freight Management Problem: A Deep Reinforcement Learning Approach“, Under review (Annals of Operations Research special issue on Deep Learning Applications in Operations Research).

* Denotes a student.

Journal Papers

- J.6 **M.T. Lash**, S. Sajeesh, O.M. Araz, “Predicting mobility using limited data during early stages of a pandemic”, *Journal of Business Research*, 157, 2023 (accepted 10/28/2022).
- J.5 A. Gupta, **M.T. Lash**, S.K. Nachimuthu, “Optimal Sepsis Patient Treatment using Human-in-the-loop Artificial Intelligence”, *Expert Systems with Applications (ESWA)*, 169:1-14, 2021.
- J.4 **M.T. Lash**, J. Slater, P.M. Polgreen, and A.M. Segre, “21 Million Opportunities: A 19 Facility Investigation of Factors Affecting Hand Hygiene Compliance via Linear Predictive Models”, *Journal of Healthcare Informatics Research (JHIR)*, 3(4):393-413, 2019.
- J.3 **M.T. Lash**, M. Zhang, X. Zhou, C.F. Lynch, and W.N. Street, “Deriving Enhanced Geographical Representations via Similarity-based Spectral Analysis: Predicting Colorectal Cancer Survival Curves in Iowa”, *International Journal of Data Mining and Bioinformatics (IJDMB)*, 21(3):183-211, 2019.
- J.2 A.K. Gerke, F. Tang, **M.T. Lash**, J. Schappet, E. Phillips and P.M. Polgreen, “A web-based registry for patients with sarcoidosis”, *Sarcoidosis vasculitis and diffuse lung diseases (SVDLD)*, 34(1):26-34, 2017.
- J.1 **M.T. Lash** and K. Zhao, “Early predictions of movie success: The who, what, and when of profitability”, *Journal of Management Information Systems (JMIS)*, 33(3):874-903, 2016.

Conference and Workshop Papers (Peer Reviewed)

- C.6 **M.T. Lash**, W.N. Street, “Personalized Cardiovascular Disease Risk Mitigation via Longitudinal Inverse Classification”, in *Bioinformatics and Biomedicine (BIBM), 2020 IEEE International Conference on*, pp. 2610-2617, 2020.
- C.5 **M.T. Lash**, Y. Sun, X. Zhou, C.F. Lynch, and W.N. Street, “Learning Rich Geographical Representations: Predicting Colorectal Cancer Survival in the State of Iowa”, in *Bioinformatics and Biomedicine (BIBM), 2017 IEEE International Conference on*, pp. 778-785, 2017.
- C.4 **M.T. Lash**, Q. Lin, W.N. Street and J.G. Robinson, “A budget-constrained inverse classification framework for smooth classifiers”, in *Data Mining Workshops (ICDMW), 2017 IEEE International Conference on*, pp. 1184-1193, 2017.
- C.3 **M.T. Lash**, J. Slater, P.M. Polgreen, and A.M. Segre, “A Large-Scale Exploration of Factors Affecting Hand Hygiene Compliance Using Linear Predictive Models”, in *Healthcare Informatics (ICHI), 2017 International Conference on*, pp. 66-73, 2017.
- C.2 **M.T. Lash**, Q. Lin, W.N. Street, J.G. Robinson and J. Ohlmann, “Generalized Inverse Classification”, in *Proceedings of the 2017 SIAM International Conference on Data Mining (SDM)*, pp. 162-170, 2017.
- C.1 **M.T. Lash**, S. Fu, S. Wang and K. Zhao, “Early prediction of movie success—What, who, and when”, in *Proceedings of the 2015 International Conference on Social Computing, Behavioral-Cultural Modeling, & Prediction (SBP)*, 2015.

TALKS AND POSTERS

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- “Product Face Ratios, Stereotypes, and Political Orientation: Field Data on Consumer Evaluations”. Association for Consumer Research (ACR) Conference, Denver, CO, October, 2022. *Invited Talk*.

- “Physician-in-the-loop Classification Explainability via Deep Reinforcement Learning”. INFORMS Annual Meeting, Indianapolis, IN, October, 2022. *Invited Talk*.
- “Are investor sentiments still predictive during highly volatile markets? Evidences from the COVID-19 Pandemic”. Production and Operations Management Society (POMS), Virtual Conference, April, 2022. *Invited Talk*.
- “Model-Agnostic Classification Explainability via Deep Reinforcement Learning”. Center for Business Analytics Research (CBAR) Seminar Series, November, 2021. *Invited Talk*.
- “Model-Agnostic Classification Explainability via Deep Reinforcement Learning”. INFORMS Annual Meeting, Virtual Conference, October, 2021. *Invited Talk*.
- “Model-Agnostic Classification Explainability via Deep Reinforcement Learning”. University of Nebraska Supply Chain Management and Analytics Seminar Series, April, 2021. *Invited Talk*.
- “Team2Vec: Inductive Representation Learning of Teams From Graphs”. INFORMS Annual Meeting, Virtual Conference, November, 2020. *Invited Talk*.
- “Optimizing Movie Profits Via Deep Learning-based Cast Recommendation”. INFORMS Annual Meeting, Seattle, WA, October, 2019. *Invited Talk*.
- “Early Predictions of Movie Success and Beyond”. Center for Business Analytics Research, Lawrence, KS, September, 2019. *Invited Talk*.
- “Optimizing Patient Outcomes via Inverse Classification”. INFORMS Annual Meeting, Phoenix, AZ, November, 2018. *Invited Talk*.
- “Data, Decisions, and Machine Learning: Optimizing Outcomes via Inverse Classification”. University of Iowa Informatics Day, Iowa City, IA, November, 2017. *Invited Talk*.
- “Data, Decisions, and Machine Learning: Optimizing Outcomes via Inverse Classification”. University of Iowa Dept. of Comp. Sci. Graduate Research Symposium, Iowa City, IA, November, 2017. *Invited Talk*.
- “Learning Rich Geographical Representations: Predicting Colorectal Cancer Survival in the State of Iowa”. 2017 IEEE International Conference on Bioinformatics and Biomedicine, Kansas City, MO, November, 2017. *Talk*.
- “Prophit: Inverse Classification via Causal Deep Learning”. INFORMS Annual Meeting, Houston, TX, October, 2017. *Invited Talk*.
- “A Large-Scale Exploration of Factors Affecting Hand Hygiene Compliance Using Linear Predictive Models”. 2017 IEEE International Conference on Healthcare Informatics, Park City, UT, August, 2017. *Talk*.
- “Generalized Inverse Classification”. 2017 SIAM International Conference on Data Mining, Houston, TX, April, 2017. *Talk, Poster*.
- “Generalized Inverse Classification”. INFORMS Annual Meeting, Nashville, TN, November, 2016. *Invited Talk*.
- “Leveraging Longitudinal Healthcare Data For Inverse Classification”. INFORMS Annual Meeting, Nashville, TN, November, 2016. *Invited Talk*.
- “Reducing Patient Risk through Inverse Classification: An SVM-based Method”. INFORMS Annual Meeting, Philadelphia, PA, November, 2015. *Invited Talk*.
- “Early prediction of movie success—What, who, and when”. SBP 2015, Washington D.C., March, 2015. *Poster*.
- “Early Prediction of Movie Success-A Social Network Perspective”. INFORMS Annual Meeting, San Francisco, CA, November, 2014. *Talk*.
- “Early Prediction of Movie Success-A Social Network Perspective”. Data Mining and Analytics Workshop, INFORMS Annual Meeting, San Francisco, CA, October, 2014. *Talk*.

TEACHING

School of Business, *University of Kansas*

- BSAN:745 (Masters) Advanced Machine Learning
55% reported improved critical thinking by a lot

Spr’22

- BSAN:326 (Undergrad) Database Management Systems (2 sections) Spr'22
82% reported improved critical thinking by **a lot**
- BSAN:745 (Masters) Advanced Machine Learning Spr'21
67% reported improved critical thinking by **a lot**
- BSAN:326 (Undergrad) Database Management Systems (2 sections) Spr'21
79% reported improved critical thinking by **a lot**
- DSCI:995 (PhD) Machine Learning Seminar Spr'20
Median eval score (sect avg): NA (COVID)
- BSAN:326 (Undergrad) Database Management Systems (2 sections) Spr'20
Median eval score (sect avg): NA (COVID)

Tippie College of Business, *University of Iowa*

- MSCI:6050 (Masters) Data Management and Visual Analytics Spr'19
Median eval score (sect avg): **5.0** (out of 6)
- MSCI:6100 (Masters) Text Analytics Spr'19
Median eval score (sect avg): **5.8** (out of 6)

Department of Computer Science, *University of Iowa*

- CS:3210 (UG/Masters/PhD) Programming Languages and Tools Fall'18
Median eval score: **5.8** (out of 6)
- CS:3210 (UG/Masters/PhD) Programming Languages and Tools Spr'18
Median eval score: **5.0** (out of 6)

GRADUATE STUDENT ADVISING

PhD Student Advising

- Amin Abassi Pooya [co-chair with Suman Malik] (in-progress)

PhD Committee Member

- Lijun Chen [comprehensive exam, dissertation] (in-progress)
- Corban Allenbrand [qualifying exam, comprehensive exam] (in-progress)
- Shaolin Pu [qualifying exam] (in-progress)

CONSULTING

- Examinetics, Inc., Kansas City, KS 2020-2021
Workforce Planning and Scheduling Optimization

SELECTED MEDIA

- “It’s hard to predict a movie’s profitability, but you learn some lessons along the way”, The Washington Post, May 16, 2016
- “UI researchers try to predict box office success”, The Des Moines Register, February 26, 2016
- “The AI that could change Hollywood”, BBC, February 24, 2016
- “Batman V Superman: Dawn of Justice predicted to be big flop; here’s why movie has only 32% chances of making profit”, International Business Times, February 18, 2016
- “Is Batman v Superman set to be a flop? AI Predicts the superhero movie has only a 32% chance of making a profit”, The Daily Mail (UK), February 16, 2016
- “Algorithm predicts success rate for Batman V. Superman movie, amongst others”, redOrbit, February 13, 2016
- “Predicting box office boffo or bomb”, Iowa Now, February 10, 2016
- “An artificial intelligence project to predict the profitability of new movies”, The Stack, February 1, 2016

- “Box Office Predictions From Robots Find A-List Actors Hurt Film Profits”, The International Business Times, June 24, 2015
- “Data Mining Reveals the Surprising Factors Behind Movie Success”, MIT Technology Review, June 22, 2015
- “Science Explains Why Some Movies Make Millions (While Others Flop)”, Mental Floss, June 24, 2015
- “Data-Mining zeigt Erfolgsfaktoren für Kinofilme”, heise online (Germany), June 24, 2015
- “Algoritmo ”desvenda” o que leva um filme a fazer sucesso e dar lucro”, Gazeta do Povo (Portugal), June 26, 2015
- “Análise de big data desvenda o segredo dos filmes de sucesso”, Estadão (Brazil), June 22, 2015

PROFESSIONAL SERVICE

Organizational

- Session chair for *Anthropomorphism*, 2022 Association for Consumer Research Conference, Denver, CO, October, 2022.
- Cluster chair for *AI in Healthcare*, 2022 INFORMS Annual Meeting, Indianapolis, IN, October, 2022.
- Session chair for *Physician-in-the-Loop AI*, 2022 INFORMS Annual Meeting, Indianapolis, IN, October, 2022.
- Session chair for *Utility-based Machine Learning*, 2021 INFORMS Annual Meeting, Virtual Conference, October, 2021.
- Session chair for *Mining and Learning on Graphs*, 2020 INFORMS Annual Meeting, Virtual Conference, November, 2020.
- Co-session chair for *Data Mining and Business Analytics*, 2019 INFORMS Annual Meeting, Seattle, WA, October, 2019.
- Session chair for *Decision Making and Data Mining*, 2018 INFORMS Annual Meeting, Phoenix, AZ, November, 2018.
- Session chair for the *5th International Workshop on Data Science and Big Data Analytics*, ICDM '17, New Orleans, LA, November, 2017.
- Session chair for *Causal Data Mining*, 2017 INFORMS Annual Meeting, Houston, TX, October, 2017.
- Session chair for *Data Mining Innovations in Healthcare*, 2016 INFORMS Annual Meeting, Nashville, TN, November, 2016.
- Session chair for *2014 INFORMS Workshop on Data Mining and Analytics* (INFORMS DMA '14). 2014 INFORMS Annual Meeting, San Francisco, CA, November, 2014.

Program Committee

- 2022 INFORMS Annual Meeting Pierskalla Award Committee.
- 3rd INFORMS Workshop on Data Science 2019 (DS'19).
- Data Science and Big Data Analytics 2018 (DSBDA'18) at ICDMW'18.

Reviewer/Referee

- Journal of Management Information Systems (JMIS): 2017, 2018, 2019, 2020, 2021.
- INFORMS Journal on Computing: 2022.

- Decision Support Systems, 2022.
- Expert Systems with Applications (ESWA): 2020, 2021.
- Decision Sciences Journal (DSJ): 2017, 2018, 2021.
- Annals of Operations Research (ANOR): 2016, 2019, 2023.
- Transportation Research – Series E: 2020.
- Journal of the Association for Information Science and Technology (JASIST): 2020, 2021, 2022.
- Public Library of Science (PLoS One): 2018, 2019.
- International Journal of Forecasting: 2020.
- International Journal of Computers in Healthcare (IJCIH): 2017.
- International Journal of Electronic Commerce (IJEC): 2016.
- 2022 INFORMS Annual Meeting Data Mining Society Best Paper Award: 2022.
- IEEE International Conference on Data Mining (ICDM): 2017, 2018.
- IEEE International Conference on Healthcare Informatics (ICHI): 2017, 2022.
- International Conference on Information Systems (ICIS): 2019, 2020, 2021.
- ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD): 2015, 2016, 2018.
- AAAI Conference on Artificial Intelligence (AAAI): 2019.
- IEEE International Conference on Information and Knowledge Management (CIKM): 2017.
- International Conference on Social Computing, Behavioral-Cultural Modeling, & Prediction (SBP): 2015.
- Annual Workshop on Information Technologies and Systems (WITS): 2014.
- INFORMS Workshop on Data Mining and Analytics (INFORMS DMA): 2014.
- INFORMS Workshop on Data Science (INFORMS DS): 2019.
- PeerJ: 2022.

Affiliations

INFORMS, AIS, POMS, ACR, IEEE
