

Ali Tosyali, PhD

Department of Management Information Systems, Marketing, and Analytics
Saunders College of Business
Rochester Institute of Technology
Rochester, NY 14623

Email: atosyali@saunders.rit.edu | Web: <https://alitosyali.github.io>

EMPLOYMENT	Assistant Professor of MIS (tenure-track) RIT – MIS, Marketing, and Analytics Assistant Professor of MIS (nontenure-track) University of Delaware – Accounting and MIS	<i>Aug 2021 – Present</i> <i>Aug 2019 – Aug 2021</i>
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EDUCATION	Rutgers, The State University of New Jersey Ph.D. in Industrial & Systems Engineering M.S. in Industrial & Systems Engineering Turkish Military Academy B.S. in Systems Engineering (minor: Business Administration)	<i>Piscataway, NJ</i> <i>2019</i> <i>2016</i> <i>Ankara, TURKEY</i> <i>2013</i>
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RESEARCH INTERESTS	<i>Method Area: Network Science, AI/ML, Complex Systems, Optimization</i> <i>Application Area: Digital Platforms, Financial Services, Social Media, Opinion Mining and Analysis, Healthcare</i>
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GRANTS	May 2023: Rochester Institute of Technology Seed Grant, “ <i>Explainable AI in Healthcare</i> ” (\$8,000)
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PUBLICATIONS **PUBLISHED/ACCEPTED**

(* Corresponding Author, # Author names are listed in alphabetical order)

1. Xie, Y., Wang, T., Jeong, Y. S. *, Tosyali, A. *, & Jeong, M. K. (2023). True sparse PCA for reducing the number of essential sensors in virtual metrology. *International Journal of Production Research*, 1-16.
2. He, S., Hollenbeck, B., Overgoor, G., Proserpio, D., & Tosyali, A. (2022). Detecting fake-review buyers using network structure: Direct evidence from Amazon. *Proceedings of the National Academy of Sciences*, 119(47), e2211932119.
 - Select Media Coverage: [Forbes](#), [The Wall Street Journal](#), [WIRED](#), and [UCLA Anderson Review](#), [The Penny Hoarder](#)
3. Tutun, S., Tosyali, A., Sangrody, H., Khasawneh, M., Johnson, M., Albizri, A., & Harfouche, A. (2022). Artificial intelligence in energy industry: forecasting electricity consumption through cohort intelligence & adaptive neural fuzzy inference system. *Journal of Business Analytics*, 1-18.
4. Yu, Y., Tosyali, A., Baek, J., & Jeong, M. K. (2022). A Novel Similarity-Based Link Prediction Approach for Transaction Networks. *IEEE Transactions on Engineering Management*.
5. Tosyali, A., & Tavakkol, B. (2021). A node-based index for clustering validation of graph data. *Annals of Operations Research*, 1-25.

6. Tosyali, A., Choi, J., Kim, B., Lee, H., & Jeong, M. K. (2021). A dynamic graph-based approach to ranking firms for identifying key players using inter-firm transactions. *Annals of Operations Research*, 303(1), 5-27.
7. Tosyali, A.*, Song, R., Guo, W., Abolhassani, A., & Kalamdani, R. (2021). Data-driven gantry health monitoring and process status identification based on texture extraction. *Journal of Computing and Information Science in Engineering*, 21(1), 011003.
8. Tosyali, A., Kim, J., Choi, J., Kang, Y., & Jeong, M. K. (2020). New node anomaly detection algorithm based on nonnegative matrix factorization for directed citation networks. *Annals of Operations Research*, 288(1), 457-474.
9. Choi, J., Tosyali, A., Kim, B., Lee, H. S., & Jeong, M. K. (2019). A novel method for identifying competitors using a financial transaction network. *IEEE Transactions on Engineering Management*, 69(4), 845-860.
10. Tosyali, A., Kim, J., Choi, J., & Jeong, M. K. (2019). Regularized asymmetric nonnegative matrix factorization for clustering in directed networks. *Pattern Recognition Letters*, 125, 750-757.
11. Usta, M., & Tosyali, A. (2018). Characterization of model-based uncertainties in incompressible turbulent flows by machine learning. In *ASME International Mechanical Engineering Congress and Exposition* (Vol. 52101, p. V007T09A029). American Society of Mechanical Engineers.
12. Rodriguez, A., Tosyali, A., Kim, B., Choi, J., Lee, J. M., Coh, B. Y., & Jeong, M. K. (2016). Patent clustering and outlier ranking methodologies for attributed patent citation networks for technology opportunity discovery. *IEEE Transactions on Engineering Management*, 63(4), 426-437.
13. Sevim, C., Ekiyor, A., & Tosyali, A. (2016). As a supply chain financing source, trade credit and bank credit relationship during financial crises from clustering point of view. *International Business Research*, 9(4), 45-57.

UNDER REVIEW AND WORKING PAPERS

1. MDScan: Explainable AI Artifact for Screening and Monitoring Mental Disorders (with Salih Tutun, Kazim Topuz, Gordon Li, and Anol Bhattacharjee)
 - Status: Under review at *Journal of Management Information Systems*
 - Presented at 2022 Harvard AI, ML, and BA Conference, INFORMS 2022, INFORMS 2023, IISE Cup 2023, ECIS 2023
 - Gold Award Winner at 2023 IISE Cup Competition
2. Robust asymmetric nonnegative matrix factorization for clustering nodes in directed networks (with Yi Yu, Jaeseung Baek, and Myong K. Jeong)
 - Status: 1st revise and resubmit at *Annals of Operations Research*
 - Presented at INFORMS 2022
3. Real-time fake review buyer detection (with Sherry He, Brett Hollenbeck, Gijs Overgoor, and Davide Proserpio)
 - Status: Model building and implementation
 - Target: Marketing Science
4. Detecting and understanding collaboration to competition using graph neural networks (with Laharish Guntuka)
 - Status: Data analysis and model building
5. Detecting review manipulation using transfer learning in heterogenous knowledge graphs (with Ethan Feldman)
 - Status: Data analysis and model building

TEACHING

MIS, Marketing, and Analytics, Rochester Institute of Technology

- MGIS650: Introduction to Data Analytics and Business Intelligence
- MGIS355: Business Intelligence
- BANA255: Data Literacy & Analytics
- MGIS489: Advance Business Intelligence (*Scheduled - Designed the course*)

Accounting and Management Information Systems, University of Delaware

- MISY225: Introduction to Programming Business Applications
- MISY262: Fundamentals of Business Analytics (*Course coordinator*)
- MISY367: Social Network Analysis (*Designed the course*)

Management Science and Information Systems, Rutgers Business School

- Business Decision Analytics under Uncertainty
- Operations Management
- Statistical Methods in Business
- Management Information Systems
- Data Analysis and Decision Making
- Analytics for Business Intelligence

SERVICES

STUDENTS

Yifan Xie – PhD Student at Rutgers University (*dissertation committee member*)

Ethan Feldman – MIS Undergraduate Student at RIT (*summer mentor and supervisor*)

- Student received McNair Scholars Scholarship for Summer and Fall 2023

REVIEWER

Journals

- IEEE Transactions on Knowledge and Data Engineering (TKDE)
- IEEE Transactions on Cybernetics (CYB)
- Scientific Reports
- IEEE Transactions on Engineering Management (TEM)
- IEEE Transactions on Network Science and Engineering
- Omega
- Annals of Operations Research (ANOR)
- Knowledge and Information Systems
- Journal of Manufacturing Systems (SMEJMS)
- Quality and Reliability Engineering International (QRE)

Conferences

- International Conference on Information Systems (ICIS)

SKILLS

Programming Languages and Tools: Python, R, MATLAB, SQL, Tableau, LaTeX, yEd, Gephi

Spoken Languages: Turkish (native), English (fluent)

Extracurricular Activities: Tennis, motorcycle, baglama (a folkloric instrument), electric guitar, snowboarding, soccer