

# Ali Tosyali, PhD

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EMPLOYMENT	<b>Assistant Professor of MIS (tenure-track)</b> RIT – MIS, Marketing, and Analytics <b>Assistant Professor of MIS (nontenure-track)</b> University of Delaware – Accounting and MIS	<i>Aug 2021 – Present</i>  <i>Aug 2019 – Aug 2021</i>
EDUCATION	<b>Rutgers, The State University of New Jersey</b> Ph.D. in Industrial & Systems Engineering M.S. in Industrial & Systems Engineering	<i>Piscataway, NJ</i> <i>2019</i> <i>2016</i>
RESEARCH INTERESTS	<i>Method Area:</i> Network Science, Machine Learning, Complex Systems, Optimization <i>Application Area:</i> Digital Platforms, Financial Services Analytics, Social Network Analysis, Opinion Mining and Analysis, Healthcare Analytics	
PUBLICATIONS	<b>Journals (published/accepted)</b> <ol style="list-style-type: none"><li>He, S., Hollenbeck, B., Overgoor, G., Proserpio, D., &amp; <u>Tosyali, A.</u> (2022)<sup>1</sup>. Detecting fake review buyers using network structure: Direct evidence from Amazon. <b><i>Proceedings of the National Academy of Sciences</i></b>, 119(47)<ul style="list-style-type: none"><li>Earlier versions presented at SCECR 2022 and INFORMS 2022</li><li>Select Media Coverage: <a href="#">The Wall Street Journal</a>, <a href="#">WIRED</a>, and <a href="#">UCLA Anderson Review</a></li></ul></li><li>Tutun, S., <u>Tosyali, A.</u>, Sangrody, H., Khasawneh, M., Johnson, M., Albizri, A., &amp; Harfouche, A. (2022). Artificial intelligence in energy industry: forecasting electricity consumption through cohort intelligence &amp; adaptive neural fuzzy inference system. <b><i>Journal of Business Analytics</i></b>, 1-18.</li><li>Yu, Y., <u>Tosyali, A.</u>, Baek, J., &amp; Jeong, M. K. (2022). A Novel Similarity-Based Link Prediction Approach for Transaction Networks. <b><i>IEEE Transactions on Engineering Management</i></b>.</li><li><u>Tosyali, A.</u>, &amp; Tavakkol, B. (2021). A node-based index for clustering validation of graph data. <b><i>Annals of Operations Research</i></b>, 1-25.</li><li><u>Tosyali, A.</u>, Choi, J., Kim, B., Lee, H., &amp; Jeong, M. K. (2021). A dynamic graph-based approach to ranking firms for identifying key players using inter-firm transactions. <b><i>Annals of Operations Research</i></b>, 303(1), 5-27.</li><li><u>Tosyali, A.</u>, Song, R., Guo, W. G., Abolhassani, A., &amp; Kalamdani, R. (2021). Data-Driven Gantry Health Monitoring and Process Status Identification Based on Texture Extraction. <b><i>Journal of Computing and Information Science in Engineering</i></b>, 21(1).</li><li><u>Tosyali, A.</u>, Kim, J., Choi, J., Kang, Y., &amp; Jeong, M. K. (2020). New node anomaly detection algorithm based on nonnegative matrix factorization for directed citation networks. <b><i>Annals of Operations Research</i></b>, 288(1), 457-474.</li><li>Choi, J., <u>Tosyali, A.</u>, Kim, B., Lee, H. S., &amp; Jeong, M. K. (2022). A novel method for identifying competitors using a financial transaction network. <b><i>IEEE Transactions on Engineering Management</i></b>, 69(4), 845-860.</li><li><u>Tosyali, A.</u>, Kim, J., Choi, J., &amp; Jeong, M. K. (2019). Regularized asymmetric nonnegative matrix factorization for clustering in directed networks. <b><i>Pattern Recognition Letters</i></b>, 125, 750-757.</li><li>Rodriguez, A., <u>Tosyali, A.</u>, Kim, B., Choi, J., Lee, J. M., Coh, B. Y., &amp; Jeong, M. K. (2016). Patent clustering and outlier ranking methodologies for attributed patent citation networks for technology opportunity discovery. <b><i>IEEE Transactions on Engineering Management</i></b>, 63(4), 426-437.</li></ol>	

<sup>1</sup> Authors listed in alphabetical order.

11. 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.

#### **Working Papers**

1. *Human-Centered Explainable AI Framework for Identifying Mental Disorders* (with Salih Tutun, Kazim Topuz, Gordon Li, and Anol Bhattacharjee)
2. *Influential user identification on online social networks* (with Salih Tutun, Behnam Tavakkol, Asil Oztekin, and Mojtaba TalaeiKhoei)  
- Presented at Saunders College of Business (RIT) and POMS 2022
3. *Robust asymmetric nonnegative matrix factorization* (with Yi Yu, Jaeseung Baek, and Myong K. Jeong)
4. *True Sparse PCA for Reducing the Number of Essential Sensors in Virtual Metrology* (with Yifan Xie, Tianhui Want, Young-Seon Jeong, and Myong K. Jeong)

#### **Refereed Conference Proceedings**

1. B. Tavakkol and A. Tosyali. Density-based clustering validation of uncertain data objects. In *2020 Northeast Decision Sciences Institute Annual Meeting*.
2. M. Usta and A. Tosyali. Characterization of model-based uncertainties in incompressible turbulent flows by machine learning. In *ASME 2018 International Mechanical Engineering Congress and Exposition*.

#### **TEACHING**

##### **MIS, Marketing, and Analytics, Rochester Institute of Technology**

- MGIS650: Introduction to Data Analytics and Business Intelligence
- MGIS355: Business Intelligence
- BANA255: Data Literacy & Analytics

##### **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**

##### **Reviewer**

###### *Journals*

- IEEE Transactions on Knowledge and Data Engineering (TKDE)
- IEEE Transactions on Cybernetics (CYB)
- IEEE Transactions on Engineering Management (TEM)
- IEEE Transactions on Network Science and Engineering
- Omega
- Annals of Operations Research (ANOR)
- 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:** Racquetball, mountain biking, baglama (a folkloric instrument), electric guitar, snowboarding, soccer