

# Murat Can Ganiz, PhD

Associate Professor of Computer Engineering | Founder & Managing Partner, VeriUs Technology

Marmara University, Faculty of Engineering, Department of Computer Engineering | Istanbul, Türkiye

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[Homepage](#) | [Google Scholar](#) | [LinkedIn](#) | [GitHub](#) | [VeriUs Technology](#)

## PROFESSIONAL PROFILE

Computer scientist, academic researcher, and AI entrepreneur specializing in machine learning, natural language processing, text mining, data science, LLMs, retrieval-augmented generation, and graph-based reasoning. Research and applied work span Turkish NLP, legal AI, healthcare AI, medical information extraction, semantic search, source-grounded conversational AI, and enterprise knowledge systems.

- Founder and Managing Partner of VeriUs Technology, a university spin-off developing domain-focused AI products for law, healthcare, and enterprise document intelligence.
- Director of the Big Data and Text Analytics Research Lab at Marmara University; previously directed the Social Network Analysis and Data Mining Research Lab at Dogus University.
- Recent applied AI focus: agentic RAG, hybrid retrieval with vector databases/search engines/graph databases, knowledge-network construction, concept and relation extraction, summarization, labeling, domain adaptation, explainability, and on-premise deployment.

## RESEARCH INTERESTS AND TECHNICAL EXPERTISE

- Artificial intelligence; machine learning; deep learning; data mining; text mining; data science.
- Natural language processing for low-resource languages, especially Turkish: text classification, named entity recognition, information extraction, sentiment analysis, summarization, and semantic search.
- Large language models, retrieval-augmented generation, Graph-RAG, agentic workflows, hybrid retrieval, domain-specific model adaptation, and hallucination reduction.
- Legal AI, healthcare AI, medical NLP, biomedical entity extraction, clinical decision-support interfaces, and enterprise/private document intelligence.
- Graph mining, social network analysis, linked data, knowledge engineering, distributed data mining, and higher-order path analysis.

## EDUCATION

- Ph.D. in Computer Science** | Lehigh University, Bethlehem, PA, USA Sep 2003 - Jan 2008  
Dissertation: Higher-order Path Analysis for Supervised Machine Learning.  
Advisors: William M. Pottenger; Mooi Chuah (PhD de jure advisor).
- M.S. in Computer Engineering** | Selcuk University, Türkiye Sep 2000 - Jun 2002  
Thesis: Üniversite akademik bilgi sistemi ve uygulaması.
- B.S. in Computer Engineering** | Selcuk University, Türkiye Sep 1996 - Jun 2000

## CURRENT AND RECENT POSITIONS

- Associate Professor** | Marmara University, Department of Computer Engineering, Istanbul Mar 2018 - Present  
Teaching and research in AI, machine learning, NLP, data science, text mining, and intelligent systems.  
Director, Big Data and Text Analytics Research Lab (@BIGDaTA\_lab).
- Founder and Managing Partner** | VeriUs Technology, Istanbul May 2013 - Present  
Founded and lead a university spin-off focused on real-world AI, NLP, data science, and LLM/RAG products.  
Oversee technical strategy, R&D execution, team building, project management, and customer-specific integration for AI systems in legal, healthcare, and enterprise knowledge domains.  
Product and project portfolio includes hukuk.chat, saglik.chat / Health Chat, Private Document Intelligence (PDI), legal document analysis, contract analysis, case analysis, Turkish legislation/case-law question answering, and medical Graph-RAG systems.
- Research Advisor** | Innova R&D Center, Istanbul Jan 2022 - Dec 2026  
Coordinated and advised AI, data science, NLP, and applied machine learning projects.
- Research Advisor** | ExperTeam R&D Center, Istanbul Mar 2018 - Dec 2026  
Advised AI, data science, NLP, text mining, and R&D project development and implementation.

## PREVIOUS ACADEMIC AND INDUSTRY EXPERIENCE

- Assistant Professor** | Marmara University, Department of Computer Engineering, Istanbul Sep 2015 - Mar 2018
- Assistant Professor** | Dogus University, Department of Computer Engineering, Istanbul Sep 2009 - Sep 2015  
Directed the Social Network Analysis and Data Mining (SoNADaM) Research Lab.
- R&D Project Advisor** | Turk Telekom R&D Center, Istanbul Jan 2017 - Jan 2018

Advised large-scale R&D project proposals for European Union ITEA and Horizon 2020 funding programs related to big data, machine learning, text mining, and deep learning.

**Data Mining Engineer** | Fox Interactive Media / MySpace, Beverly Hills, CA, USA

**Feb 2008 - Dec 2008**

Developed data mining solutions for abnormal sign-up detection and large-scale recommendation systems based on collaborative filtering. Worked on video and friend recommendation systems for a user base exceeding 150 million users and contributed to data warehouse design on Aster Data Systems nCluster parallel database.

## SELECTED RESEARCH AND R&D PROJECTS

**KardiyoLLM / Medical Graph-RAG and Health AI Projects** | VeriUs Technology / Marmara University BIGDaTA Lab

**Recent**

Development of medical Graph-RAG, cardiological intelligence, medical hallucination reduction, synthetic data generation, and reliable Turkish healthcare AI components for saglik.chat / Health Chat.

**Turkish Legal AI and Enterprise RAG Products** | VeriUs Technology

**2022 - Present**

Development of source-grounded legal AI systems including hukuk.chat, legislation and case-law retrieval, contract analysis, case analysis, semantic search, information extraction, summarization, and deployable domain-specific LLM/RAG infrastructure.

**TÜBİTAK 1501 Project** | VeriUs Technology

**2022 - 2024**

Project Manager for intelligent search engine and NLP models for sustainability report generation and innovation action tracking.

**TÜBİTAK 3501 National Young Researchers Career Development Program** | Marmara University

**2022 - 2024**

Researcher for sentiment analysis and descriptive analytics models analyzing social media and Turkish foreign policy perceptions.

**TÜBİTAK 1001 Scientific and Technological Research Projects Funding Program** | Marmara University

**2017 - 2020**

Principal Investigator, Development of Distributed Word Representations that Extract Semantic Relations for Supervised and Semi-Supervised Classification applied to Language Processing. Approximate budget: 431,000 TL.

**TÜBİTAK 3501 National Young Researchers Career Development Program** | Dogus University

**2012 - 2015**

Principal Investigator, project 111E239, semantic text mining algorithms. Budget: 129,385 TL.

**TÜBİTAK 1512 Individual Entrepreneurship Multi-Stage Support Program** | VeriUs Technology

**2013 - 2014**

Principal Investigator for commercialization of sentiment analysis, opinion mining, social network analysis, text mining, and big data analytics technologies. Budget: 100,000 TL.

**National Science Foundation Grants** | Lehigh University / NSF

**2006 - 2008**

Research Assistant on visual analytics and distributed higher-order text mining projects; worked on large-scale distributed data mining and higher-order path analysis.

**NCSA MRAC Grant** | National Center for Supercomputing Applications, USA

**2006**

Co-PI, Link Analysis of Higher-Order Paths in Supervised Learning Datasets; approved 30,000 service units on Tungsten Supercluster and SGI Altix servers.

## SELECTED INDUSTRY R&D AND CONSULTING PROJECTS

- Advisor for the international coordinator company of an ITEA / Eureka software innovation project with 11 partners from six countries, including machine learning, NLP, and optimization models for expert assignment to service demands.
- Advisor for TÜBİTAK TEYDEB 1507 SME Funding Programme projects involving mobile telecommunications data mining, time- and context-sensitive recommendation engines, lead prediction/ranking, and enterprise request filtering.
- Advisor for KOSGEB R&D, Innovation and Industrial Application Support Program on semantic text mining for quality assessment and certification of e-commerce companies.
- Technical leadership for domain-adapted AI systems requiring custom installation, client IT integration, data pipeline design, model evaluation, and on-premise or customer-specific deployment.

## ACADEMIC METRICS AND RESEARCH GROUPS

- Google Scholar citation profile: approximately 1,451 citations as of June 2026.
- AVESIS profile lists 56 publications, 30 WoS publications, 42 Scopus publications, 521 Scopus citations, and Scopus H-index 13 as of the latest public profile snapshot consulted.
- Director, Big Data and Text Analytics Research Lab (@BIGDaTA\_lab), Marmara University.
- Former Director, Social Network Analysis and Data Mining (SoNADaM) Research Lab, Dogus University.

## PUBLICATIONS AND PATENT

Selected recent and representative publications are listed below in reverse chronological order. Full live publication lists are available through Google Scholar and AVESIS.

### Recent Journal Articles, Conference Papers, and Preprints

1. Shaqalaih, L. I. A., Belal, O. S., Küçük, F. M., Tuncer, Y., & Ganiz, M. C. (2025). Medical Graph-RAG: Bilingual Graph-Based Reasoning for Cardiological Intelligence. 2025 International Conference on INnovations in Intelligent SysTems and Applications (INISTA). doi:10.1109/INISTA68122.2025.11249583.
2. Abdullahi, A. A., Ganiz, M. C., Koç, U., Gökhan, M. B., Aydın, C., & Özdemir, A. B. (2025). Deep learning for named entity recognition in Turkish radiology reports. *Diagnostic and Interventional Radiology*, 31(5), 430-439.
3. Tuncer, Y., Pekedis, H., Özeren, H., & Ganiz, M. C. (2025). New Approaches to Named Entity Recognition in Turkish: Improving Performance through Architecture Modification of Causal Large Language Models. 2025 33rd Signal Processing and Communications Applications Conference (SIU). doi:10.1109/SIU66497.2025.11112472.
4. Üzümcü, T., & Ganiz, M. C. (2025). Analysis of Consistency of Large Language Models for Low-Resource Languages like Turkish with Min-P and Top-P Sampling Parameters. 2025 33rd Signal Processing and Communications Applications Conference (SIU). doi:10.1109/SIU66497.2025.11112080.
5. Mehmetcik, H., Ganiz, M. C., Kölük, M., Yüksel, G., Yılmaz, M., İnce, M. M., et al. (2024). TFPsocialmedia: a public dataset for studying Turkish foreign policy. *Discover Data*, 2(1), 3.
6. Alsaç, A., Yenisey, M. M., Ganiz, M. C., Dağtekin, M., & Ulusinan, T. (2023). The Efficiency of Regularization Method on Model Success in Issue Type Prediction Problem. *Acta Infologica*, 7(2), 360-383.
7. Gerek, A., Ferahlar, C., Sert, B. Ş., Yüney, M. C., Taşdemir, O., Kalafat, Z. B., et al. (2022). Hyperbolic Centroid Calculations for Text Classification. arXiv preprint arXiv:2211.04462.
8. Yıldız, M., Alsaç, A., Ulusinan, T., Ganiz, M. C., & Yenisey, M. M. (2022). IT Support Ticket Completion Time Prediction. 7th International Conference on Computer Science and Engineering (UBMK), 198-203.
9. Sariyer, M., Akil, A., Bulgurcu, F. N., Öge, F. E., & Ganiz, M. C. (2022). Individual Stock Price Prediction by Using KAP and Twitter Sentiments with Machine Learning for BIST30. INISTA 2022.
10. Çelikmasat, G., Aktürk, M. E., Ertunç, Y. E., Issifu, A. M., & Ganiz, M. C. (2022). Biomedical Named Entity Recognition Using Transformers with biLSTM + CRF and Graph Convolutional Neural Networks. INISTA 2022.
11. Akça, O., Bayrak, G., Issifu, A. M., & Ganiz, M. C. (2022). Traditional Machine Learning and Deep Learning-based Text Classification for Turkish Law Documents using Transformers and Domain Adaptation. INISTA 2022.
12. Bayrak, G., Toprak, M. Ş., Ganiz, M. C., Kodaz, H., & Koç, U. (2022). Deep learning-based brain hemorrhage detection in CT reports. *Challenges of Trustable AI and Added-Value on Health*, 866-867.
13. Issifu, A. M., & Ganiz, M. C. (2021). A Simple Data Augmentation Method to Improve the Performance of Named Entity Recognition Models in Medical Domain. 6th International Conference on Computer Science and Engineering (UBMK), 763-768.
14. Abbasli, N., & Ganiz, M. C. (2021). Log and Execution Trace Analytics System. INISTA 2021.
15. Ugur, O., Arisoy, A. A., Ganiz, M. C., & Bolac, B. (2021). Descriptive and Prescriptive Analysis of Construction Site Incidents Using Decision Tree Classification and Association Rule Mining. INISTA 2021.
16. Altinel, A. B., Hakkoz, M. A., Bozdağ, E. B., & Ganiz, M. C. (2020). Identifying Topic-based Opinion Leaders in Social Networks by Content and User Information. *International Journal of Intelligent Systems and Applications in Engineering*, 8(4), 214-220.
17. Kalaycı, T. A., Asan, U., Ganiz, M. C., & Gerek, A. (2019). A New Cluster-Aware Regularization of Neural Networks. *International Conference on Intelligent and Fuzzy Systems*, 346-353.
18. Gerek, A., Yüney, M. C., Erkaya, E., & Ganiz, M. C. (2019). Effects of Positivization on the Paragraph Vector Model. INISTA 2019.
19. Kocaman, G., Şipal, B., Gerek, A., Altinel, B., & Ganiz, M. C. (2019). Diffused Label Propagation based Transductive Classification Algorithm for Word Sense Disambiguation. INISTA 2019.

### Representative Earlier Publications and Patent

1. Altinel, A. B., Ganiz, M. C., & Şipal, B. et al. (2019). Word sense disambiguation using semantic kernels with class-based term values. *Turkish Journal of Electrical Engineering & Computer Sciences*, 27(4), 3180-3194.
2. Değirmenci, S., Gerek, A., & Ganiz, M. C. (2019). Waste Not: Meta-Embedding of Word and Context Vectors. NLDB 2019.
3. Altinel, B., & Ganiz, M. C. (2018). Semantic text classification: A survey of past and recent advances. *Information Processing & Management*, 54(6), 1129-1153.
4. Çelenli, H. İ., Öztürk, S. T., Şahin, G., Gerek, A., & Ganiz, M. C. (2018). Document Embedding Based Supervised Methods for Turkish Text Classification. UBMK 2018.
5. Altinel, B., Ganiz, M. C., & Diri, B. (2017). Instance Labeling in Semi-Supervised Learning with Meaning Values of Words. *Engineering Applications of Artificial Intelligence*, 62, 152-163.
6. Taşpınar, M., Ganiz, M. C., & Acarman, T. (2017). A Feature Based Simple Machine Learning Approach with Word Embeddings to Named Entity Recognition on Tweets. NLDB 2017.
7. Altinel, B., & Ganiz, M. C. (2016). A new hybrid semi-supervised algorithm for text classification with class-based semantics. *Knowledge-Based Systems*, 108, 50-64.
8. Tutkan, M., Ganiz, M. C., & Akyokuş, S. (2016). Helmholtz Principle based Supervised and Unsupervised Feature Selection Methods for Text Mining. *Information Processing & Management*, 52(5), 885-910.
9. Altinel, B., Diri, B., & Ganiz, M. C. (2015). A novel semantic smoothing kernel for text classification with class-based weighting. *Knowledge-Based Systems*, 89, 265-277.
10. Altinel, B., Ganiz, M. C., & Diri, B. (2015). A corpus-based semantic kernel for text classification by using meaning values of terms. *Engineering Applications of Artificial Intelligence*, 43, 54-66.
11. Poyraz, M., Kilimci, Z. H., & Ganiz, M. C. (2014). A Novel Semantic Smoothing Method based on Higher Order Paths for Text Classification. *Journal of Computer Science and Technology*, 29(3), 376-391.
12. Ganiz, M. C., George, C., & Pottenger, W. M. (2011). Higher Order Naive Bayes: A Novel Non-IID Approach to Text Classification. *IEEE Transactions on Knowledge and Data Engineering*, 23(7), 1022-1034.
13. Pottenger, W. M., Lytkin, N., & Ganiz, M. C. (2010). Systems and Methods for Data Transformation Using Higher Order Learning. US Patent Application 12/797,366.
14. Ganiz, M., Lytkin, N., & Pottenger, W. M. (2009). Leveraging Higher Order Dependencies between Features for Text Classification. ECML/PKDD 2009.

15. Li, S., Janneck, C. D., Belapurkar, A. P., Ganiz, M. C., Yang, X., Dilsizian, M., Wu, T., Bright, J. M., & Pottenger, W. M. (2007). Mining Higher-Order Association Rules from Distributed Named Entity Databases. IEEE ISI 2007.
16. Ganiz, M., Pottenger, W. M., Kanitkar, S., & Chuah, M. C. (2006). Detection of Interdomain Routing Anomalies Based on Higher-Order Path Analysis. IEEE ICDM 2006.
17. Ganiz, M., Pottenger, W. M., & Yang, X. (2006). Link Analysis of Higher-Order Paths in Supervised Learning Datasets. SIAM Workshop on Link Analysis, Counterterrorism and Security.

## ACADEMIC ACTIVITIES

### Reviewer and Editorial Service

- Reviewer: IEEE Transactions on Knowledge and Data Engineering; IEEE Transactions on Artificial Intelligence; IEEE Access; IEEE Transactions on Systems, Man and Cybernetics: Systems; Journal of the American Society for Information Science and Technology; Knowledge-Based Systems; Turkish Journal of Electrical Engineering and Computer Sciences; Springer Nature Applied Sciences; Discrete Dynamics in Nature and Society; IEEE ICDM; IEEE ISI.
- Guest Editor: Turkish Journal of Electrical Engineering and Computer Sciences (SCI Expanded).

### Research Project Review, Panels, and Advisory Boards

- Committee Member: TÜBİTAK TEYDEB BİLTEG (2018-2019).
- Advisory Board Member: TÜBİTAK 1003 Cloud Computing and Open Source Software call programs, including Big Data, Cloud Computing Architectures, and Database/Database Management Systems calls.
- Panelist / Referee: TÜBİTAK ARDEB 1001 / 1003 / 3501 / 3001; TÜBİTAK TEYDEB 1512; TÜBİTAK TEYDEB 1501 / 1507 / 1509; Eureka; Eurostars.

## THESIS AND DISSERTATION ADVISING

1. Rafah Alomar, M.S. (Mar 2024). Abstractive Legal Text Summarization Using Attention Mechanisms.
2. Abubakar Ahmad Abdullahi, M.S. (Jan 2024). Information Extraction from Radiology Reports.
3. Onur Akça, M.S. (Aug 2023). Natural Language Processing in Legal Domain: Classification of Turkish Legal Texts.
4. Gıyaseddin Bayrak, M.S. (Jan 2023). Radiology Report Classification for Low-resource Languages using Machine Learning: A Case Study of Brain Hemorrhage Detection.
5. Abdul Majeed Issifu, M.S. (Aug 2022). Development of Data Augmentation Methods to Improve Performance of Supervised Machine Learning Models in Natural Language Processing.
6. Muhlis Sariyer, M.S. (Jun 2022). Analysis of KAP Financial Disclosures and Creation of KAP Index.
7. Halil İbrahim Çelenli, M.S. (Co-advisor, Apr 2020). Development of Word Embedding Methods.
8. Selin Değirmenci, M.S. (Spring 2019). Combination of Word Embeddings.
9. Gökhan Kocaman, M.S. (Spring 2019). Diffused Label Propagation based Transductive Classification Algorithm for Word Sense Disambiguation.
10. Berna Altınel, Ph.D. (Co-advised with Assoc. Prof. Dr. Banu Diri, Jan 2016). Corpus-Based Semantic Kernels for Supervised and Semi-Supervised Text Classification.
11. Melike Tutkan, M.S. (Spring 2015). Meaning based Feature Selection Methods for Text Classification.
12. Hacı Burak Karamık, M.S. (Spring 2013). Using GADIA and N-GAIR in Community Detection in Social Networks.
13. Erhan Çakırman, M.S. (Spring 2013). Sentiment Analysis on Turkish Product Reviews.
14. Dilara Torunoğlu, M.S. (Spring 2013). Wikipedia Based Semantic Smoothing for Twitter Sentiment Classification.
15. Zeynep Hilal Kilimci, M.S. (Fall 2012). Empirical Comparison of Naive Bayes Event Models and Smoothing Methods for Text Classification.
16. Mithat Poyraz, M.S. (Fall 2012). Higher-Order Semantic Smoothing for Text Classification.

## SELECTED TEACHING

- Natural Language Processing; Introduction to Natural Language Processing.
- Introduction to Data Science and Analytics.
- Machine Learning and related supervised learning / text classification topics.
- Object-Oriented Software Design; Data Structures.

## REFERENCES

Available upon request.