

## Assoc. Prof. ŞEYDA ERTEKİN BOLELLİ

### Personal Information

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### International Researcher IDs

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Publons / Web Of Science ResearcherID: AAP-5301-2021

ScopusID: 8839506400

Yoksis Researcher ID: 237089

### Education Information

Doctorate, Pennsylvania State University, Computer Science and Engineering, United States Of America 2002 - 2009

Postgraduate, University of Louisiana at Lafayette, Computer Science and Engineering, United States Of America 2000 - 2001

Undergraduate, Middle East Technical University, Faculty of Engineering, Department of Electrical and Electronics Engineering, Turkey 1994 - 1998

### Research Areas

Engineering and Technology

### Academic Titles / Tasks

Associate Professor, Middle East Technical University, Faculty of Engineering, Department of Computer Engineering, 2020 - Continues

Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Computer Engineering, 2015 - 2020

Researcher, Massachusetts Institute of Technology, 2014 - 2020

Researcher, Massachusetts Institute of Technology, 2010 - 2014

Research Assistant, The Pennsylvania State University, 2002 - 2009

Research Assistant, University of Louisiana at Lafayette, 2000 - 2001

### Academic and Administrative Experience

Rectorate Commissioner, Middle East Technical University, Faculty of Engineering, Department of Computer Engineering, 2018 - Continues

Rectorate Commissioner, Middle East Technical University, 2018 - Continues

Uygulama ve Araştırma Merkezi Yönetim Kurulu Üyesi, Middle East Technical University, 2018 - Continues

Rectorate Commissioner, Middle East Technical University, 2017 - Continues

## Advising Theses

- ERTEKİN BOLELLİ Ş., Feature enhancement with deep generative models in deep Bayesian active learning, Postgraduate, P.EZGİ(Student), 2022
- ERTEKİN BOLELLİ Ş., Artificial intelligence based dynamic mission planning with probabilistic roadmaps and voronoi diagrams using predictive launch acceptability region approach, Postgraduate, M.RAŞİT(Student), 2021
- ERTEKİN BOLELLİ Ş., Wasserstein generative adversarial active learning for anomaly detection with gradient penalty, Postgraduate, H.ALİ(Student), 2021
- ERTEKİN BOLELLİ Ş., Time series prediction of solar power generation using trend decomposition, Postgraduate, G.KAVAKÇI(Student), 2021
- ERTEKİN BOLELLİ Ş., Autonomous fruit picking with a team of aerialmanipulators, Postgraduate, T.KÖSE(Student), 2021

## Published journal articles indexed by SCI, SSCI, and AHCI

- I. **CALPAGAN: Calorimetry for Particles Using Generative Adversarial Networks**  
Simsek E., İŞILDAK B., Dogru A., Aydogan R., Bayrak B., ERTEKİN BOLELLİ Ş.  
Progress of Theoretical and Experimental Physics, vol.2024, no.8, 2024 (SCI-Expanded)
- II. **Hierarchical reinforcement Thompson composition**  
Tanık G. O., ERTEKİN BOLELLİ Ş.  
Neural Computing and Applications, vol.36, no.20, pp.12317-12326, 2024 (SCI-Expanded)
- III. **Time Series Prediction of Solar Power Generation Using Trend Decomposition**  
Kavakci G., Cicekdag B., ERTEKİN BOLELLİ Ş.  
Energy Technology, vol.12, no.2, 2024 (SCI-Expanded)
- IV. **Linking COVID-19 Perception With Socioeconomic Conditions Using Twitter Data**  
Sert E., Okan O., Ozbilen A., ERTEKİN BOLELLİ Ş., ÖZDEMİR S.  
IEEE TRANSACTIONS ON COMPUTATIONAL SOCIAL SYSTEMS, vol.9, no.2, pp.394-405, 2022 (SCI-Expanded)
- V. **Penetration rate prediction in heterogeneous formations: A geomechanical approach through machine learning**  
Kor K., Ertekin S., Yamanlar Ş., Altun G.  
Journal of Petroleum Science and Engineering, vol.207, 2021 (SCI-Expanded)
- VI. **A feature-based hybrid ARIMA-ANN model for univariate time series forecasting**  
Buyuksahin U. C., ERTEKİN BOLELLİ Ş.  
JOURNAL OF THE FACULTY OF ENGINEERING AND ARCHITECTURE OF GAZI UNIVERSITY, vol.35, no.1, pp.467-478, 2020 (SCI-Expanded)
- VII. **Improving forecasting accuracy of time series data using a new ARIMA-ANN hybrid method and empirical mode decomposition**  
Buyuksahin U. C., Ertekin Ş.  
NEUROCOMPUTING, vol.361, pp.151-163, 2019 (SCI-Expanded)
- VIII. **Joint optimization of ordering and maintenance with condition monitoring data**  
Moghaddass R., Ertekin Bolelli Ş.  
ANNALS OF OPERATIONS RESEARCH, vol.263, pp.271-310, 2018 (SCI-Expanded)
- IX. **A Bayesian Approach to Learning Scoring Systems**  
ERTEKİN BOLELLİ Ş., Rudin C.  
BIG DATA, vol.3, no.4, pp.267-276, 2015 (SCI-Expanded)
- X. **REACTIVE POINT PROCESSES: A NEW APPROACH TO PREDICTING POWER FAILURES IN UNDERGROUND ELECTRICAL SYSTEMS**  
Ertekin Ş., Rudin C., McCormick T. H.  
ANNALS OF APPLIED STATISTICS, vol.9, pp.122-144, 2015 (SCI-Expanded)
- XI. **Approximating the crowd**  
Ertekin Ş., Rudin C., Hirsh H.

- DATA MINING AND KNOWLEDGE DISCOVERY, vol.28, pp.1189-1221, 2014 (SCI-Expanded)
- XII. **Analytics for Power Grid Distribution Reliability in New York City**  
Rudin, Rudin C., Ertekin Ş., Passonneau R., Radeva, Radeva A., Tomar A., Xie, Xie B., Lewis S., Riddle M., Pangsrivini D., McCormick T.  
INTERFACES, vol.44, pp.364-383, 2014 (SCI-Expanded)
- XIII. **On Equivalence Relationships Between Classification and Ranking Algorithms**  
Ertekin Ş., Rudin C.  
JOURNAL OF MACHINE LEARNING RESEARCH, vol.12, pp.2905-2929, 2011 (SCI-Expanded)
- XIV. **Nonconvex Online Support Vector Machines**  
Ertekin Ş., Bottou L., Giles C. L.  
IEEE TRANSACTIONS ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE, vol.33, pp.368-381, 2011 (SCI-Expanded)
- XV. **Efficient name disambiguation for large-scale databases**  
Huang J., Ertekin Ş., Giles C. L.  
KNOWLEDGE DISCOVERY IN DATABASES: PKDD 2006, PROCEEDINGS, vol.4213, pp.536-544, 2006 (SCI-Expanded)
- XVI. **Clustering scientific literature using sparse citation graph analysis**  
Bolelli L., Ertekin Ş., Giles C. L.  
KNOWLEDGE DISCOVERY IN DATABASES: PKDD 2006, PROCEEDINGS, vol.4213, pp.30-41, 2006 (SCI-Expanded)
- XVII. **Fast kernel classifiers with online and active learning**  
Bordes A., Ertekin Ş., Weston J., Bottou L.  
JOURNAL OF MACHINE LEARNING RESEARCH, vol.6, pp.1579-1619, 2005 (SCI-Expanded)

## Articles Published in Other Journals

- I. **Solar Power Prediction with an Hour-based Ensemble Machine Learning Method**  
ERTEKİN BOLELLİ Ş.  
Hittite Journal of Science and Engineering, vol.7, no.1, pp.35-40, 2020 (Peer-Reviewed Journal)
- II. **Learning customized and optimized lists of rules with mathematical programming**  
Rudin C., Ertekin Ş.  
MATHEMATICAL PROGRAMMING COMPUTATION, vol.10, pp.659-702, 2018 (ESCI)
- III. **Industry 4.0 and Turkish National Innovation System: Challenges and Prospect**  
ERDİL E., ERTEKİN BOLELLİ Ş.  
TEKPOL Working Paper Series STPS-WP-18/01, 2018 (Non Peer-Reviewed Journal)
- IV. **Industry 4.0 and Turkish National Innovation System: Challenges and Prospects**  
ERDİL E., ERTEKİN BOLELLİ Ş.  
International Scientific Journal Industry 4.0, vol.2, pp.197-200, 2017 (Peer-Reviewed Journal)
- V. **CLASS IMBALANCE AND ACTIVE LEARNING**  
Attenberg J., Ertekin Ş.  
IMBALANCED LEARNING: FOUNDATIONS, ALGORITHMS, AND APPLICATIONS, pp.101-149, 2013 (Peer-Reviewed Journal)

## Books & Book Chapters

- I. **Türkiye’de Yapay Zekanın Gelişim için görüş ve Öneriler**  
ADALI E., AFYONLUOĞLU M., GÜVENİR H. A., ERGİN O., ERTEKİN BOLELLİ Ş., KARAKAYA Z., KOLAT A., ÖZBAYOĞLU A. M., TUNCER T. T., VAROL A., et al.  
Türkiye Bilişim Derneği (TBD), Ankara, 2020
- II. **Forecasting of Product Quality Through Anomaly Detection**

Dinc M., Ertekin Bolelli Ş., Ozkan H., Meydanli C., Atalay M. V.

in: Machine Learning and Knowledge Discovery in Databases, Cellier P., Driessens K., Editor, Springer-Verlag, Basel, pp.357-366, 2020

- III. **Algorithms for Efficient Learning Systems: Online and Active Learning Approaches**  
ERTEKİN BOLELLİ Ş.  
VDM Verlag, 2019
- IV. **METU Smart Campus Project (iEAST)**  
ERTEKİN BOLELLİ Ş., KEYSAN O., GÖL M., Bayazit H., Yildiz T., Marr A., Ganji M., Teimourzadeh S., Tör O. B., Özkavaf S.  
in: New Technologies, Development and Application II, Isak Karabegović, Editor, Springer, pp.287-297, 2019
- V. **Short-Term Electricity Consumption Forecast using Datasets of Various Granularities.**  
Arslan Y., Dilbaz A. Ş., ERTEKİN BOLELLİ Ş., Karagöz P., Birturk A. N., Eren S., Küçük D.  
in: Data Analytics for Renewable Energy Integration. Technologies, Systems and Society., Woon W., Aung Z., Catalina Feliú A., Madnick S., Editor, Springer, Cham, pp.116-126, 2018
- VI. **Class Imbalance and Active Learning**  
Attenberg J., ERTEKİN BOLELLİ Ş.  
in: Imbalanced Learning: Foundations, Algorithms, and Applications, Haibo He, Yunqian Ma, Editor, IEEE Press Wiley, Piscataway, pp.101-149, 2013
- VII. **Topic and Trend Detection in Text Collections Using Latent Dirichlet Allocation**  
Bolelli L., ERTEKİN BOLELLİ Ş., Giles C. L.  
in: Advances in Information Retrieval, Mohand Boughanem, Catherine Berrut, Josiane Mothe, Chantal Soule-Dupuy, Editor, Springer, Berlin, pp.776-780, 2009
- VIII. **Clustering Scientific Literature Using Sparse Citation Graph Analysis**  
Bolelli L., ERTEKİN BOLELLİ Ş., Giles C. L.  
in: Knowledge Discovery in Databases: PKDD 2006, Johannes Fürnkranz, Tobias Scheffer, Myra Spiliopoulou, Editor, Springer, Berlin, pp.30-41, 2006
- IX. **Efficient Name Disambiguation for Large-Scale Databases**  
Huang J., ERTEKİN BOLELLİ Ş., Giles C. L.  
in: Knowledge Discovery in Databases: PKDD 2006, Johannes Fürnkranz, Tobias Scheffer, Myra Spiliopoulou, Editor, Springer, Berlin, pp.536-544, 2006

## Refereed Congress / Symposium Publications in Proceedings

- I. **Enhanced Thermal Human Detection with Fast Filtering for UAV Images**  
Ozyurt U., Cicekdag B., budak z. d., ERTEKİN BOLELLİ Ş.  
4th IEEE International Informatics and Software Engineering Conference (IISEC), Ankara, Turkey, 21 December 2023
- II. **Machine Learning Based Radar Cross-Section Clustering Towards Enhanced Situational Awareness for Next-Generation Fighter Aircraft**  
Ozdemir M. R., Kucuk A. F., Inalhan G., Başpınar B., ERTEKİN BOLELLİ Ş.  
43rd AIAA DATC/IEEE Digital Avionics Systems Conference, DASC 2024, California, United States Of America, 29 September - 03 October 2024
- III. **Sabit Kanatlı Askeri Hava Araçları için Lokal/Dinamik Hareket Planlama Çalışmaları**  
Ozdemir R., ERTEKİN BOLELLİ Ş.  
10. SAVUNMA TEKNOLOJİLERİ KONGRESİ (SAVTEK), Ankara, Turkey, 13 September 2022
- IV. **SİNİR AĞLARI İLE ATIŞ ÖNCESİ DEĞER HESAPLAMA**  
Gorgulu T., Demirkan M., Tanik G. O., ERTEKİN BOLELLİ Ş.  
10. SAVUNMA TEKNOLOJİLERİ KONGRESİ, Ankara, Turkey, 13 September 2022
- V. **Bayes Derin Aktif Öğrenmede Mod Çökmesi Problemini İyileştirme**  
Col Duymus P. E., ERTEKİN BOLELLİ Ş.

30th Signal Processing and Communications Applications Conference (SIU), Kastamonu, Turkey, 15 May 2022

- VI. **Recursive Compositional Reinforcement Learning for Continuous Control Sürekli Kontrol Uygulamaları için Özyinelemeli Bileşimsel Pekİştirmeli Öğrenme**  
Tanik G. O., Ertekin S.  
30th Signal Processing and Communications Applications Conference, SIU 2022, Safranbolu, Turkey, 15 - 18 May 2022
- VII. **Feature Dimensionality Reduction with Variational Autoencoders in Deep Bayesian Active Learning.**  
Col P. E., ERTEKİN BOLELLİ Ş.  
29th Signal Processing and Communications Applications Conference (SIU 2021), İstanbul, Turkey, 09 June 2021
- VIII. **1. AI-based Air-to-Surface Mission Planning for Opportunity Targets using Predictive LAR Approach**  
Ertekin Bolelli Ş., Ozdemir R.  
International Conference on Military Technologies, Brno, Czech Republic, 9 - 11 June 2021, pp.1-8
- IX. **AI-based Air-to-Surface Mission Planning for Opportunity Targets using Predictive LAR Approach.**  
Ozdemir R., Cevher L., ERTEKİN BOLELLİ Ş.  
8th International Conference on Military Technologies (ICMT 2021), Brno, Czech Republic, 08 June 2021
- X. **2. Feature Dimensionality Reduction with Variational Autoencoders in Deep Bayesian Active Learning**  
Ertekin Bolelli Ş., Col P. E.  
29th Signal Processing and Communications Applications Conference (SIU), İstanbul, Turkey, 9 - 11 June 2021, vol.1, no.1, pp.1-4
- XI. **AI-based Air-to-Surface Mission Planning using Predictive Launch Acceptability Region Approach**  
Ozdemir M. R., Cevher L., Ertekin S.  
8th International Conference on Military Technologies, ICMT 2021, Brno, Czech Republic, 8 - 11 June 2021
- XII. **Ensemble of Convolutional Neural Networks for Classification of Breast Microcalcification from Mammograms**  
SERT E., ERTEKİN Ş., HALICI U.  
39th Annual International Conference of the IEEE-Engineering-in-Medicine-and-Biology-Society (EMBC), South Korea, 11 - 15 July 2017, pp.689-692
- XIII. **Approximating the Crowd with a Budget**  
ERTEKİN BOLELLİ Ş., Rudin C., Hirsh H.  
European Conference on Machine Learning and Practice of Knowledge Discovery in Databases (ECML/PKDD), Nancy, France, 15 - 19 September 2014
- XIV. **Predicting Power Failures with Reactive Point Processes**  
ERTEKİN BOLELLİ Ş., Rudin C., McCormick T.  
17th AAAI Conference on Late-Breaking Developments in the Field of Artificial Intelligence, Bellevue, United States Of America, 29 June 2013
- XV. **Adaptive Oversampling for Imbalanced Data Classification**  
Ertekin Ş.  
28th International Symposium on Computer and Information Sciences (ISCIS), Paris, France, 28 - 29 October 2013, vol.264, pp.261-269
- XVI. **Selective sampling of labelers for approximating the crowd**  
ERTEKİN BOLELLİ Ş., Hirsh H., Rudin C.  
AAAI Fall Symposium on Machine Aggregation of Human Judgment, Darlington, United Kingdom, 05 November 2012
- XVII. **Learning to predict the wisdom of the crowds**  
ERTEKİN BOLELLİ Ş., Hirsh H., Rudin C.  
Collective Intelligence Conference 2012, Boston, United States Of America, 18 - 20 April 2012
- XVIII. **Approximating the wisdom of the crowd.**  
ERTEKİN BOLELLİ Ş., Hirsh H., Rudin C.  
NIPS 2011 Second Workshop on Computational Social Science and the Wisdom of Crowds, Granada, Nicaragua, 17 December 2011

- XIX. Finding Topic Trends in Digital Libraries**  
Bolelli L., Ertekin Ş., Zhou D., Giles C. L.  
9th Annual International ACM/IEEE Joint Conference on Digital Libraries, Texas, United States Of America, 15 - 19 June 2009, pp.69-72
- XX. Topic and Trend Detection in Text Collections Using Latent Dirichlet Allocation**  
Bolelli L., Ertekin Ş., Giles C. L.  
31st European Conference on Information Research, Toulouse, France, 6 - 09 April 2009, vol.5478, pp.776-777
- XXI. Learning on the border: Active learning in imbalanced data classification**  
ERTEKİN BOLELLİ Ş., Huang J., Bottou L., Giles C. L.  
16th ACM conference on Conference on information and knowledge management (CIKM 2007), Lisbon, Portugal, 6 - 10 October 2007, pp.127-136
- XXII. Active learning for class imbalance problem**  
ERTEKİN BOLELLİ Ş., Huang J., Giles C. L.  
SIGIR 2007 30th annual international ACM SIGIR conference on Research and development in information retrieval, Amsterdam, Netherlands, 23 - 27 July 2007, pp.823-824
- XXIII. A clustering method for web data with multi-type interrelated components**  
Bolelli L., ERTEKİN BOLELLİ Ş., Zhou D., Giles C. L.  
WWW 2007 16th international conference on World Wide Web, Banff, Canada, 8 - 12 May 2007, pp.1121-1122
- XXIV. K-SVMs: A hybrid clustering algorithm for multi-type interrelated datasets**  
Bolelli L., Ertekin Ş., Zhou D., Giles C. L.  
IEEE/WIC/ACM International Conference on Web Intelligence, California, United States Of America, 2 - 05 November 2007, pp.198-204
- XXV. Efficient Multiclass Boosting Classification with Active Learning**  
Huang J., Ertekin Ş., Song Y., Zha H., Giles C. L.  
7th SIAM International Conference on Data Mining, Minnesota, United States Of America, 26 - 28 April 2007, pp.297-308
- XXVI. Fast Classification with Online Support Vector Machines**  
ERTEKİN BOLELLİ Ş., Bottou L., Giles C. L.  
Grace Hopper Celebration of Women in Computing, San Diego, United States Of America, 4 - 07 October 2006
- XXVII. Efficient Name Disambiguation for Large Scale Datasets.**  
Huang J., ERTEKİN BOLELLİ Ş., Giles C. L.  
European Conference on Principles of Data Mining and Knowledge Discovery, Berlin, Germany, 18 - 22 September 2006, pp.536-544
- XXVIII. Clustering Scientific Literature Using Sparse Citation Graph Analysis**  
Bolelli L., ERTEKİN BOLELLİ Ş., Giles C. L.  
European Conference on Principles of Data Mining and Knowledge Discovery PKDD 2006: Knowledge Discovery in Databases, Berlin, Germany, 18 - 22 September 2006, pp.30-41
- XXIX. The Shape of the Web and Its Implications for Searching the Web**  
efe k., raghavan v., chu h., broadwater a., Bolelli L., ERTEKİN BOLELLİ Ş.  
International Conference on Advances in Infrastructure for Electronic Business, Science, and Education on the Internet SSGRR 2000, L'xxAquila, Italy, 31 July - 06 August 2000

## Supported Projects

ERTEKİN BOLELLİ Ş., AKAR G., EREN P. E., GÜRBÜZ T., AÇIKGÖZ K., YAMAN U., DAL H., Project Supported by Higher Education Institutions, Towards Digital Transformation: AI Assisted Smart Flexible Manufacturing, 2024 - Continues  
Ertekin Bolelli Ş., Technopark, Lazer Güdümlü Minyatür Füzeler için GPS Karıştırma Ortamında Uçan Drone Sistemi, 2024 - 2025  
Ertekin Bolelli Ş., Technopark, Yapay Zekâ Destekli Görüntü Birleştirme Donanımı, Algoritma ve Yazılım Geliştirilmesi, 2023 - 2024

Gökler M. I., Akar G., Yaman U., Köksal G., Eren P. E., Ertekin Bolelli Ş., Gürbüz T., Erdil E., AB IPA Project, MIDDLE EAST TECHNICAL UNIVERSITY DIGITAL INNOVATION CENTER, 2021 - 2024

Ulusoy I., Halıcı U., Bayram B., Ankaralı M. M., Temizel A., Gençer N. G., Akar G., Ertekin Bolelli Ş., Turgut A. E., Son Ç. D., et al., CB Strateji ve Bütçe Başkanlığı (Kalkınma Bakanlığı) Projesi, NÖROM Nörobilim ve Nöroteknoloji Mükemmeliyet Merkezi, 2020 - 2023

Ertekin Bolelli Ş., Technopark, Makine Öğrenmesi Bazlı Önleyici Bakım Algoritmaları İçeren Dijital İkiz Karar Destek Platformu Geliştirilmesi, 2022 - 2022

Ertekin Bolelli Ş., Technopark, Bulaşık Makinesi Ürün Güvenilirliği Modelinin Oluşturulması ve İyileştirme Algoritmasının Geliştirilmesi, 2020 - 2021

Ertekin Bolelli Ş., Zeyrek M. T., Project Supported by Other Official Institutions, LHC CMS Deneyinde Run II ve Ötesi Verileriyle Standart Model Hassaslık Ölçümleri, Standart Model Ötesi Fizik ve Süpersimetri (SUSY) Araştırmaları, 2018 - 2021

Ertekin Bolelli Ş., Project Supported by Other Private Institutions, Bulut Tabanlı Akıllı Ulaşım Sistemleri Yönetimi ve Büyük Veri İşleme Platformunun Geliştirilmesi, 2018 - 2019

Ertekin Bolelli Ş., Project Supported by Other Private Institutions, Bulut Tabanlı Merkezileştirilmiş Uç Nokta İzleme, Tehdit Tespit ve Müdahale Sistemi Geliştirme Projesi, 2018 - 2018

Ertekin Bolelli Ş., Project Supported by Other Private Institutions, Büyük Veri Algoritmaları Kullanarak Kayıp Kaçak ve Arıza Analizleri Süreçlerinin İyileştirilmesi, 2017 - 2018

## Metrics

Publication: 72  
Citation (WoS): 1087  
Citation (Scopus): 1236  
H-Index (WoS): 14  
H-Index (Scopus): 13

## Non Academic Experience

TUSAS Turk Havacilik ve Uzay Sanayii  
Arçelik  
NEC Research Labs  
Traffic.com Inc.  
Aselsan  
Aselsan