

# Aysun Bozanta Hakyemez, Ph.D.

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<https://scholar.google.com/citations?user=D1mzhE0AAAAJ&hl=tr&oi=ao>

## EDUCATION:

- **Ph.D. in Management Information Systems**, Bogazici University **2018**
  - **Thesis Title:** Context-Aware Location Recommender System: Analysis of Location-Based Social Network
  - **Advisor:** Prof. Dr. Birgul Kutlu Bayraktar
- **M.A. in Management Information Systems**, Bogazici University **2013**
  - **Thesis Title:** Effects of Serious Games on Team Building in A Multi-User Virtual Environment
  - **Advisor:** Prof. Dr. Birgul Kutlu Bayraktar
- **B.S. in Management Information Systems (Double Major)**, IsikUniversity **2010**
- **B.S. in Mathematical Engineering**, IsikUniversity **2010**

## WORK EXPERIENCE:

- **Assist. Prof. Dr.** **February 2023 – Present**  
Bogazici University, Management Information Systems (Istanbul)
- **Post-Doctoral Fellow** **September 2019 – Dec 2021**  
Ryerson University, Data Science Lab (Toronto)
- **Part-Time Instructor** **February 2019 – June 2019**  
Yeditepe University, Management Information Systems Department (Istanbul)
- **Part-Time Instructor** **September 2018 – January 2019**  
Bogazici University, Management Information Systems Department (Istanbul)
- **Research Assistant** **April 2011 – June 2018**  
Bogazici University, Management Information Systems Department (Istanbul)

## **TEACHING EXPERIENCE:**

### **Bogazici University Undergraduate Courses**

- **System Analysis and Design (MIS 321)**, Management Information Systems, Bogazici University, Istanbul, Turkey (Fall): Systems development life cycle. Systems analysis; identifying problems. Determining and analyzing information requirements. Systems design; output, input, file, database, user interface, data-entry procedures, and software design. Systems development, project management, costs, programming, testing and documentation. Systems implementation and evaluation.
- **Introduction to Information Systems and Technologies (MIS 125)**, Management Information Systems, Bogazici University, Istanbul, Turkey (Fall): Information and information system (IS) concepts. Basic components and functions of computers. Information systems technologies and telecommunications. Fundamentals of information systems. Overview of different types of information systems. Utilization of software packages widely used.
- **Introduction to Recommender Systems (MIS 48R)**, Management Information Systems, Bogazici University, Istanbul, Turkey (Spring): This course covers the leading approaches of recommender systems including collaborative and content-based techniques. You'll learn how they work, how to use and how to evaluate them, pointing out benefits and limits of different recommender system alternatives.

### **Bogazici University Graduate Courses**

- **Reinforcement Learning (BIS 68R)**, Management Information Systems, Bogazici University, Istanbul, Turkey (Spring): This course provides a comprehensive introduction to Reinforcement Learning (RL), a branch of machine learning that focuses on decision-making under uncertainty. Students will explore the fundamental principles of RL, including Markov decision processes (MDPs), dynamic programming, Monte Carlo methods, and temporal difference learning. The course will cover both model-free and model-based RL techniques.
- **Recommender Systems (BIS 582)**, Business Information Systems, Bogazici University, Istanbul, Turkey (Spring): This course covers the leading approaches of recommender systems including collaborative and content-based techniques. You'll learn how they work, how to use and how to evaluate them, pointing out benefits and limits of different recommender system alternatives.
- **Data Resources Management (MIS 511)**, Management Information Systems, Bogazici University, Istanbul, Turkey (Fall): The concepts, principles and techniques for managing corporate data resources. Techniques for managing the design and development of large database systems including logical data models. Data distribution, database administration, data warehouse, data cleaning and data mining.
- **Information System & Technologies (BIS 511)**, Business Information Systems, Bogazici University, Istanbul, Turkey (Fall): Information and information systems concepts. Overview of different types of information systems. Information systems technologies and telecommunications used in business world. Details of computer data processing. Logic and algorithmic approaches.

### **Toronto Metropolitan University (Formerly Ryerson University)**

- **Introduction to Big Data (CIND 119)**, The Chang School of Continuing Education, Toronto Metropolitan University (Ryerson University), Toronto, Canada (Summer Term 2021): This course is designed to give students an overview of big data, state of the practice in analytics, the role of the data scientist, big data analytics in industry verticals, and analytics lifecycle as an end-to-end process. It focuses on key roles for a successful analytic project, main phases of the life cycle, developing core deliverables for stakeholders, teamwork skills, and problem solving skills.
- **Information Systems Analysis and Design (ME 8118)**, Mechanical and Industrial Engineering Master Program, Toronto Metropolitan University (Ryerson University), Toronto, Canada (Winter Term 2021): The foundations that underlie the development of information systems are presented. The concepts, strategies, techniques, and tools for identifying and specifying information systems requirements and for developing designs are covered. A major analysis and design project is required.
- **Practical Machine Learning (DS 8015)**, Data Science Master Program, Toronto Metropolitan University (Ryerson University), Toronto, Canada (Winter Term 2020, 2021): To introduce students to the theory and design of machine learning algorithms using Python. The course covers the following topics: Python Fundamentals, Data Structures, Functions and Functional Programming, Python Libraries, Exploratory Data Analysis, Introduction to Machine Learning, Unsupervised Learning, Supervised Learning: Regression, Supervised Learning: Classification, Dimensionality Reduction, and Neural Networks.
- **Python Programming for Data Science (CIND 830)**, The Chang School of Continuing Education, Toronto Metropolitan University (Ryerson University), Toronto, Canada (Fall Term 2020): This course is an introduction to Python, analysing and exploring data and doing machine learning with Python. Topics cover basics in Python programming language as well as visualization and exploratory data analysis in Python. Python libraries such as NumPy, Pandas, Matplotlib and Seaborn which are essential for data science will be introduced
- **Data Analytics: Capstone Course (CKME 136)**, The Chang School of Continuing Education, Toronto Metropolitan University (Ryerson University), Toronto, Canada (Summer Term 2020): This course is intended to bring to fruition an applied synthesis of data analytics methods, techniques and applications and apply the competencies that this synthesis affords to a real-world area of interest.

## **CORE TECHNOLOGIES:**

- **Data Analysis:** IBM SPSS, IBM AMOS, WEKA, RapidMiner
- **Data Visualization:** PowerBI, Tableau
- **Programming Languages:** Python, R
- **Database Tools:** MS SQL, MS Access, MySQL
- **Office:** Word, Excel, PowerPoint, Visio, Publisher

## **RESEARCH INTERESTS:**

- Language Models
- Recommender Systems
- Reinforcement Learning
- Machine Learning
- Information Systems Analysis and Design

## **MEMBERSHIP:**

- **AIS**, Association for Information Systems
- **TRAIS**, Turkey Chapter of Association for Information Systems

## **AWARDS and HONORS:**

- Recipient of The Scientific and Technological Research Council of Turkey (TUBITAK) Post-Doctoral Fellowship Programme 2219 (2019-2020)
- Recipient of The Scientific and Technological Research Council of Turkey (TUBITAK) Programme 2211-E Scholarship (2013-2017)
- Recipient of The Scientific and Technological Research Council of Turkey (TUBITAK) Programme 2211 Scholarship (2011-2012)
- Completed undergraduate study (Mathematical Engineering) with high honors, ranked 2nd (2010)
- Completed undergraduate study (Management Information Systems) with high honors, ranked 1st (2010)

## **PUBLICATIONS:**

### **International Journal Articles:**

- Topal, M. B., Bozanta, A., & Başar, A. (2025). How do LLMs perform on Turkish? A multi-faceted multi-prompt evaluation. *Expert Systems with Applications*, 127421. (SCI-E)
- Berry, S., Bozanta, A., Cevik, M., Bulut, B., Yigit, D., Gonen, F. F., & Basar, A. (2025). Time series clustering for grouping products based on price and sales patterns. *Information Technology and Management*, 1-15. (SSCI)
- Bozanta, A., Cevik, M., Kavaklioglu, C., Kavuk, E.M., Tosun, A., Sonuc, S.B., Duranel, A., Basar, A. (2022) “Courier routing and assignment for food delivery service using reinforcement learning”, *Computers & Industrial Engineering*, 164(2022), DOI: <https://doi.org/10.1016/j.cie.2021.107871> (SCI-E).
- Jahanshahi, H., Bozanta, A., Cevik, M., Kavuk, E. M., Tosun, A., Sonuc, S. B., ... & Başar, A. (2022). A deep reinforcement learning approach for the meal delivery problem. *Knowledge-Based Systems*, 243(2022), DOI: <https://doi.org/10.1016/j.knosys.2022.108489> (SCI-E).
- Drummond, B., & Bozanta, A. (2022). Exploring Public Responses to Government’s COVID-19 Pandemic Policies. *Online Journal of Communication and Media Technologies*, 12(2), e202212. <https://doi.org/10.30935/ojcmt/11829> (ESCI, Scopus).
- Lak, P., Bozanta, A., Kavaklioglu, C., Cevik, M., Basar, A., Petitclerc, M., Wills, G. (2021) “A replication study on implicit feedback recommender systems with application to the data visualization recommendation”, *Expert Systems*, DOI: <https://doi.org/10.1111/exsy.12871> (SCI-E).
- Kavuk, E M, Tosun, A., Cevik, M., Bozanta, A., Sonuc, S B, Tutuncu, M., Kosucu, B., Basar, A. (2021) “Order Dispatching for an Ultra-Fast Delivery Service via Deep Reinforcement Learning”, *Applied Intelligence*, pp. 1-26 (SCI, SCI-E).
- Akar, E., Hakyemez T., Bozanta, A., Akar, S. “What sells on the fake news market? Examining the impact of contextualized rhetorical features on the popularity of fake tweets”, *Online Journal of Communication and Media Technologies*, 12(1), e202201 (ESCI, Scopus).
- Aydin, I., Bozanta, A., Cevik, M., Basar, A. (2021), “An SVEICRD model for assessing the impact of the lock-down intervention and vaccination strategies on the spread of COVID-19 (preprint)”, *Authorea*. October 16, 2021. DOI: 10.22541/au.163434613.37699406/v1
- Bozanta, A., Cevik, M., Baldassarre MT., Basar, A. (2020), " The Effects of Easing and Tightening the Lock-Down Intervention on the Spread of COVID-19", Available at SSRN 3677540
- Bozanta, A., Kutlu, B. (2019), "HybRecSys: Content-based contextual hybrid venue recommender system", *Journal of Information Science*, Vol: 45, No: 2, pp. 212-226 (SSCI) .

- Bozanta, A., Kutlu, B. (2018), "Developing a Contextually Personalized Hybrid Recommender System," *Mobile Information Systems*, vol. 2018, Article ID 3258916, 13 pages, 2018. <https://doi.org/10.1155/2018/3258916>. (SCI-E).
- Bozanta, A., Kutlu, B. (2018), "Do Twitter phenomena check-in popular venues on Foursquare too?", *Information Discovery and Delivery (ESCI, Scopus)*.
- Bozanta, A., Coskun, M., Kutlu, B. (2018), "Usage Factors of Location-Based Social Applications: The Case of Foursquare", *International Journal of Web Based Communities*, Vol: 14, No: 2, pp. 128-148 (Scopus).
- Bozanta, A., Mardikyan, S. (2017), "The Effects of Social Media Use on Collaborative Learning: A Case of Turkey", *TOJDE*, Vol: 18, No: 1, pp. 96-110 (ESCI, Scopus).
- Bozanta, A., Kutlu, B. (2017), "Current State and Future Trends in Location Recommender Systems", *International Journal of Information Technology and Computer Science (IJITCS)*, Vol: 9, No: 6, pp. 1-8.
- Bozanta, A., Coskun, M., Kutlu, B., Ozturan, M. (2017), "Relationship Between Stock Market Indices and Google Trends", *The Online Journal of Science and Technology (TOJSAT)*, Vol: 7, No: 4, pp. 168-172.
- Bozanta, A., Kutlu, B., Nowlan, N., Shirmohammadi, S. (2016), "Effects of Serious Games on Perceived Team Cohesiveness in a Multi-User Virtual Environment", *Computers in Human Behaviour*, Vol: 59, No: 2016, pp. 380-388 (SSCI).
- Ozturan, M., Bozanta, A., Basarir-Ozel, B., Akar, E., Coskun, M. (2015), "A Roadmap for an Integrated University Information System Based on Connectivity Issues: Case of Turkey", *The International Journal of Management Science and Information Technology (IJMSIT)*, No: 17, pp. 7-29.
- Bozanta, A., Nasir, V.A. (2014), "Usage of Agent-Based Modeling and Simulation in Marketing", *Journal of Advanced Management Science*, Vol: 2, No: 3, pp. 240-245.
- Kutlu, B., Bozanta, A., Ates, E., Erdogan, S., Gokay, O., Kan, N. (2014), "Project Management Software Selection Using Analytic Hierarchy Process Method", *International Journal of Applied Science and Technology*, Vol: 4, No: 6, pp. 113-119.

## **International Conference Proceedings:**

- Erer, E., Bozanta, A., Aytaç, T., Başar, A. (2025). "Insights into the Generalizability and Robustness of AI-Driven Code Comment Generation: A Replication Study". International Workshop on Envisioning the AI-Augmented Software Development Life Cycle 2025. Trondheim, Norway.
- Akhan, M., Bozanta, A. (2025). "The Future of Workplace Training: AI Avatars, Learning Outcomes, and Gender Effects". 22nd Conference of The Global Information Technology Management Association (GITMA'25)
- Topal M, Bozanta A, Basar A (2024). "Sentiment Analysis with LLMs: Evaluating QLoRA Fine-tuning, Instruction Strategies, and Prompt Sensitivity". 34th International Conference on Collaborative Advances in Software and Computing (CASCON)'24. Toronto-Canada.
- Çınar M, Öğüt A, Uzer Z, Bozanta A (2024). "Bibliometric Analysis of Artificial Intelligence Utilization in Agricultural Domain". 11th International Management Information Systems Conference, 2024. Konya - Türkiye.
- Kici, D., Bozanta A., Cevik, M., Parikh, D., Basar, A. (2021), "Text classification on software requirements specifications using transformer models" CASCON'21, Virtual Conference, Nov 22-25, 2021. (Best Paper Award)
- Bozanta, A., Angco, S., Cevik, M., Basar, A. (2021), "Sentiment Analysis of StockTwits Using Transformer Models", 20th IEEE 2021 International Conference on Machine Learning and Applications (IEEE ICMLA'21), Virtual Conference, Dec 13-16, 2021.
- Kazmi, S., Bozanta, A., Cevik, M. (2021), "Time Series Forecasting for Patient Arrivals in Online Health Services" CASCON'21, Virtual Conference, Nov 22-25, 2021.
- Ozturan, M., Kutlu, B., Bozanta, A. (2019), "Assessing The Industry 4.0 Readiness of Turkish Companies: A Pilot Study on Machinery Sub-sectors", 6th International Management Information Systems Conference (IMISC-2019), Istanbul, Turkey, 9-12 October.
- Hakyemez, T.C., Bozanta, A., Coskun, M. (2018), "K-Means vs. Fuzzy C-Means: A Comparative Analysis of Two Popular Clustering Techniques on the Featured Mobile Applications Benchmark" 5th International Management Information Systems Conference (IMISC-2018), Istanbul, Turkey, 17-20 October.
- Coskun, A., Bozanta, A. (2017), "Industry 4.0 and Key Technologies: A Review", 4th International Management Information Systems Conference (IMISC-2017), Istanbul, Turkey, 17-20 October.
- Bozanta, A., Coskun, M., Kutlu, B., Ozturan, M. (2016), "Relationship between Stock Market Indices and Google Trends", International Science and Technology Conference, pp. 1023-1027, Viyana, Avusturya, 13-15 July 2016.
- Bozanta, A., Nasir, V. A. (2014), "Usage of Agent-based Modelling & Simulation in Marketing", International Conference on Advances and Management Sciences (ICAMS-2014), Barcelona, Spain, Feb. 21-22.

Kutlu B., Bozanta, A., Nowlan, N. (2013), "Multi-User Virtual Environments and Serious Games for Team Building in Organizations", Proceedings of the Sixth International Conference on E-Learning in the Workplace (ICELW 2013), New York, NY, USA, June 12-14.

Bozanta, A., Kutlu B., Nowlan, N., Shirmohammadi, S. (2012), "Multi User Virtual Environments and Serious Games for Team Building", Procedia Computer Science, 4th International Conference on Games and Virtual Worlds for Serious Applications (VS-GAMES'12), Vol: 15, pp. 301-302.

#### **National Conference Proceedings:**

Kutlu, B., Bozanta, A., Coşkun, M. (2015), "Konum Tabanlı Sosyal Ağlar İçin Tavsiye Sistemlerinde Yeni Eğilimler: Bir Değişkenler ve Algoritmalar İncelemesi", 2. Ulusal Yönetim Bilişim Sistemleri Kongresi, ss. 857-868, Erzurum, Türkiye, 8-10 Ekim 2015.

Kutlu, B., Bozanta, A., Coşkun, M., Dişçi, D. (2014), "Foursquare Kullanımına Etki Eden Faktörler: Türkiye Örneği", Yönetim Bilişim Sistemleri Kongresi, İstanbul, Türkiye, 16-17 Ekim 2014.

#### **Book Chapters:**

Coskun, A., Bozanta, A. (2019), "Industry 4.0 and Key Technologies: A Review in the book Industry 4.0 from the MIS Perspective", The Peter Lang Publishing Group, Istanbul.

Kutlu, B., Bozanta, A., Coşkun, M., Dişçi, D. (2016), "Foursquare Kullanımına Etki Eden Faktörler: Türkiye Örneği", ss. 81-93, Boğaziçi Üniversitesi Matbaası, İstanbul.

#### **Thesis Supervised:**

Mustafa Efekan Pekel, "TIME-SERIES FORECASTING OF LIVE TV CHANNEL VIEWS ON OTT PLATFORMS" Yönetim Bilişim Sistemleri Bölümü Yüksek Lisans Tezi, Boğaziçi Üniversitesi, (Aysun Bozanta danışmanlığında), Haziran/2025

Elif Zülal Cenkci, "FINANCIAL FRAUD DETECTION USING EXPLAINABLE ARTIFICIAL INTELLIGENCE", Yönetim Bilişim Sistemleri Bölümü Yüksek Lisans Tezi, Boğaziçi Üniversitesi, (Aysun Bozanta danışmanlığında), Ocak/2025

Gülhan Kars, "ASSESSING THE SUCCESS OF AGILE SOFTWARE PROJECTS USING MACHINE LEARNING TECHNIQUES: A CASE STUDY", Yönetim Bilişim Sistemleri Bölümü Yüksek Lisans Tezi, Boğaziçi Üniversitesi, (Aysun Bozanta danışmanlığında), Ocak/2025

Fatma Kasapoğlu, "NEW AGE OF TEACHING WITH PROFESSOR AI", İşletme Bilişim Sistemleri Bölümü Yüksek Lisans Tezi, Boğaziçi Üniversitesi, (Aysun Bozanta ve Nazım Taşkın danışmanlığında), Ocak/2025

Hasan Serhat Gündüz, "EXPLAINABLE RECOMMENDER SYSTEMS", İşletme Bilişim Sistemleri Bölümü Yüksek Lisans Tezi, Boğaziçi Üniversitesi, (Aysun Bozanta danışmanlığında), Ocak/2025



## RESEARCH PROJECTS:

- **Ryerson University Data Science Lab Project**, “Intraday Trading Data Analytics with Financial News From Twitter”, 2019 – Present (TUBITAK, Post-Doctoral Research Fellowship).
- **Ryerson University Data Science Lab Project**, “Courier Assignment by Reinforcement Learning”, 2019 – Present.
- **Erasmus+ Project (2017-1-TR01-KA202-046541)**, “Online Vocational Education and Training Platform”, 2017 – 2019.
- **Boğaziçi University Scientific Research Project (12500)**, “Industry 4.0 Standardization Roadmap for Turkey”, 2017 – 2019.
- **Boğaziçi University Scientific Research Project (11463)**, “Context-Aware Location Recommender System: Analysis of Location-Based Social Network”, 2016 – 2019.
- **Boğaziçi University Scientific Research Project (6724)**, “Evaluation of virtual environments for serious games of team building, 2012 – 2014.

## REFERENCES:

- **Prof. Ayse Basar**, Toronto Metropolitan University  
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- **Prof. Birgul Kutlu Bayraktar**, İstanbul Health and Technology University  
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