

CV
Ayşenur Birtürk (Akyüz)

Contact Information:

Address: TED Üniversitesi Yazılım Mühendisliği Bölümü, Ziya Gökalp Caddesi No.48 06420, Kolej Çankaya/ANKARA.

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Scientific Interest Areas

Artificial Intelligence, Machine Learning, Data Mining, Natural Language Processing, Computational Linguistics, Knowledge Engineering, Knowledge Representation and Reasoning, Expert Systems, Web Personalization, Recommender Systems, Theory of Computation.

Researcher IDs:

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Publons / Web Of Science: ABA-4365-2020

ScopusID: 14041100500

Yoksis: 165111

Education

Basic Education:

Bahçelievler Deneme Lisesi, Ankara, Turkey.

Bachelor of Science:

Dept. of Computer Engineering, Middle East Technical University, Ankara, Turkey.

Master of Science:

Dept. of Computer Engineering, Middle East Technical University, Ankara, Turkey.

Thesis: A Model for Representing Concepts: Conceptual Dependency Theory.

Supervisor: Dr.Müren Gökeri.

Doctor of Philosophy:

Dept. of Computer Engineering, Middle East Technical University, Ankara, Turkey.

Thesis: A Computational Analysis of Turkish using the Government-Binding Approach.

Supervisor: Dr.Cem Bozşahin.

Experience

Programmer and Systems Expert: (September'85-September'89)

IsBank Computer Center, Ankara, Turkey.

Projects worked on this position include:

- systems analysis and development of programs for several banking applications on the environments SPERRY1100/EXEC/DBMS and IBM3090/MVS/IMS.
- design and development of a Management Information System(MIS) for the bank.
- relational database design and tool testing.
- development of an expert system for the financial analysis of firms using the expert system shell TI PC++.

Research/Teaching Assistant: (September'89-February'94)

Middle East Technical University, Dept. of Computer Engineering, Turkey.

Instructor: (February'94- October 2025)

Middle East Technical University, Dept. of Computer Engineering, Turkey.

New Course(s) Developed:

- Ceng 463 Introduction to Natural Language Processing
- Ceng 414 Introduction to Data Mining

Courses Taught:

- Ceng 223 Discrete Computational Structures*
- Ceng 280 Formal Languages and Abstract Machines*
- Ceng 356 Lisp and Prolog
- Ceng 414 Introduction to Data Mining*
- Ceng 424 Logic for Computer Science
- Ceng 463 Introduction to Natural Language Processing*
- Ceng 462 Artificial Intelligence
- Ceng 561 Artificial Intelligence
- Ceng 562 Machine Learning
- Ceng 563 Computational Linguistics
- Ceng 565 Theory of Computation
- Ceng 568 Knowledge Engineering
- Ceng 770 Advanced Data Mining
- Ceng 111 Introduction to Computer Engineering
- Ceng 112/220/221 Programming in Pascal
- Ceng 200/210 Programming in Fortran
- Ceng 230 C Programming
- Ceng 301 Algorithms and Data Structures
- Ceng 301 Programming in COBOL
- Ceng 491-492 Senior Seminar and Project I&II
- IDEA- C ile Bilgisayar Programcılığına Giriş

*Recently taught

Other Duties:

- Information Systems Minor Program Coordinator
- Summer Practice Coordinator
- Undergraduate Program Committee Member

Summer Research Assistant: (June'96 - Nov'96 and June'97 - August'97)

NEC Research Institute, Inc., Computer Science Division, Princeton, NJ, USA;

worked with Dr.Sandiway Fong on PAPPI project, and developed a GB parser for Turkish.

Academic Intern: (July'98 - August'98)

NEC Research Institute, Inc., Computer Science Division, Princeton, NJ, USA;

worked on a finite state machine solution to Turkish compounds.

Instructor: (December 2025 - now)

TED University, Dept. of Software Engineering, Turkey.

Courses Taught:

- CMPE 442 Machine Learning

Theses Supervised

1. Caglar Iskender, A Method for Estimation of Empty Categories and its Application to Turkish, M.S.Thesis, December 2002.
2. Ozgen Canan, Generating Motion-Economical Plans for Manual Operations, Ms. Thesis, September 2005.
3. Oznur Kirmemis, OpenMoRe: A Content-based Movie Recommendation System, M.S.Thesis, May 2008.
4. Fatih Mehmet Guler, Natural Intelligence – A Question Answering System, M.S. without Thesis Graduation Project, January 2010.
5. Omer Sunercan, Missing Link Discovery in Wikipedia: A Comparative Study, M.S.Thesis, January 2010.
6. Mustafa Azak, CROSSING: A Framework to Develop Knowledge-based Recommenders in Cross Domains, M.S.Thesis, February 2010.
7. Fatih Gurcan, A Hybrid Movie Recommender Using Dynamic Fuzzy Clustering, M.S.Thesis, February 2010.
8. Akif Boynuegri, Cross-Lingual Information Retrieval on Turkish and English Texts, M.S. Thesis, April 2010.
9. Seda Cakiroglu, Suggest me a Movie: A Multi-Client Movie Recommendation Engine on Facebook, M.S. Thesis, June 2010.
10. Fatih Aksel, Enhancing Accuracy of Hybrid Recommender Systems through Adapting the Domain Trends, M.S. Thesis, August 2010.
11. Yusuf Karagol, Event Recognition in Turkish Texts, M.S. Thesis, September 2010.
12. Ipek Tatli, A Tag-based Hybrid Music Recommendation System Using Semantic Relations and Multi-Domain Information, M.S.Thesis, September 2011.
13. Ugur Ceylan, An Ontology-Based Hybrid Recommendation System Using Semantic Similarity Measure and Feature Weighting, M.S.Thesis, September 2011.
14. Sayil Sacak Duzgun, BORGO: A Book Recommender for Reading Groups, M.S.Thesis, January 2012.
15. Elif Kamer Karatas, An Ontology-Based Approach to Requirements Reuse Problem in Software Product Lines, M.S.Thesis, August 2012.
16. Ceyda Er Koksoy, Improved Wind Power Forecasting Using Combination Methods, M.S.Thesis, September 2015.
17. Yusuf Arslan, M.S.Thesis, Basin-based Clustering of Hydroelectric Power Plants in Turkey by Use of Stream-Flow and Hydroelectric Energy Production Data, September 2015.
18. Tahir Murat Ađın, M.S.Thesis, REM: a microservice for health insurance expert systems, 2023. (co-supervisor)
19. Ezgi avař, M.S.Thesis, Fine-tuning Medical Large Language Models for Differential Diagnosis: From Synthetic Data to Real-world Evaluation, 2026. (co-supervisor)

Publications

1. Ceyda Er Koksoy, Mehmet Baris Ozkan, Serkan Buhan, Turan Demirci, Aysenur Birturk, and Pinar Karagoz, Improved Wind Power Forecasting Using Combination Methods, Special session on Machine Learning in Energy Applications of the 14th IEEE International Conference on Machine Learning and Applications (ICMLA'15), Miami, Florida, USA, December 9 – 11, 2015.
2. Yusuf Arslan, Aysenur Birturk, Sinan Eren, Basin Clustering of Turkey by Use of Monthly Stream-flow Data, Special session on Machine Learning in Energy Applications of the 14th IEEE International Conference on Machine Learning and Applications (ICMLA'15), Miami, Florida, USA, December 9 – 11, 2015.
3. Ceyda Er Koksoy, Mehmet Baris Ozkan, Dilek Kucuk, Abdullah Bestil, Sena Sonmez, Serkan Buhan, Turan Demirci, Pinar Karagoz and Aysenur Birturk, Performance Analysis of Data Mining Techniques for Improving the Accuracy of Wind Power Forecast Combination, ECML/PKDD 2015, 3rd International Workshop on Data

Analytics for Renewable Energy Integration (DARE'15), 6-11 September 2015, Porto, Portugal.

4. Fatih Gurcan, Aysenur Birturk, A Hybrid Movie Recommender using Dynamic Fuzzy Clustering, 30th International Symposium on Computer and Information Sciences (ISCIS 2015), 23-25 September 2015, London, UK. Book Chapter in Information Sciences and Systems 2015, Volume 363 of the series Lecture Notes in Electrical Engineering, pp 159-169, 04 August 2015, Editors: Omer H. Abdelrahman, Erol Gelenbe, Gokce Gorbil, Ricardo Lent. ISBN: 978-3-319-22634-7 (Print) 978-3-319-22635-4 (Online)
5. Elif Karatas, Baris Iyidir, and Aysenur Birturk, Ontology-based Software Requirements Reuse: Case Study in Fire Control SPL Domain, The 3rd International Workshop on Software Mining, In conjunction with the IEEE International Conference on Data Mining (ICDM 2014), Shenzhen, China, December 14-17, 2014.
6. Kemal Alecakir, Aysenur Birturk, Ontoloji Tabanlı Tıbbi Form Tasarım Aracı, accepted for oral presentation at Global Conference on Healthcare Systems Engineering (GCHSE) 2014, Istanbul Technical University, Macka, Istanbul, Turkey, 5-8 August 2014 (withdrawn paper, since not registered).
7. Sayil Düzgün, Aysenur Birtürk, A Web-based Book Recommendation Tool for Reading Groups, The AAAI 2012 (The Twenty-Sixth Conference on Artificial Intelligence) Workshop on Intelligent Techniques for Web Personalization and Recommender Systems (ITWP 2012), 22-26 June 2012, Toronto, Ontario, Canada.
8. Elif Kamer Karataş, Barış İyidir ve Ayşenur Birtürk. Yazılım Ürün Hattı Yaklaşımında Gereksinimlerin Yeniden Kullanımı: ASELSAN Deneyimi, 6.Ulusal Yazılım Mühendisliği Sempozyumu (UYMS 2012), 30 Mayıs-1 Haziran 2012.
9. Ipek TATLI, Aysenur BIRTURK, A Tag-based Hybrid Music Recommendation System Using Semantic Relations and Multi-domain Information, The Fifth ICDM Workshop on Mining Multiple Information Sources (MMIS'11), In conjunction with The IEEE International Conference on Data Mining (ICDM-11), December 11-14, 2011, Vancouver, Canada.
10. Ipek TATLI, Aysenur BIRTURK, Using Semantic Relations in Context-based Music Recommendations, ACM RecSys'11 Workshop on Music Recommendation and Discovery (WOMRAD'11), In conjunction with ACM RecSys 2011, 22-27 October 2011, Chicago, Illinois, USA.
11. Sayil Duzgun, Aysenur Birturk, BoRGo: A Book Recommender for Reading Groups, accepted for oral presentation at ACM RecSys'11 Workshop on "Human Decision Making in Recommender Systems", In conjunction with the 5th ACM Conference on Recommender Systems, 22-27 October 2011, Chicago, Illinois, USA (withdrawn paper, since not registered).
12. Ugur Ceylan, Aysenur Birturk, Combining Feature Weighting and Semantic Similarity Measure for a Hybrid Movie Recommender System, The fifth International Workshop on Social Network Mining and Analysis (SNAKDD 2011), In conjunction with 17th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD-2011), August 21, 2011.
13. Ugur Ceylan, Aysenur Birturk, Content-boosted Collaborative Filtering Using Semantic Similarity Measure, 7th International Conference on Web Information Systems and Technologies (WEBIST'11), 6-9 May 2011, Noordwijkerhout, The Netherlands.
14. Ipek Tatli, Aysenur Birturk. A Content-based Recommendation System for Music Domain Based on Tags. Accepted to eChallenges e-2010, 27-29 October 2010, Warsaw, Poland (withdrawn paper, since not registered).
15. Fatih Aksel, Aysenur Birtürk. Enhancing Accuracy of Hybrid Recommender Systems through Adapting the Domain Trends, The International Workshop on the Practical Use of Recommender Systems, Algorithms and Technologies (PRSAT 2010) in conjunction with the 4th ACM Conference on Recommender Systems (ACM RecSys 2010), 26-30 September 2010, Barcelona, Spain.
16. Fatih Aksel, Aysenur Birtürk. An Adaptive Hybrid Recommender System that Learns Domain Dynamics, International Workshop on Handling Concept Drift in Adaptive Information Systems: Importance, Challenges and Solutions (HaCDAIS'2010) at the

European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases 2010 (ECML PKDD 2010), 20-24 September 2010, Barcelona, Spain.

17. Fatih Mehmet Guler, Aysenur BIRTURK, Natural Intelligence – Commonsense Question Answering with Conceptual Graphs, The 18th International Conference on Conceptual Structures (ICCS 2010), 26-30 July 2010, Kuching, Sarawak, MALAYSIA, in Conceptual Structures: From Information to Intelligence. M. Croitoru, S. Ferré, D. Lukose (Eds.) : ICCS 2010, LNAI 6208, PP. 97-107, Springer-Verlag, 2010.
18. Cakiroglu Seda, Birturk Aysenur, Suggest Me a Movie: A Multi-Client Movie Recommendation Application on Facebook, 25th International Symposium on Computer and Information Sciences (ISCIS 2010), 22-24 September 2010, London, UK (to be published in the Springer Lecture Notes on Electrical Engineering, LNEE).
19. Cakiroglu Seda, Birturk Aysenur, Suggest Me A Movie - Multi-Client Movie Recommendation Application on Facebook with Consideration of Virtual Social Profiles, accepted as a poster (4-pages paper) in the 6th International Conference on Web Information Systems and Technologies (WEBIST'10), 7-10 April 2010, Valencia, Spain (withdrawn paper, since not registered).
20. Azak Mustafa, Birturk Aysenur, CrosSing Framework: A Dynamic Infrastructure to Develop Knowledge-Based Recommenders in Cross Domains, 6th International Conference on Web Information Systems and Technologies (WEBIST'10), 7-10 April 2010, Valencia, Spain.
21. Sunerican Omer, Birturk Aysenur, Wikipedia Missing Link Discovery: A Comparative Study, AAAI Spring Symposium on Linked Data Meets Artificial Intelligence (Linked AI 2010), March 22-24, 2010, Stanford, CA.
22. Birturk Aysenur Akyuz, Fong Sandiway, A Computational Analysis of Turkish In the Principles and Parameters Framework, 4th Language & Technology Conference: Human Language Technologies as a Challenge for Computer Science and Linguistics (LTC'09), November 6-8, 2009, Poznań, Poland.
23. Fatih Aksel, Aysenur Birturk, A Hybrid Movie Recommendation System, eChallenges e-2009 Conference Proceedings, Paul Cunningham and Miriam Cunningham (Eds), IIMC International Information Management Corporation, 2009, ISBN: 978-1-905824-13-7.
24. Mustafa Azak, Aysenur Birturk, CrosSing: A Framework to Develop Single and Cross Domain Recommenders, eChallenges e-2009 Conference Proceedings, Paul Cunningham and Miriam Cunningham (Eds), IIMC International Information Management Corporation, 2009, ISBN: 978-1-905824-13-7.
25. Omer Sunerican, Aysenur Birturk, Enriching Wikipedia Link Structure Using Links and Categories, eChallenges e-2009 Conference Proceedings, Paul Cunningham and Miriam Cunningham (Eds), IIMC International Information Management Corporation, 2009, ISBN: 978-1-905824-13-7.
26. Soner Kara, Aysenur Birturk, TurkSum: A Generic Turkish Text Summarizer using Relevance Measure, eChallenges e-2009 Conference Proceedings, Paul Cunningham and Miriam Cunningham (Eds), IIMC International Information Management Corporation, 2009, ISBN: 978-1-905824-13-7.
27. Fatih Mehmet Guler, Aysenur BIRTURK, A Conceptual Graph Based Question Answering System, In the Workshop on Graph Structures For Knowledge Representation and Reasoning (GKR 2009) at the Twenty-first International Joint Conference on Artificial Intelligence (IJCAI-09), July 11-17, 2009, Pasadena, California, USA.
28. Oznur KIRMEMIS, Aysenur BIRTURK, A Content-Based User Model Generation and Optimization Approach for Movie Recommendation, In 6th Workshop on Intelligent Techniques for Web Personalization & Recommender Systems at the Twenty-Third AAAI Conference on Artificial Intelligence (AAAI-08), 13-17 July 2008, Chicago, Illinois.
29. Oznur KIRMEMIS, Aysenur BIRTURK, A User Controlled Content Based Movie Recommender with Explanation and Negative Feedback, In 4th International Conference on Web Information Systems and Technologies (WEBIST '08), 4-7 May 2008, Funchal, Portugal.

30. Selcuk Kopru, Adnan Yazici, Tolga Ciloglu, Aysenur Birturk, Coupling speech recognition and rule-bases machine translation with chart parsing; The Language and Speech Technology Conference, LangTech 2008, 28-29 February 2008, Rome, Italy.
31. Oznur KIRMEMIS, Aysenur BIRTURK, A Content Based Movie Recommendation System, in Expanding the Knowledge Economy: Issues, Applications, Case Studies, Paul Cunningham and Miriam Cunningham(Eds), IOS Press, 2007 Amsterdam, ISBN 978-1-58603-801-4; eChallenges 2007, 24-26 October 2007, The Hague, The Netherlands.
32. Ozgen Canan, Aysenur Birturk, Motion Economy and Planning, Proc. of 16th Int. Conf. on Automated Planning and Scheduling(ICAPS'06), Cumbria, UK, June 6-10, 2006.
33. Birturk Aysenur Akyuz, Fong Sandiway, "A Modular Approach to Turkish Noun Compounding: The Integration of a Finite-State Model", 6th Natural Language Processing Pacific Rim Symposium, Tokyo, Japan, November 2001.
34. Birturk Aysenur Akyuz, "A Cascaded Finite State Machine for Parsing Turkish Noun Compounds", The Sixteenth International Symposium on Computer and Information Sciences", Antalya, Turkey, November 2001.
35. Birturk Aysenur, "Turkce'nin Yönetim ve Bağlama Kuramı Yaklaşımı ile Bilgisayarla Çözümlemesi", Yuvarlak Masa Toplantısı (Bilgisayarla Doğal Dil İşleme - K.Oflazer, U.Turan, A.Birturk, C.Bozsahin) Bildirisi, XII. Dilbilim Kurultayı Bildirileri, 14-16 Mayıs 1998, Mersin Üniversitesi, 259-280.
36. Birturk Aysenur, Fong Sandiway, Bozsahin Cem, "A Computational Model of Verb Incorporation in Turkish", NEC Research Institute, Inc. Technical Report, TR#97-025, January 31, 1997.
37. Birturk Aysenur, Tolun Mehmet, "Öğrenen Bilgisayarlar II (Machine Learning II)", Bilişim, March 1994.
38. Birturk Aysenur, Tolun Mehmet, "Öğrenen Bilgisayarlar I (Machine Learning I)", Bilişim, February 1994.
39. Birturk Aysenur, Akman Varol, "Uzman Sistemler, Yönetim Bilgi Sistemleri- Yapay Zekanın Firmaların Mali Tahlilinde Kullanılması (Expert Systems and Financial Analysis of Firms)", 7.Türkiye Bilgisayar Kongresi Bildirileri, İstanbul, 79-85, 28-30 Mayıs 1990.

Honors and Awards

- TUBITAK (The Scientific and Technological Research Council of Turkey) High School Scholar, 1977-1980.
- TUBITAK Undergraduate Scholar, 1980-1985.
- TUBITAK Honor Graduate Scholar, 1985-1988.
- 1st place (individual award), TUBITAK High School Chemistry Contest, 1980.
- 2nd place (team award), TUBITAK High School Mathematics Contest, 1980.
- 1st place (team award), TUBITAK High School Physics Contest, 1980.
- 3rd place (team award), TUBITAK High School Physics Contest, 1979.

Some Talks/Seminars

- 'A Cascaded Finite State Transducer for Turkish Noun Compounding', Participant Workshop Presentation, NATO Advanced Study Institute on Language Engineering for Lesser-studied Languages, Bilkent University, July3-14, 2000.
- 'A GB Analysis of Word Order Variation in Turkish', NECI Summer Seminars, August '97.
- 'Turkish PAPPI', NECI Summer Seminars, August '96.

Some Projects Involved

- Araştırmacı/Researcher, METU-ISTEC #17435 TUBITAK 105E068, Funding Agency: TUBITAK, 1/6/2006-30/3/2008, Overall Budget: 504,000 YTL.

- Arařtırmacı/Researcher, HASAT(Otomatik Hedef Tanıma Algoritmaları Geliřtirilmesi), 2010.03.01.2.00.24, 8 /2010- 7 /2013, Budget: 601637.00 YTL.
- Proje Danıřmanı, FormAnalitik - Elektronik Hasta Kaydı Tabanlı Akıllı Form Tasarım Aracı Geliřtirme Projesi , TUBITAK 1507 – KOBİ Ar-Ge Bařlangıç Destek Programı, 7120419, 01/7/2012 – 31/12/2013, Vadora Yazılım Biliřim Eđitim Danıřmanlık Tic. A.ř.
- Proje Danıřmanı, Açıık Alan Soru Cevaplama Sistemi, TUBITAK-TEYDEP 1512, 2120039, 1-31/12/2013, PragmaCraft Yazılım Limited řirketi.
- Proje Danıřmanı, RETAILLIGENCE – PERAKENDE SEKTÖRÜ YAKIN, YATKIN, YETKİN İNSAN KAYNAđI DEđERLENDİRME, YÖNLENDİRME ve YÖNETME, İř PLATFORMU (YYY Platformu), TUBITAK 1507 – KOBİ Ar-Ge Bařlangıç Destek Programı, 7140324, 01/01/2015 – 31/08/2015, ELBA BİLGİSAYAR SİSTEMLERİ MÜř. ARAř. TİC VE SAN. LTD. řTİ.
- Proje Danıřmanı, Yapay Zeka Destekli E-Teřhis (AI-Doc) Projesi, TUBITAK 1507 – KOBİ Ar-Ge Bařlangıç Destek Programı, 7240231, 01.08.2024-30.09.2025, ZENAM Biliřim Teknolojileri Yazılım ve Danıřmanlık Ltd.řti.
- AR-GE Danıřma Kurulu Üyesi, KKB Kredi Kayıt Bürosu A.ř., 01/10/2021-15/10/2025.

Past Memberships: AAAI, IEEE, ACM