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International Researcher IDs

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Biography

Lisans derecesini Bilkent Üniversitesi Bilgisayar Mühendisliği bölümünden aldı. Yönetim Bilişim Sistemleri konulu MBA tez çalışmasını Bilkent Üniversitesinde tamamladı. University of Maryland at College Park'ta doktora seviyesinde dersler aldı. Doktorasını Ankara Üniversitesinde tamamladı. Sektörde farklı boyutlarda yazılım ve bilişim sistemi geliştirme projelerinde yazılım mühendisliğinin tüm süreçlerinde (planlama, analiz, tasarım, kodlama, test, kalite) çalıştı. Türkiye'nin en büyük boyutlu bilgi sistemi projesi olan Hava Kuvvetleri Bilgi Sistemi projesi de olmak üzere, askeri, sağlık ve endüstri 4.0 odaklı projelerde çalıştı. Davetli katılımcı olarak Carnegie Mellon University Software Engineering Institute'da yazılım mimarisi çalışmalarına katıldı. Deneysel yazılım mühendisliği, gereksinim yönetimi, modelleme ve yazılım kalite alanlarındaki araştırmalarına bilişsel dijital ikizler, endüstri 4.0, insan-robot etkileşimi ve bilgisayarlı görü alanlarını ekledi. Üniversiteye katılmadan önce son beş yıldır Ar-Ge Bölüm Müdürü olarak çalıştığı TEKNOPAR'da çok sayıda Avrupa Birliği ve TÜBİTAK destekli proje çağrısına öneri hazırladı. Önerileri Avrupa Birliği tarafından fonlanmaya hak kazanan yedi adet Horizon 2020 ve Horizon Europe projesinde araştırmacı olarak çalıştı.

Education Information

Doctorate, Ankara University, Sosyal Bilimler Enstitüsü, Turkey 1994 - 2002

Postgraduate, Ihsan Dogramaci Bilkent University, Institute Of Economy And Social Sciences, Turkey 1992 - 1994

Undergraduate, Ihsan Dogramaci Bilkent University, Faculty Of Engineering, Department Of Computer Engineering, Turkey 1988 - 1992

Research Areas

Software, Software Engineering

Academic Titles / Tasks

Assistant Professor, TED University, Faculty Of Engineering, Department Of Software Engineering, 2023 - Continues

Lecturer PhD, Ihsan Dogramaci Bilkent University, Academy Of Applied Technology And Business Administration, Department Of Computer Technology And Information Systems, 2007 - 2016

Assistant Professor, Izmir University Of Economics, Faculty Of Engineering And Computer Sciences, Department Of

Software Engineering, 2005 - 2008

Research Assistant, University of Maryland, College Park, Academic Information Technology Services, 1997 - 1998

Instructor, Ihsan Dogramaci Bilkent University, Computer Technology And Bureau Management Vocational School, Department Of Computer Technologies, 1994 - 1997

Research Assistant, Ihsan Dogramaci Bilkent University, Faculty Of Business Administration, Department Of Business, 1993 - 1994

Academic and Administrative Experience

Head of Department, TED University, Graduate School, Computer Engineering, 2024 - Continues

Courses

Undergraduate

Software Engineering, Undergraduate

Fundamentals of Programming II, Undergraduate

Fundamentals of Programming II, Undergraduate

Software Engineering, Undergraduate, 2022 - 2023

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Transfer Learning Enabled Bearing Fault Detection Methods Based on Image Representations of Single-Dimensional Signals**
Deveci B. U., Celtikoglu M., Albayrak Ö., Unal P., KIRCI P.
Information Systems Frontiers, vol.26, no.4, pp.1345-1397, 2024 (SCI-Expanded)
- II. **Investigation of individual factors impacting the effectiveness of requirements inspections: A replicated experiment**
Albayrak Ö., Carver J. C.
Empirical Software Engineering, vol.19, no.1, pp.241-266, 2014 (SCI-Expanded)

Articles Published in Other Journals

- I. **Hybrid and cognitive digital twins for the process industry**
Johansen S., Ünal P., ALBAYRAK Ö., Ikonen E., Linnenstad K. J., Jawahery S., Srivastava A. K., Lovfall B. T.
Open Engineering, vol.13, no.1, pp.20220418-13, 2023 (Scopus)
- II. **Sensörsüz Seri Elastik Tekniği ile Bir Kablo Sürümlü Düzlemsel Mekanizmanın Kontrolü**
Kunduz İ., Durmaz A., ALBAYRAK Ö., Alp T., Ünal P., ANKARALI M. M.
Avrupa Bilim ve Teknoloji Dergisi, no.41, pp.324-330, 2022 (Peer-Reviewed Journal)
- III. **A Workflow for Synthetic Data Generation and Predictive Maintenance for Vibration Data**
Selçuk Ş. Y., Ünal P., ALBAYRAK Ö., Jomaa M.
INFORMATION (SWITZERLAND), vol.12, no.10, pp.386, 2021 (ESCI)
- IV. **The Impact of Software Development Companies on Software Engineers Responses to Incomplete Requirements**
ALBAYRAK Ö., ALBAYRAK D.
International Journal of Information Studies, vol.1, no.4, pp.272-279, 2009 (Peer-Reviewed Journal)
- V. **ISDE 2009 PC co-chairs' message**
Mishra A., Mishra D., Albayrak Ö.
Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes

in Bioinformatics), vol.5872 LNCS, pp.226-227, 2009 (Scopus)

Books

- I. **Instructor-Related Factors Affecting Game Utilization in Software Engineering Education: A Replication Study**
ALBAYRAK Ö., ALBAYRAK D.
in: Handbook of Research on Decision-Making Capabilities Improvement With Serious Games, Correia Anacleto, Simões-Marques Mário, Editor, IGI Global, Lancaster, pp.151-175, 2023
- II. **Data-Driven Artificial Intelligence and Predictive Analytics for the Maintenance of Industrial Machinery with Hybrid and Cognitive Digital Twins**
Ünal P., ALBAYRAK Ö., Jomaa M., Berre A. J.
in: Technologies and Applications for Big Data Value, Curry E., Auer S., Berre A.J., Metzger A., Perez M.S., Zillner S., Editor, Springer Cham, Cham, pp.299-319, 2022
- III. **Software Quality and Model-Based Software Improvement**
ÖZKAN B., ALBAYRAK Ö., DEMİRÖRS O.
in: Computing Handbook Third Edition Computer Science and Software Engineering, Teofilo Gonzalez, Jorge Diaz-Herrera, Allen Tucker, Editor, Chapman and Hall/CRC, Boca Raton, pp.791-801, 2014
- IV. **Solutions to Challenges of Teaching "Software Analysis and Design"**
ALBAYRAK Ö.
in: Systems Analysis and Design for Advanced Modeling Methods Best Practices, A. Bajaj and S. Wrycza, Editor, IGI Global, New York, pp.68-87, 2009

Papers Published in Refereed Scientific Meetings

- I. **A Study to Compare YOLO Family Models for Metal Surface Anomaly Detection**
Koç A., Albayrak Ö., Kurt Y., Ünal P.
2023 IEEE International Conference on Big Data, Naples, Italy, 15 December 2023, pp.5835-5841
- II. **Impact of Digital Twin Technology Utilization in Manufacturing on Sustainability: An Industrial Case Study**
Ünal A. F., ALBAYRAK Ö., Ünal P.
2023 Portland International Conference on Management of Engineering and Technology (PICMET), Monterrey, Mexico, 23 - 27 July 2023, pp.1-10
- III. **Control System Design and Implementation Based on Big Data and Ontology**
Temel S., Ummak E., Tokgöz A., Işık F., ALBAYRAK Ö., Ünal P., ÖZBAYOĞLU A. M.
IEEE International Conference on Big Data, Osaka, Japan, 17 December 2022
- IV. **A Big Data Application in Manufacturing Industry- Computer Vision to Detect Defects on Bearings**
Ünal P., ALBAYRAK Ö., Kubatova M., Deveci B. U., Çırakman E., Koçal İ., ÖZBAYOĞLU A. M.
IEEE International Conference on Big Data, Osaka, Japan, 17 December 2022, pp.6074-6083
- V. **Asset Administration Shell Generation and Usage for Digital Twins: A Case Study for Non-Destructive Testing**
Yallic F., ALBAYRAK Ö., Ünal P.
International Workshop on Emerging Trends and Case-Studies in Industry 4.0 and Intelligent Manufacturing, Valletta, Malta, 24 - 26 October 2022, pp.299-306
- VI. **A Thorough Analysis and Comparison of Data Communication Protocols Used in Industry 4.0: the Case of Smart-CNC**
Deveci B. U., Baş H., Ummak E., ALBAYRAK Ö., Ünal P.
9th International Conference on Future Internet of Things and Cloud (FiCloud), Roma, Italy, 22 August 2022, pp.199-206

- VII. **A Comparison of State-of-the-Art Machine Learning Algorithms on Fault Indication and Remaining Useful Life Determination by Telemetry Data**
Ünal A. F., Kaleli A. Y., Ummak E., ALBAYRAK Ö.
8th International Conference on Future Internet of Things and Cloud, Roma, Italy, 23 August 2021, pp.79-85
- VIII. **A Comparison of Deep Transfer Learning Methods on Bearing Fault Detection**
Deveci B. U., Çeltikoğlu M., Alp T., ALBAYRAK Ö., Ünal P., KIRCI P.
8th International Conference on Future Internet of Things and Cloud, Roma, Italy, 23 August 2022, pp.285-292
- IX. **Performance Analysis of Machine Learning Models for Object Recognition in Underwater Video Images**
Özdiilli B. G., Arslan M. B., Alp T., ALBAYRAK Ö., Ünal P., Bozkurt Ö., ÖZBAYOĞLU A. M.
29th Signal Processing and Communications Applications Conference, İstanbul, Turkey, 09 June 2021, pp.1-4
- X. **Digitalization of a Steel Pipe Production Factory: STEEL4. 0-A Family of Products Developed on Routes from Industry 3.0 to Industry 4.0.**
ALBAYRAK Ö., Ünal P.
The Fourth International Iron and Steel Symposium, Karabük, Turkey, 01 April 2021, pp.271-274
- XI. **Smart Steel Pipe Production Plant via Cognitive Digital Twins: A Case Study on Digitalization of Spiral Welded Pipe Machinery**
ALBAYRAK Ö., Ünal P.
Cybersecurity workshop by European Steel Technology Platform, Pisa, Italy, 15 October 2020, pp.132-143
- XII. **Sanal Gerçeklik ve Artırılmış Gerçeklik Teknolojilerinin Korku ve Heyecan ile Başetmede Kullanımı: Literatür İncelemesi**
ALBAYRAK Ö., ALBAYRAK D.
7. Ulusal Savunma Uygulamaları Modelleme ve Simülasyon Konferansı, Ankara, Turkey, 21 - 23 November 2017, pp.398-409
- XIII. **Instructor's Acceptance of Games Utilization in Undergraduate Software Engineering Education: A Pilot Study in Turkey**
ALBAYRAK Ö.
IEEE/ACM 4th International Workshop on Games and Software Engineering, Floransa, Italy, 18 May 2015, pp.43-49
- XIV. **UML Diyagramları Kullanımının Yazılım Gereklere Gözden Geçirme Performansına Etkileri: Bir Replikasyon Çalışması**
ALBAYRAK Ö.
8. Ulusal Yazılım Mühendisliği Sempozyumu, Güzelyurt, Cyprus (Kktc), 08 September 2014, pp.431-442
- XV. **Impact of Maintainability Defects on Code Inspections**
ALBAYRAK Ö., Davenport D.
AACM-IEEE International Symposium on Empirical Software Engineering and Measurement, Bolzano, Italy, 16 September 2010, pp.1-4
- XVI. **Are software engineers' responses to incomplete requirements related to project characteristics?**
Albayrak Ö., Albayrak D., Kiliç T.
2nd International Conference on the Applications of Digital Information and Web Technologies, ICADIWT 2009, London, England, 4 - 06 August 2009, pp.124-129
- XVII. **Incomplete Software Requirements and Assumptions Made by Software Engineers**
ALBAYRAK Ö., Kurtoğlu H., Bıçskçı M.
16th Asia Pacific Software Engineering Conference, Penang, Malaysia, 1 - 03 December 2009, pp.333-339
- XVIII. **A study to observe relations between software engineers' responses to incomplete requirements and requirements volatility**
Albayrak Ö., Bicakci M., Bozkurt H.
2009 International Conference on Software Engineering Theory and Practice, SETP 2009, Orlando, FL, United States Of America, 13 - 16 July 2009, pp.1-7
- XIX. **An Experiment to Observe the Impact of UML Diagrams on the Effectiveness of Software Requirements Inspections**

ALBAYRAK Ö.

The Third International Symposium on Empirical Software Engineering and Measurement, Buenavista, Mexico, 15 - 17 October 2009, pp.506-510

XX. Are Software Engineers s Responses to Incomplete Requirements Related to Project Characteristics

ALBAYRAK Ö., ALBAYRAK D., Kılıç T.

The Second International Conference on the Applications of Digital Information and Web Technologies, London, Canada, 4 - 06 August 2009, pp.124-129

XXI. Yazılım Mühendisliği Eğitimi Gereksinim Belirleme ve Analiz Asamasına Yönelik Deneyim ve Uygulamalar

ALBAYRAK Ö.

III. Ulusal Yazılım Mühendisliği Sempozyumu ve Sergisi, Ankara, Turkey, 27 - 30 September 2007, vol.1, pp.15-18

XXII. Experiences of Teaching Systems Analysis and Design to Undergraduate Software Engineers

ALBAYRAK Ö.

2nd AISSIGAND European Symposium on Systems Analysis and Design, Sopot, Poland, 5 - 07 June 2007, pp.109-115

XXIII. Management and Diffusion of Technology for Disaster Management

ALBAYRAK Ö.

Technology Management for the Global Future, İstanbul, Turkey, 08 July 2006, pp.1742-1748

XXIV. Bilgisayar mühendisliği eğitimine katkısı olacak öneriler

ALBAYRAK Ö.

Elektrik-Elektronik Bilgisayar Mühendislikleri Eğitimi Sempozyumu, Ankara, Turkey, 30 April 2003

Supported Projects

Spain N. D., Albayrak Ö., EU Supported Other Project, AI-PRISM: AI Powered human-centred Robot Interactions for Smart Manufacturing, 2023 - 2025

Albayrak Ö., Informatica S.P.A. E. I., EU Supported Other Project, CircularTwAIIn, 2022 - 2025

Albayrak Ö., Applied Research, Technology And Innovation S., H2020 Project, "COGNITWIN: Cognitive Plants Through Proactive Self-Learning Hybrid Digital Twins", 2019 - 2023

Üniversitesi T. T., Albayrak Ö., H2020 Project, "TOOP: The Once Only Principle Project", 2017 - 2021

Scholarships

Graduate Assistant, University, 1997 - 1998

Lisanüstü - Tam Burs, University, 1993 - 1994

Lisans- Tam Burs, University, 1988 - 1992