

## ÖZGEÇMİŞ

1. **Adı Soyadı: Tolga AYAV**
2. **Doğum Tarihi: 05 / 05 / 1974**
3. **Unvanı: Doç. Dr.**
4. **Öğrenim Durumu:**

Derece	Alan	Üniversite	Yıl
Lisans	Elektrik-Elektronik Müh.	Dokuz Eylül Üniversitesi	1995
Y. Lisans	Bilgisayar Mühendisliği	İzmir Yüksek Teknoloji Enstitüsü	1999
Doktora	Bilgisayar Mühendisliği	Ege Üniversitesi	2004

### 5. Akademik Unvanlar:

**Yardımcı Doçentlik Tarihi :** 15 / 04 / 2006  
**Doçentlik Tarihi :** 20 / 04 / 2018  
**Profesörlük Tarihi :**

### 6. Yönetilen Yüksek Lisans ve Doktora Tezleri

#### 6.1. Yüksek Lisans Tezleri

Sokat B. "Blackhole attacks in IoT networks", 2020

Asadzade A. "Predictive maintenance for smart industry", 2020

Saydam B. "Evaluation of scheduling architectures for OSEK/VDX compliant hard real-time operating systems", 2020

Thera D. "Internet of things simulation using cisco packet tracer", 2020

Kaptan M. "Blockchain based remote update for embedded devices", 2020

Sönmeztürk O. "Blockchain application on loyalty card", 2020

Abdennebi A., "A dedicated server design for physical web applications", 2019.

Gürakın Ç., "A Learning-Based Demand Classification Services with Using XGBoost in Institutional Area", 2019

Günel C., "Effectiveness of using clustering for test case prioritization", 2019.

Yenigün B., "Assessment and certification of safety critical software", 2018.

Karkin H. H., "Electroencephalography-based Control of Prosthetic Hands", 2016.

Ufuktepe D.K., "Test case generation from cause effect graphs", 2016.

Takan S. "Model Checking-based Testing of Digital Circuits", 2014.

Leloğlu E., "An exact approach with minimum side-effects for association rule hiding", 2013.

Tos U., "Quality Adaptive Media Streaming", İzmir Yüksek Teknoloji Enstitüsü, 2012.

Yücel Ç., "Performance Enhancement of Real-Time Transport Protocol", 2010.

Gözütok, M.E., "Designing Programmable Logic Controller for Data Acquisition and Control", 2010.

Aycan, E., "Solving the Course Scheduling Problem by Constraint Programming and Simulated Annealing", 2008.

## 6.2. Doktora Tezleri

Rowanda A. "Density grid based stream clustering algorithm". 2019

Takan S. "Fourier analysis based testing of finite state machines", 2019.

Tos U. "Data replication in large-scale data management systems", 2017.

## 7. Yayınlar

### 7.1. Uluslararası hakemli dergilerde yayınlanan makaleler (SCI & SSCI & Arts and Humanities)

Ufuktepe, D. K., Ayav T., Belli, F. "Test input generation from cause-effect graphs", *Software Quality Journal* (2021). <https://doi.org/10.1007/s11219-021-09560-3>

Tos, U., Mokadem, R., Hameurlain, A., Ayav T. "Achieving query performance in the cloud via a cost-effective data replication strategy". *Soft Comput* (2021). <https://doi.org/10.1007/s00500-020-05544-w>

Dede, M.I. Can, Kiper G., Ayav T. et. al. "Human-Robot Interfaces of the NeuRoboScope: A Minimally Invasive Endoscopic Pituitary Tumor Surgery Robotic Assistance System". *J. Med. Devices.* (2020). <https://doi.org/10.1115/1.4049394>

Takan S., Ayav T. "Mutant Selection by Using Fourier Expansion". *Turk J Elec Eng Comp Sci*, 28(05): 2750 - 2767. (2020) doi:10.3906/elk-1909-90

Tos U., Mokadem R., Hameurlain A., Ayav T., Bora S. (2018). Ensuring performance and provider profit through data replication in cloud systems. *Cluster Computing*,21(3), 1479-1492., Doi: 10.1007/s10586-017-1507-y

Ayav T. (2017) Prioritizing MCDC test cases by spectral analysis of Boolean functions. *Software Testing, Verification and Reliability*, 27(7), 1641, Doi: 10.1002/stvr.1641

Ayav T., Sozer H. (2016). Identifying critical architectural components with spectral analysis of fault trees. *Applied Soft Computing*, 49, 1270-1282., Doi: 10.1016/j.asoc.2016.06.042

Tos U., Mokadem R., Hameurlain A., Ayav T., Bora S. (2015). Dynamic replication strategies in data grid systems a survey. *The Journal of Supercomputing*, 71(11), 4116-4140., Doi: 10.1007/s11227-015-1508-7

Ayav T., Ergenc B., Full Exact Approach for Frequent Itemset Hiding. *International Journal of Data Warehousing and Mining*, 11(4), 49-63., Doi: 10.4018/ijdwm.2015100103 (Yayın No: 1920619)

Ayav T., Fradet P. and Girault A., "Implementing Fault-Tolerance by Automatic Program Transformations." *ACM Transactions on Embedded Systems*, 7 (04): 1-43, ACM July 2008.

Ayav T. and Ferrari-Trecate G., "Optimal Control for Real-Time Feedback Rate-Monotonic Schedulers". In P. Yolum et al., editor, *Computer and Information Sciences - ISCIS 2005*, 20th International Symposium, Istanbul, Turkey, October 27-29, 2005, Proceedings, volume 3733 of *Lecture Notes in Computer Sciences*, pages 894-903. Springer-Verlag, 2005.

## 7.2. Uluslararası diğer hakemli dergilerde yayınlanan makaleler

### 7.3. Uluslararası bilimsel toplantılarda sunulan ve bildiri kitabında (*Proceedings*) basılan bildiriler

- M. Kaptan, E. Tomur, T. Ayav and Y. M. Erten. "Secure IoT Update Using Blockchain". 2021 2nd International Informatics and Software Engineering Conference (IISEC), 2021, pp. 1-6, doi: 10.1109/IISEC54230.2021.9672424.
- Sonmezturk O., Ayav T., Erten Yusuf M. "Loyalty Program using Blockchain" 2020 IEEE International Conference on Blockchain (Blockchain). DOI: 10.1109/Blockchain50366.2020.00074. 2-6 Nov. 2020
- Ayav T. Sozer H. "Moving Switching Functions to Continuous Domain". 2016 IEEE International Conference on Software Quality, Reliability and Security Companion (QRS-C), 265-270., Doi: 10.1109/QRS-C.2016.40
- Tos U., Mokadem R., Hameurlain A., Ayav T., Bora S. "A Performance and Profit Oriented Data Replication Strategy for Cloud Systems". The IEEE International Conference on Cloud and Big Data Computing (CBDCOM2016)
- Ayav T., Belli F., "Boolean Differentiation for Formalizing Myers Cause Effect Graph Testing Technique". Software Quality, Reliability and Security - Companion (QRS-C), 2015 IEEE International Conference on, 138-143., Doi: 10.1109/QRS-C.2015.31
- Ayav T., Tuğlular T. and Belli F., "Model Based Testing of VHDL Programs". 2015 IEEE 39th Annual Computer Software and Applications Conference, 427-432., Doi:10.1109/COMPSAC.2015.198
- Takan S, Guler B, Ayav T. "Model Checker Based Delay Fault Testing of Sequential Circuits". Architecture of Computing Systems. Proceedings, ARCS 2015 - The 28th International Conference on, 1-7.
- Leloglu E., Ayav T., Ergenc B., "Coefficient Based Exact Approach for Frequent Itemset Mining". eKNOW 2014 6th International Conference on Information, Process, and Knowledge Management, IARIA, 124-130.
- Leloglu E., Ayav T., Arslan B., "A review of cloud deployment models for e learning systems. 2013 43rd Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN), Doi: 10.1109/DSN.2013.6575331"
- Tos U., Ayav T. Adaptive RTP Rate Control Method. 2011 IEEE 35th Annual Computer Software and Applications Conference Workshops, 7-12., Doi: 10.1109/COMPSACW.2011.12
- Ayav T., Tuğlular T. and Belli F., "Towards Test Case Generation for Synthesizable VHDL Programs Using Model Checker". Workshop on Model-based Verification and Validation, in conjunction with 4th IEEE International Conference on Secure Software Integration and Reliability Improvement (SSIRI 2010), Singapore, June 9-11, 2010.
- Toker A. and Ayav T., "Design of a Secure Microprocessor". 4th International Security and Cryptology Conference (ISC Turkey'10), Ankara, Turkey, May 6-8, 2010.
- Aycan E. and Ayav T., "Solving the Course Scheduling Problem Using Simulated Annealing". Proceedings of the IEEE International Advance Computing Conference (IACC'09), Patiala, India, March 2009.
- Ayav T., Fradet P. and Girault A., "Implementing Fault-Tolerance in Real-Time Systems by Automatic Program Transformations". In S.L. Min and W. Yi, editors, International Conference on Embedded Software, EMSOFT'06, Seoul, South Korea, October 2006. ACM. INRIA Research report 5919.
- Ayav T. and Sorel Y., "Feedback Control Static Scheduling for Real-Time Distributed Embedded Systems". In Proceedings of the 11th IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA), pages 173-176, Hong Kong, China, 17-19 August 2005.
- Ayav T, Ferrari-Trecate G. and Yılmaz S., "Stability Properties of Adaptive Real-Time Feedback Scheduling: A Statistical Approach". In 12th Real-Time Embedded Systems Conference, pages 259-277, Paris, 30-31 March 2004.

Ayav T. and Yılmaz S., "Neuro-Fuzzy Controller in Real-Time Feedback Schedulers". In 10th Workshop on Nonlinear Dynamics of Electronic Systems, pages 3.37-3.40, Izmir, Turkey, 21-23 June 2002.

Ayav T. and Aytaç S., "A New Embedded Controller for Data Acquisition and Control Applications". In Mustafa Turksever et al., editor, Proceedings of the 14th International Symposium on Computer and Information Sciences, pages 997-999, Kusadasi, 18-20 October 1999.

#### **7.4. Yazılan uluslararası kitaplar veya kitaplarda bölümler**

#### **7.5. Ulusal hakemli dergilerde yayınlanan makaleler**

Ayav T. (2017) IEEE 802.11 Kablosuz Ağları İçin Bir Gerçek Zamanlı İletişim Protokolü. DEÜ Muhendislik Fakültesi Fen ve Mühendislik, 19(55), 1-15., Doi:10.21205/deufmd.2017195501

Ozbek B., Ayav T., Yatır M.N., Kirişken B., (2011). Television Rating Measurement System Design. EMO The Journal of Electrical, Electronics, Computer and Biomedical Engineering, 1(02), 89-94.

Ayav T. and Y\_Imaz S., "Implementation of Real-Time Adaptive Scheduling Technique on RTLinux". Turkish Informatics Foundation Journal of Computer Sciences and Engineering, **1(01)**:81-89, 2005.

#### **7.6. Ulusal bilimsel toplantılarda sunulan ve bildiri kitabında basılan bildiriler**

Dede M.İ.C., Kiper G., Ayav T., v.d. "Cerrahın Anlık Yönlendirilebildiği Robot Yardımlı Endoskop Kontrol Sistemi Mimarisi" -NeuroRoboScope. 2018 Türkiye Robotbilim Konferansı, 25-30.

Ufuktepe D.K., Ayav T., Belli F. "Neden Sonuç Çizgilerinden Test Girişlerinin Oluşturulması". 10. Ulusal Yazılım Mühendisliği Sempozyumu, 1721, 142-153. 2016.

Ayav T. "Fourier analysis based automatic test pattern generation for combinational circuits". 2015 23rd Signal Processing and Communications Applications Conference (SIU), 128-131., Doi: 10.1109/SIU.2015.7129939

Gözütok M.E., Ayav T., Harsa N., "Veri Toplama, Sayısal İşaret İşleme ve Kontrol Uygulamaları için Yeni bir Gömülü Sistem: DACES-II". In Proceedings of 2010 Automatic Control National Meeting, Istanbul.

Ayav T., Harsa N., Toker K.A. and Aksakallı G., "CryptOdin:16-bit Secure Microprocessor". In Proceedings of 2008 Embedded Systems and Applications, Istanbul, page 13 .3-5 Kasım 2008.

Ayav T. and Toker K.A., "FPGA ile Gerçeklenen Devrelerde Hataya Dayanıklılık (Fault-Tolerance in FPGA Implementations)". In Proceedings of 2008 Automatic Control National Meeting, Istanbul, 13-15 November 2008.

Altıntaş E., Özardıç O., Talay S. and Ayav T., "Bir Ağ Yönetim Sistemi: Guardilan (A Network Management system: Guardilan). In Eşref Adalı, editor, In Proceedings of TBD 20th Informatics Workshop, pages 31-44, Istanbul, Eylül 2003.

Çağrı G. and Ayav T., "Kablosuz Ağlarda Bantgenişliği Yönetimi (Bandwidth Management in Wireless Networks)". Symposium of Wireless Networking and Security (WINS'02), Çeşme, İzmir, 2002.

Çağrı G. and Ayav T., "IYTE Yerel Ağı için bir QoS Uygulaması (A QOS Application for IZTECH LAN). In Eşref Adalı, editor, In Proceedings of TBD 19th Informatics Workshop, pages 239-243, İstanbul, 3-6 September 2002.

#### **7.7. Diğer yayınlar**

#### **7.8. Uluslararası atıflar**

Google scholar: Toplam 295 atıf

Scopus: Toplam 160 atıf

WoS: Toplam 77 atıf

## 8. Ulusal & Uluslararası Projeler (DPT, TÜBİTAK, AB, vb)

## 9. İdari Görevler

Görev Unvanı	Görev Yeri	Yıl
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Bölüm Başkanı	Bilgisayar Mühendisliği Bölümü, İzmir Yüksek Teknoloji Enstitüsü	2018-2021
Müdür	Bilgisayar Uygulama Araştırma Merkezi - İzmir Yüksek Teknoloji Enstitüsü	2009-devam
Müdür Yardımcısı	Bilgisayar Uygulama Araştırma Merkezi - İzmir Yüksek Teknoloji Enstitüsü	2000-2003

## 10. Bilimsel ve Mesleki Kuruluşlara Üyelikler

IEEE, ACM

## 11. Ödüller

Türkiye Bilişim Derneği'nin 2008 yılında düzenlediği "CPU-Turkey" isimli mikroişlemci tasarımı yarışmasında CryptOdin isimli proje ile 3üncülük ödülü. Proje Ekibi: Tolga Ayav, Atilla Toker, Gökhan Aksakallı, Nurtürk Harsa.