Name: Salih Bayar

Contact:
Address:

Dept. of Electrical and Electronics Engineering
Faculty of Engineering,
Marmara University
Recep Tayyip Erdoğan Külliyesi - M4 Binası

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Strength:

Software/Hardware Design and Architecture, Web Programming, Database Management, Embedded Systems, (Re)Configurable Architecture Design, VLSI, FPGA, ASIC, Microprocessor, Microcontroller, Data Structure and Algorithms, Logic Circuits and Firmware Design, VHDL, Verilog, Assembly Languages, C, C++, JAVA, ASP.NET, C#, XPATH, XSLT, XSL, SQL, JavaScript, JQuery, MySQL, PHP…

Professional Experience:

Asst. Prof.
February 2017-...

Marmara University
Faculty of Engineering
Electrical and Electronics Engineering Department

Taught Courses:

Introduction to Computer Programming (BS)
Intermediate Programming (BS)
Fundamentals of Data Structures (BS)
Fundamentals of Electr. & Electro. Engineering (BS)
Embedded Systems (MS)
Selected Topics in Computer Programming (MS)
Computer Systems and Networks (MIS)

R&D Project Manager:
January 2016 – February 2017

İdea Teknoloji Çözümleri Bilg. San ve Tic. A.Ş.
Managing Various Software Projects

R&D Engineer:
October 2013 – December 2015

İdea Teknoloji Çözümleri Bilg. San ve Tic. A.Ş.
Development Various Software Projects

Part Time Instructor:
Fall2021

Computer and Software Engineering, Beykoz University
Taught Courses:
CME0215: Computer Organization

Spring 2021

Computer Engineering, Özyeğin University
Taught Courses:
CS100: Introduction to Programming

Summer 2016-Spring 2020

Computer and Software Engineering, Maltepe University
Taught Courses:
CEN134: Algorithms and Programming II
CEN335: Computer Networks

CEN235: Data Structures
CEN252: Fundamentals of Signal and Systems
CEN360: Algorithm Design and Analysis
SE363: Java Programming
CEN405: Formal Languages and Automata Theory
CEN423: Computer Architecture

February 2012- February 2013 — Computer Engineering, Istanbul Kultur University
Taught Courses:
CSE001: Computer Architecture
CSE035: Circuit Theory
CSE034: Digital Design-II

September 2010 - August 2011 — Computer Engineering, Beykent University
Taught Courses:
CEN251: Data Structure and Algorithms
CEN255: Logic Circuits and Firmware Design
CEN472: ASIC Design
SWE302: Software Design and Architecture

Teaching Assistant:
January 2010 – May 2010 — Computer Engineering, Boğaziçi University
Assisted Courses:
CmpE160: Intro. To Object Oriented Programming,
CmpE584: Special Topics In CmpE: Reconfigurable Computing.

Project/Research Assistant:
September 2007 - July 2009 — Computer Engineering, Boğaziçi University
Design automation tool development for Embedded Systems on Reconfigurable Architectures (Supported by The Scientific and Technological Research Council of Turkey, TÜBİTAK (Project Nr.: 104E038) and Boğaziçi University Scientific Research Projects (Project Nr.: 06M105))

Research Fellow:
February 2009 - July 2009
May 2010 – October 2013 — Tele-informatics Research Project – TAM, www.tetam.boun.edu.tr
Large-scale inter-disciplinary project with members: Comp. Eng., Electrical Eng. & Biomedical Institute from Boğaziçi University.

HiWi (Wissenschaftliche Hilfskraft) (Scientific Trainer):
2006-2006 (Karlsruhe) — Institut für Technik der Informationsverarbeitung (ITIV)
2005-2006 (Karlsruhe) — TEMO Soft-, Hardware & Consulting e.K.

Education:

September 2007- March 2015 — **Doctor of Philosophy (Ph.D.)** at Boğaziçi University, Computer Engineering, Istanbul, Turkey

Thesis: Reconfigurable Network-on-Chip (NoC) Architectures for Embedded Systems
Advisor: Prof. Dr. Arda Yurdakul

October 2004- March 2007 — **Master of Science (M.Sc.)** Study at Karlsruhe Institute of Technology - KIT, Karlsruhe, Germany
Master Course of Studies (German(~%80) and English(~%20))
Electronics and Information Technology
ITIV (Institut für Technische Informationsverarbeitung)
(Institute for technical information data processing)
Specialization: Systems Engineering

Thesis: Implementation, test, and evaluation of the methods in order to reduce the energy dissipation through utilization of the dynamic and partial reconfiguration on Xilinx Spartan-III FPGAs

(This study described above was integrated in the FPGA-based liquid level measuring system of the company Endress+Hauser, which is a leading supplier of measuring instruments and automation solutions for the industrial process engineering industry all over the world**,** and tested on real hardware.)

	Advisor: Prof. Dr.-Ing. Jürgen Becker, Prof. Dr.-Ing. Michael Hübner, Dr.-Ing. Katarina Paulsson
November 2003- July 2004	**German Language School** (Sprachinstitut 2000, Darmstadt, Germany)
September 1998- July 2003	**Bachelor of Science (B.Sc.)** study at the Technical University of YILDIZ (YTU) (Istanbul / Turkey) Specialization: Electronics and Communication Engineering
	Thesis: Designing and realization of a password-protected security gate controller with LCD-Display and keypad for any entrance systems
	(Realization of hardware with all of components, PCB design of system, software design and software installation on a micro controller of Atmel family)
	Advisor: Asst. Prof. Dr. Lale Özyılmaz, Prof. Dr. Herman Sedef

Special Skills:

Languages:	
Turkish	Native language
German	fluently spoken, reading and writing
English	fluently spoken, reading and writing

Computer Skills:

Tools:	Xilinx Design Tools EDK and ISE, Vivado, Vivado-HLS, Vitis, LABVIEW, Pinnacle, Magic, Mentor Graphics IC Architect, IC Studio, Elektronikworkbench, Protel, Orcad, WinCUPL, MATLAB, Matlab/Simulink/Stateflow, Netbeans, Eclipse, Microsoft Visual Studio, VSCode
Hardware:	**HDL:** VHDL, Verilog, SystemVerilog **Microprocessor/ Microcontroller:** MIPS, ARM, RISC-V **FPGA:** Xilinx FPGAs such as Spartan, Virtex, Artix, Kintex series **Assemblers:** Intel MCS-51 (8051), 80x86 Family, MIPS Assembler, ARM and RISC-V
Languages:	C, C++, Java, C#, Python, Matlab...
OS:	Windows, Linux, Solaris
Frameworks:	.NET, Laravel
Data Base & Web:	SQL, HTML5, Java-Script, PHP, JQuery, XPATH, XSLT, XSL, ...

Publications:

40. Güner Tatar, **Salih Bayar** and Ihsan Çiçek, "Hardware Acceleration of FIR Filter Implementation on ZYNQ SoC," 2022 IEEE 16th International Conference on Application of Information and Communication Technologies (AICT), October 12th – 14th, Washington DC, 2022
39. Güner Tatar, **Salih Bayar** and Ihsan Çiçek, "Performance Evaluation of Low Precision Quantized LeNet and ConvNet Neural Networks," 16th International Conference on INnovations in Intelligent SysTems and Applications (INISTA), August 8th - 10th , Blarritz, France, 2022.
38. M. C. Mumcu, İ. Çiçek and **Salih Bayar**, " Performance Evaluation of Lightweight Cryptographic Algorithms on RISC-V", IEEE 2022, 30th Signal Processing and Communications Applications Conference (SIU), May 15th – 18th, Safranbolu, Turkey, 2022.
37. Billel A. E. Bencharif, **Salih Bayar** and Erkan Özkan, "Parallel implementation of distributed acoustic sensor acquired signals: detection, processing, and classification," J. Appl. Rem. Sens. 16(2) 024504 (19 April 2022) https://doi.org/10.1117/1.JRS.16.024504
36. Güner Tatar, İhsan Cicek and **Salih Bayar**. (2021). FPGA Design of a Fourth Order Elliptic IIR Band-Pass Filter Using LabVIEW . Avrupa Bilim ve Teknoloji Dergisi , Ejosat Special Issue 2021 (HORA) , 122-127 . DOI: 10.31590/ejosat.951601
35. Güner Tatar, **Salih Bayar** and İhsan Cicek. (2021). FPGA Design of a High- Resolution FIR Band-Pass Filter by Using LabVIEW Environment . Avrupa Bilim ve Teknoloji Dergisi , Ejosat Special Issue 2021 (ISMSIT) , 273-277 . DOI: 10.31590/ejosat.1016363

34. Aytunç Polat and **Salih Bayar**. (2020). A FAST AND ENERGY EFFICIENT PARALLEL IMAGE FILTERING IMPLEMENTATION ON RASPBERRY PI'S GPU . European Journal of Technique (EJT) , 10 (2) , 322-330 . DOI: 10.36222/ejt.708805

33. M. Cihat Mumcu and **Salih Bayar.** (2020). Parallel Implementation of the GPR Techniques for Detecting and Mapping Ancient Buildings by Using CUDA . Avrupa Bilim ve Teknoloji Dergisi , Ejosat Özel Sayı 2020 (HORA) , 352-359 . DOI: 10.31590/ejosat.780115

32. Serkan Sağlam and **Salih Bayar** (2020) "FPGA Implementation of CNN Algorithm for Detecting Malaria Diseased Blood Cells", IEEE - International Symposium on Fundamentals of Electrical Engineering 2020, ISFEE 2020, Bucharest, Romania, 5-7 November 2020.

31. Serkan Sağlam, Fatih Tat, and **Salih Bayar** (2019) "FPGA Implementation of CNN Algorithm for Detecting Malaria Diseased Blood Cells", IEEE - International Symposium on Advanced Electrical and Communication Technologies, ISAECT2019, 27-29 November 2019, Rome, Italy.

30. Güner Tatar, Osman Kılıç and **Salih Bayar** (2019) "FPGA Based Fault Distance Detection and Positioning of Underground Energy Cable by UsingGSM / GPRS", IEEE - International Symposium on Advanced Electrical and Communication Technologies, ISAECT2019, 27-29 November 2019, Rome, Italy.

29. Güner Tatar, **Salih Bayar** and M. Alkan (2019) "FPGA Based Step Motor Control For Solar Panels", IEEE 13th International Conference on Application of Information and Communication Technologies (AICT) Bakû, Azerbaijan, 23-25 October 2019.

28. Güner Tatar and **Salih Bayar** (2018). FPGA Based Bluetooth Controlled Land Vehicle. IEEE - International Symposium on Advanced Electrical and Communication Technologies, ISAECT 2018, 21-23 November 2018, National School of Applied Sciences, Kenitra, Rabat-Kenitra, Morocco.

27. Etki Gür, Zekiye Eda Sataner, Yusuf H. Durkaya and **Salih Bayar** (2018) " FPGA Implementation of 32-bit RISC-V Processor with Web-Based Assembler-Disassembler", IEEE - International Symposium on Fundamentals of Electrical Engineering 2018, ISFEE 2018, Bucharest, Romania, 1-3 November 2018.

26. Rıza Özçelik and **Salih Bayar** (2018). Outlier Detection Based on Majority Voting: A Case Study on Real Estate Prices. In IEEE 12th International Conference on, Application of Information and Communication Technologies (AICT), 17-19 October 2018, Almaty, Kazakhstan.

25. M. C. Sorkun and **Salih Bayar** (2017). "Gömülü Sistem Üzerinde Uygulanan İkili Yedekleme Yöntemi ile Aksaklığa Dayanıklı Yazılım Mimarisi," Dokuz Eylül Üniversitesi (DEÜ) Fen ve Mühendislik Dergisi, Cilt 19. sf 63-70, 2017.

24. Can Özbey and **Salih Bayar** (2017). Otomatik Ses Tanıma: Türkçe için Genel Dağarcıklı Akustik Model Oluşturulması ve Test Edilmesi. In *19. AKADEMİK BİLİŞİM KONFERANSI, AB 2017, 8 - 10 Şubat 2017, Aksaray Üniversitesi, Aksaray*

23. Can Özbey and **Salih Bayar** (2017). NoSQL Tabanlı, Odaklı İnternet Veri Toplama Servis Prototipi. In *19. AKADEMİK BİLİŞİM KONFERANSI, AB 2017, 8 - 10 Şubat 2017, Aksaray Üniversitesi, Aksaray*

22. **Salih Bayar** (2016). Performance Analysis of e-Archive Invoice Processing on Different Embedded Platforms. In 10th International Conference on, Application of Information and Communication Technologies (AICT), 12-14 October 2016, Baku, Azebaijan.

21. Murat Cihan Sorkun and **Salih Bayar** (2016). Fault Tolerant Software Architecture applied on Embedded System using Dual Modular Redundancy. In National Software Architecture Conference (Ulusal Yazılım Mimarisi Konferansı, UYMK'2016), 5-6 September 2016, Istanbul, Turkey.

20. **Salih Bayar** and M. Yasin Akpınar (2016). E-Fatura Yapısal ve Anlamsal Kontrol Yazılımının Performans Analizi. In 10th Turkish National Software Engineering Symposium, Çanakkale, Turkey, October, 24-26, 2016.

19. **Salih Bayar** and Alper Şen (2016). e-Arşiv Fatura için Aksaklğa Dayanıklı Dağıtık bir Sistem Tasarımı. In 10th Turkish National Software Engineering Symposium, Çanakkale, Turkey, October, 24-26, 2016.

18. **Salih Bayar** and Arda Yurdakul. "An Efficient Mapping Algorithm on 2-D Mesh Network-on-Chip with Reconfigurable Switches," In*11th International Conference on Design & Technology of Integrated Systems in Nanoscale Era,* April 12-14, 2016, Istanbul, Turkey

17. İ. Gür Nalçacı ve **Salih Bayar***. E-Defter Uygulamasında Özgün Adat Hesaplama Yazılımı. In* XVIII. Akademik Bilişim Konferansı, AB 2016, 30 Ocak - 5 Şubat 2016, Adnan Menderes Üniversitesi, Aydın

16. Burçin Camcı, **Salih Bayar** and M. Görkem Ülkar, "A Simple Auditing Mechanism for Financial Reports in E-Ledger Project," AICT2015, 9th IEEE International Conference on Application of Information and Communication Technologies, Rostov-on-Don, Russia, 14-16 October 2015

15. **Salih Bayar**, M. Görkem Ülkar ve Alper Şen, "Kullanıcı Tarafında E-Belge Oluşturma ve Yazdırma Yazılım Deneyimleri," 9. Ulusal Yazılım Mühendisliği Sempozyumu (UYMS'15), 09-11 Eylül 2015, Bornova, İzmir, Türkiye

14. **Salih Bayar**, M. Görkem Ülkar ve Yalçın Tercan, "E-Belge Uyum Yazılımı Deneyimleri," 9. Ulusal Yazılım Mühendisliği Sempozyumu (UYMS'15), 09-11 Eylül 2015, Bornova, İzmir, Türkiye

13. **Salih Bayar** ve M. Görkem Ülkar, "e-Defter ve e-Fatura Teknik Analizi: Örnek Bir Uygulama," Vergi Sorunları Dergisi (VSD), Sayı 322, Yıl 38, Sayfalar 102 - 110, Temmuz 2015
12. **Salih Bayar**, M. Görkem Ülkar, Uğur Doğan: E-Defter Uygulaması ve Karşılaşılan Zorluklar. 17. Akademik Bilişim Konferansı (AB2015), 4-6 Şubat 2015, Eskişehir
11. **Salih Bayar**, M. Görkem Ülkar, Rıdvan Salih Kuzu: Türkiye'de ve Avrupa'da E-Fatura Uygulaması. 17. Akademik Bilişim Konferansı (AB2015), 4-6 Şubat 2015, Eskişehir
10. M. Görkem Ülkar, **Salih Bayar**, E-Defter Mizan Raporu Uygulaması Geliştirme Deneyimleri. TBD 31. Bilişim Kurultayı 6-9 Kasım 2014, Ankara
9. M. Görkem Ülkar, **Salih Bayar**, E-Defter Uygulaması Kapsamında Çok Bileşenli Finansal Raporlama Yazılımı Geliştirme Deneyimleri. VIII. Ulusal Yazılım Mühendisliği Sempozyumu (UYMS), 8-10 Eylül 2014, Güzelyurt KKTC
8. **Salih Bayar** and Arda Yurdakul, "PFMAP: Exploitation of Particle Filters for Network on Chip (NoC) Mapping, IEEE Transactions on VLSI Design, Vol. 23, No. 10, pp. 2116–2127, October 2015. (**DOI 10.1109/ TVLSI.2014.2360791**).
7. H. Erdem Yantır, **Salih Bayar** and Arda Yurdakul, "Efficient Implementations of Multi-pumped Multi-port Register Files in FPGAs," 16th EUROMICRO Conference on Digital System Design (DSD), September 4 – 6, 2013, Santander, Spain.
6. **Salih Bayar** and Arda Yurdakul, " A dynamically reconfigurable communication architecture for multicore embedded systems," Journal of Systems Architecture - Embedded Systems Design, Vol. 58, No. 3-4, pp. 140–159, March 2012.
5. **Salih Bayar**, Mehmet Tükel and Arda Yurdakul, " A Self-Reconfigurable Platform for General Purpose Image Processing Systems on Low-Cost Spartan-6 FPGAs, " 6th International Workshop on Reconfigurable Communication-centric Systems-on-Chip, ReCoSoc'2011, 20-22 June 2011, Montpellier, France.
4. **Salih Bayar** ve Arda Yurdakul, "Gömülü Çoklu İşlemcili Sistemlerde Yeniden Betimlenebilir Haberleşme Protokolleri," Gömsis2010, 4-5 Kasım 2010, ITÜ, İstanbul, Türkiye
3. **Salih Bayar** and Arda Yurdakul, "Self-Reconfiguration on Spartan-III FPGAs with Compressed Partial Bitstreams via a Parallel Configuration Access Port (cPCAP) Core, " PRIME 2008 - 4th Conference on Ph.D. Research in Microelectronics and Electronics , 22-25 June 2008, Istanbul, Turkey.
2. **Salih Bayar** and Arda Yurdakul: "Dynamic Partial Self-Reconfiguration on Spartan-III FPGAs via a Parallel Configuration Access Port (PCAP)", HIPEAC2008, Göteborg, Sweden
1. Katarina Paulsson, Michael Hübner, **Salih Bayar** and Jürgen Becker: "Exploitation of Run-TIme Partial Reconfiguration for Dynamic Power Management in Xilinx Spartan III-based Systems", ReCoSoc2007, Montpellier, France

Achievements:

September, 1998	(Balıkesir)	Graduated from High School with first degree
October, 2003	(Istanbul)	Graduated from Yıldız Technical University with honours
August, 2004	(Wismar)	DSH-Testimonial with 93%, first degree DSH: "Deutsche Sprachprüfung für den Hochschulzugang" (German language examination for the university entrance)