

**Name:**

Salih Bayar

**Contact:****Address:**

Dept. of Electrical and  
Electronics Engineering  
Faculty of Engineering,  
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**E-Mail:**[salih.bayar@marmara.edu.tr](mailto:salih.bayar@marmara.edu.tr)**Web Page:**<http://www.salihbayar.com>**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. Dr.**

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)  
Adv. Topics in Electr. & Electro. Engineering (PhD)

**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:**

Summer 2016-...

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

	<p><b>Taught Courses:</b>  CEN251: Data Structure and Algorithms  CEN255: Logic Circuits and Firmware Design  CEN472: ASIC Design  SWE302: Software Design and Architecture</p>
<p><b>Teaching Assistant:</b>  January 2010 – May 2010</p>	<p>Computer Engineering, Boğaziçi University  <b>Assisted Courses:</b>  CmpE160: Intro. To Object Oriented Programming,  CmpE584: Special Topics In CmpE: Reconfigurable Computing.</p>
<p><b>Project/Research Assistant:</b>  September 2007 - July 2009</p>	<p>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))</p>
<p><b>Research Fellow:</b>  February 2009 - July 2009  May 2010 – October 2013</p>	<p>Tele-informatics Research Project – TAM, <a href="http://www.tetam.boun.edu.tr">www.tetam.boun.edu.tr</a>  Large-scale inter-disciplinary project with members: Comp. Eng., Electrical Eng. &amp; Biomedical Institute from Boğaziçi University.</p>
<p><b>HiWi (<u>Wissenschaftliche Hilfskraft</u>) (Scientific Trainer):</b>  2006-2006 (Karlsruhe)  2005-2006 (Karlsruhe)</p>	<p>Institut für Technik der Informationsverarbeitung (ITIV)  TEMO Soft-, Hardware &amp; Consulting e.K.</p>
<p><b>Education:</b>  September 2007- March 2015</p>	<p><b>Doctor of Philosophy (Ph.D.)</b> at Boğaziçi University, Computer Engineering, Istanbul, Turkey  <b>Thesis:</b> Reconfigurable Network-on-Chip (NoC) Architectures for Embedded Systems  <b>Advisor:</b> Prof. Dr. Arda Yurdakul</p>
<p>October 2004- March 2007</p>	<p><b>Master of Science (M.Sc.)</b> Study at the University of Karlsruhe (TH), 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</p> <p><b>Thesis:</b> 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</p> <p>(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.)</p>
<p>November 2003- July 2004</p>	<p><b>Advisor:</b> Prof. Dr.-Ing. Jürgen Becker, Prof. Dr.-Ing. Michael Hübner, Dr.-Ing. Katarina Paulsson  <b>German Language School</b> (Sprachinstitut 2000, Darmstadt, Germany)</p>
<p>September 1998- July 2003</p>	<p><b>Bachelor of Science (B.Sc.)</b> study at the Technical University of YILDIZ (YTU) (Istanbul / Turkey)  Specialization: Electronics and Communication Engineering</p> <p><b>Thesis:</b> Designing and realization of a password-protected security gate controller with LCD-Display and keypad for any entrance systems</p> <p>(Realization of hardware with all of components, PCB design of system, software design and software installation on a micro controller of Atmel family )</p>

**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:**

34. Polat, A , **Bayar, S** . (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. Mumcu, M , **Bayar, S** . (2020). Parallel Implenetation 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, Azerbaijan.
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 Aksaklığa 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 Yantrı, **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, İTÜ, 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)