

Dr. Vecdi Emre Levent

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Summary

I am mainly doing research on FPGA designs of image processing and communication applications. In addition to working as an assistant professor at Fenerbahçe University, I also provide consultancy services to top tier companies in the defence sector on FPGA topics.

1 Experience

2019 Apr – present Assistant Professor, Fenerbahçe University
2018 Oct – 2019 Apr Post Doctoral Researcher, Ozyegin University
2014 Sep – 2018 Oct Research Assistant, Ozyegin University

2 Consultancy

2020 Jan – present TÜBİTAK BİLGEM, National Combat Aircraft
(Milli Muharip Ucak) – ARINC 818 Protocol Implementation
2020 Jan – present TÜBİTAK BİLGEM, National Combat Aircraft
(Milli Muharip Ucak) – Nexus 5001 Protocol Implementation
2019 Jan – present Transvaro A. Ş., Military Electro-optic Handheld Binoculars
2015 – present Short-term consultancy to various companies

3 Funded Projects

2018 Jun – 2019 Jan Researcher, National CPU (Milli Islemci), ASELSAN A. Ş.
2017 Aug – 2019 Apr Researcher, Innovative Optical Wireless Communication Technologies
for 5G and Beyond, TÜBİTAK 215E311
2017 Apr – 2017 Aug Researcher, City Safety Management System (Kent Güvenliği Yönetim
Sistemi, KGYS), ASELSAN A. Ş.
2014 Apr – 2017 Apr Researcher, Algorithms, Design Methods, and Many-core Execution
Platform for Low-Power Massive Data-Rate Video and Image
Processing (ALMARVI), Artemis 2013 GA 621439
2014 Apr – 2017 Apr Researcher, Methodology Development for Real-time
Implementation of Video Algorithms on
FPGAs (M-RIVA), TUBITAK 114E343

4 Academic Publications

Articles published in international refereed journals(SCI, SSCI, Arts and Humanities)

1. **Levent V. E.**, Guzel A. E., Tosun M., Buyukmihci M., Aydin F., Goren S., Erbas C., Akgun T., Ugurdag H. F., “Tools and Techniques for Implementation of Real-time Video Processing Algorithms”, Springer Journal of Signal Processing Systems (JSPPS), Vol 8, No 1, Page 93-113, Sep 2018.

Articles published in other international refereed journals

1. Canbay F., **Levent V. E.**, Serbes G., Ugurdag H. F., Goren S., Aydin N., “A Code Generator for Implementing Dual Tree Complex Wavelet Transform on Reconfigurable Architectures for Mobile Applications”, Health Technology Letters (IET), Vol 3, No 3, Page 184-188, May 2016.
2. Elbir A., **Levent V. E.**, Karabiber F., “A Software Tool for Evaluating the Effect of Proximity Measures on Clustering Methods”, International Journal of Software Engineering & Research Methodology (IJSERM), Vol 1, No 4, Page 6-9, Jun 2014.

International Conference Papers

1. **Levent V. E.**, “Efficient Selection of Floating-Point Units for Maximize a FPGA Based System Throughput”, 3. International Conference on Life and Engineering Sciences (ICOLES), İstanbul, Turkey, Dec 2020
2. **Levent V. E.**, Saglam G., Ugurdag H. F., Annafianto N. F. R., Aydin F., Tesfay S., Aly B., Kebapci B., Uysal M., “FPGA Based DCO-OFDM PHY Transceiver for the VLC Systems”, 11th International Conference On Electrical And Electronics Engineering (ELECO), Bursa, Turkey, Nov 2019
3. Kazma C., **Levent V. E.**, Aydin N., “Parametric Trigger Signal Generation with Microcontroller and FPGA Based Architectures”, 4th International Conference on Computer Science and Engineering (UBMK), Samsun, Turkey, Sep 2019.
4. Kazma C., **Levent V. E.**, Aydin N., “Design and Development of a New Tactile Stimulator”, 13th NASA/ESA Conference on Adaptive Hardware and Systems (AHS), Colchester, England, Jul 2019.
5. Aydin F., Ugurdag H. F., **Levent V. E.**, Guzel A. E., Annafianto N. F. R., Özkan M. A., Akgun T., Erbas C., “Rapid Design of Real-Time Image Fusion on FPGA Using HLS and Other Techniques”, 15th ACS/IEEE International Conference on Computer Systems and Applications (ICCSA), Aqaba, Jordan, Oct 2018.
6. Tosun M., Ulutas U., **Levent V. E.**, Ugurdag H.F., “FPGA Implementation of a Dense Optical Flow Algorithm Using Altera OpenCL SDK”, 9th International Conference ICT Innovations (ICT), Skopje, Macedonia, Sep 2017.
7. Guzel A. E., **Levent V. E.**, Tosun M., Ozkan M. A., Ugurdag H. F., “Using High-Level Synthesis for Rapid Design of Video Processing Pipes”, 14th IEEE East-west Design and Test Symposium (EWDTS), Yerevan, Armenia, Oct 2016.
8. Buyukmihci M., **Levent V. E.**, Guzel A. E., Ates O., Tosun M., Akgun T., Erbas C., Goren S., Ugurdag H. F., “Output Domain Downscaler”, 31st International Symposium on Computer and Information Sciences (ISCIS), Krakow, Poland, Oct 2016.
9. Ugurdag H. F., Bayram A, **Levent V. E.**, Goren S., “Fast Combinational Circuits for Division by Small Integer Constants”, 23rd IEEE Symposium on Computer Arithmetic (ARITH),

Silicon Valley, USA, Jul 2016.

10. Canbay F., **Levent V. E.**, Serbes G., Ugurdag H. F., Goren S., Aydin N., “A Multi-Channel Real Time Implementation of Dual Tree Complex Wavelet Transform in Field Programmable Gate Arrays”, 14th Mediterranean Conference on Medical and Biological Engineering and Computing (MEDICON), Paphos, South Cyprus, Apr 2016.
11. Canbay F., **Levent V. E.**, Serbes G., Ugurdag H. F., Goren S., Aydin N., “An Area Efficient Real Time Implementation of Dual Tree Complex Wavelet Transform in Field Programmable Gate Arrays”, 15th IEEE International Conference on Bioinformatics and Bioengineering (BIBE), Belgrade, Serbia, Nov 2015.
12. Canbay F., **Levent V. E.**, Serbes G., Uğurdağ H. F., Gören S., Aydın N., “Field Programmable Gate Arrays Implementation of Dual Tree Complex Wavelet Transform”, 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Milan, Italy, Aug 2015.

National Conference Papers

1. **Levent V. E.**, Karabiber F., “FPGA Based Real Time an Image Processing System Implementation”, 6th Conference on Innovations and Applications in Intelligent Systems (ASYU), Izmir, Turkey, Oct 2014.
2. **Levent V. E.**, Diri B., “Author Recognition with Artificial Neural Networks in Turkish Documents”, 16th Academic Informatics Conference (AB), Mersin, Turkey, Feb 2014.

5 Dissertation & Thesis

- 2018 Oct Tools And Techniques For Implementation Of Real-Time Video Processing Algorithms, PhD Dissertation, Ozyegin University
- 2015 Jun An FPGA Based Image Processing Platform, Master Thesis, Yildiz Technical University

6 Administrative Duties

- 2020 Sep – present Manager, Online Education and Research Center, Fenerbahce University
- 2019 Aug – 2020 Sep Manager, Technology Transfer Office, Fenerbahce University

7 Referees in International Publications, Conferences and Project Evaluation

- 2019 – present TÜBİTAK TEYDEB Project Evaluation Reviewer
- 2014 – present Elsevier Digital Signal Processing Journal
- 2014 – 2015 IFIP/IEEE VLSI-SOC Conference

8 Awards

- 2016 Best Research Assistant, Ozyegin University

9 Lecturing

2021 Spring	Computer Architecture
2021 Spring	Information Systems
2020 Fall	Object Oriented Programming
2020 Fall	Digital Design
2020 Spring	Algorithms and Programming 2
2019 Fall	Algorithms and Programming 1
2019 Fall	Introduction to Computer Engineering

10 Training and Consultancy Topics

List of training and consultancy services are provided to companies on FPGAs:

- Xilinx Vivado
- Intel (Altera) Quartus
- Verilog
- SystemVerilog
 - Design
 - Verification
- UVM
- Advanced Synthesis and Simulation Tools
- Verilog Best Practices and Safety Critical Design
- Multi Clock Domain Design
- Safe FSM and Reset
- Pipelining and Resource Sharing Techniques
- Fundamental Verification
- PCI Express
- Ultrascale Architecture
- Transceivers
- Multibit Serial IO
- High Speed Memory
- Ethernet (10/100/1000Mbit – 10G)
- Partial Reconfiguration
- DSP IPs
- Zynq Based Design
- High Level Synthesis