Dr. Vecdi Emre Levent

Founder of AvionChip Inc. & Assistant Professor
Fenerbahce University
Ataturk Mah. 34758
Atasehir Istanbul

Email: emre@levent.tc
emre.levent@fbu.edu.tr
info@avionchip.com
Web: http://www.levent.tc
http://www.avionchip.com
Mobile Phone: +90 546 228 57 98

1 Entrepreneurship

Established a company in February 2022 with the support of TÜBİTAK 1512 BIGG to develop security critical designs and equipment in the field of defense and aviation industry. Our company, AvionChip Inc (http://www.avionchip.com), has started to develop projects with defense industry companies.

2 Academic Experience

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

3 Education

2018 Oct **PhD Computer Engineering**, Ozyegin University
Dissertation Title: Tools And Techniques For Implementation of Real-Time Video Processing Algorithms on FPGAs

2015 Jun **MS Computer Engineering**, Yildiz Technical University
Thesis Title: An FPGA Based Image Processing Platform

2013 Jun **BS Computer Engineering**, Arel University
Graduation Project: FPGA Based Object Tracking

4 Consultancy

2023 Jan – pressent	Qubitrium Ltd.
	- CubeSat Compatible Quantum Key Distribution System
	- Time-To-Digital Converter Design
2021 Jan – 2022 Jan	HAVELSAN HTR, 5G Chip Development
2020 Jan – 2021 Jan	Hyperion, Visible Light Communication PHY Development
2020 Jan – present	TUBITAK BILGEM, National Combat Aircraft (Milli Muharip Ucak - KAAN)
	- Safety Critical Design and Verification of Avionics
	- ARINC 664 AFDX Protocol Implementation
	- ARINC 818 Protocol Implementation
	- Security and Mass Memory Module (SMMM) Implementation
	- Nexus 5001 Trace Protocol Implementation
	- Trained +50 TUBITAK & TAI Engineer
2019 Jan – present	Transvaro Inc.
	- Military Electro-optic Handheld Binoculars
	- Gimbal Camera Development

5 Refereeing

Turkish Ministry of Industry	Observer, R&D/Design Center, 16 times
TUBITAK	Industry R&D Projects Support Program (1501), Project Refree, once
TUBITAK	TÜBİTAK SME R&D Startup Support Program (1507), Project Observer, 3 times
Bogazici University Technopark	Company Assessment, once
Elsvier DSP Journal	16 Paper evaluated
MSÜ JAST Journal	1 paper evaluated
FBÜ DAE Journal	15 paper evaluated
SIU Conference	6 paper evaluated
Other Conference Papers	+100 Paper evaluated

6 Invited Talks

- New Generation University-Industry Cooperation Summit, Sustainable University-Industry Cooperation Models, Fenerbahce University, Feb 2023

7 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

8 Academic Publications

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

1. Kebapci B., **Levent V. E.**, Ergin S., Mutlu G., Baglica I., Tosun A., Paglierani P., Pelekanakis K., Petroccia R., Alves J., Uysal M., "FPGA-Based Implementation of an Underwater Quantum Key Distribution System with BB84 Protocol", IEEE Photonics Journal, Vol 15, No 4, Page 1-10, Jun 2023.
2. Kazma C., **Levent V. E.**, Cardak M., Aydin N., "Design and implementation of a low cost and portable tactile stimulator", Turkish Journal of Electrical Engineering and Computer Sciences, Vol 30, No 6, Page 2398-2417, Sep 2022.
3. **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 (JSPS), Vol 8, No 1, Page 93-113, Sep 2018.

Articles published in other international refereed journals

1. Caliskan A. C., et al., **Levent V. E.**, "Spacebox CubeSat: Elevating High Schoolers from Learners to Space Innovators", Journal of Education and Practice (JEP), Vol 15, No 12, Page 105-124, Dec 2024.
2. Soydas H., **Levent V. E.**, "Data Mining The City: User Demands Through Social Media", International Journal of Architecture and Planning (ICONARP), Vol 9, No 2, Page 799-818, Dec 2021.
3. **Levent V. E.**, "Neural Network Based Performance Estimation Methodology Of FPGA FPU IP's For The Designs With High Performance Requirements", Journal of Design, Architecture and Engineering (FBU-DAE), Vol 1, No 1, Page 54-68, May 2021.
4. Canbay F., **Levent V. E.**, Serbes G., Ugurdag H. F., Goren S., Aydın 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.

5. 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.

Books and Book Chapters

1. Ozbalkan U, Balcioglu T. H., Ozgor C., Sukuti M., **Levent V. E.**, "Simultaneous Physical and Mental Exercise Management System Design", Journey to smart transformation, Pp 927-943, 2021, Book Chapter

International Conference Papers

1. **Levent V. E.**, Comert E., Uckun B., "High-Performance Image Warping for Real-Time Video Stabilization: An FPGA-Based Approach", 4th International Congress on Scientific Advances, Turkey, Istanbul, Dec 2024

2. Kurtoglu I., **Levent V. E.**, "FPGA Supported Semi-Spherical Resonant Gyroscope Implementation", 5th International Congress of New Horizons In Science And Social Sciences, Turkey, Istanbul, Dec 2024

3. Ustuner Y., Sakarya U., **Levent V. E.**, "FPGA Based Safety Critical Video Transmission For Avionics", 5th International Istanbul Current Scientific Research Congress, Turkey, Istanbul, Apr 2024

4. Kebapci B., Mutlu G., Baglica I., Tosun A., Ergin S., **Levent V. E.**, Uysal M., Paglierani P., Pelekanakis K., Petroccia R., Alves J., "Real-Time Implementation of a Underwater Quantum Key Distribution System", Sixth Underwater Communications and Networking Conference, Italy, Lerici, Aug 2022

5. Kazma C., **Levent V. E.**, Aydin N., "Compressing Test Data Using LZ and Huffman Coding for Haptic Stimulation", 1st International Conference on Design, Research and Development (RDCONF), İstanbul, Turkey, Dec 2021

6. **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

7. **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

8. 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.

9. Kazma C., **Levent V. E.**, Aydın N., "Design and Development of a New Tactile Stimulator", 13th NASA/ESA Conference on Adaptive Hardware and Systems (AHS), Colchester, England, Jul 2019.

10. 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.

11. 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.

12. 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.

13. 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.

14. 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.

15. 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.

16. 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.
17. 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.

9   MS Theses & Senior Projects

2024 July   Ustuner Y., "Synchronization and Feedback Mechanism on ARINC818" (Co-advised)
2022 Jun   Aydogan M., "FPGA Based Encoder Aided High Precision Motor Controller Design" (Co-advised)
32 Senior projects on FPGA/VLSI design
16 Senior projects on Embedded systems
23 Senior projects on Other Subjects

10   Administrative Duties

2020 Sep – present   Vice Manager, Technology Transfer Office, Fenerbahce University
2020 Sep – 2024 Mar   Manager, Online Education and Research Center, Fenerbahce University
2019 Aug – 2020 Sep   Manager, Technology Transfer Office, Fenerbahce University

11   Awards

2016   Best Research Assistant, Ozyegin University

12   Academic Lecturing

Computer Architecture	5 times
Digital Design	6 times
Electronic Circuits	once
System on Chip (SOC) Design	once
Microcontrollers	3 times
Embedded Systems	once
Object Oriented Programming	once
Algorithms and Programming II	once
Algorithms and Programming I	once
Introduction to Computer Engineering	once
Information Systems	6 times

13   Massive Open Online Courses

- FPGA Fundamentals, Udemy, +1500 Student, 4.2/5 Rating
- Digital Design with Verilog HDL, Youtube

14 Training and Consultanty 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
- Fundemantal 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
- Vitis AI Acceleration

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

- C/C++
- C#
- Python
- OpenCL
- OpenGL
- Gstreamer & FFMpeg
- Image Processing