FURKAN ERCAN

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EDUCATION

McGill University October 2020
Degree: Ph.D. in Electrical & Computer Engineering
Research: Practical and Energy-Efficient Polar Decoder Algorithms & Implementations

Middle East Technical University June 2015
Degree: M.Sc. in Sustainable Environment & Energy Systems
Research: Energy-Efficient Arithmetic Multiplier VLSI Architecture & Design

Middle East Technical University June 2011
Degree: B.Sc. in Electrical & Electronics Engineering (1^{st} rank in the Department)

RECENT PUBLICATIONS

1. **F. Ercan**, T. Tonnellier, N. Doan, W. J. Gross, "Practical Dynamic SC-Flip Polar Decoders: Algorithm and Implementation", in *IEEE Transactions on Signal Processing (TSP)*, vol. 68, pp. 5441-5456, September 2020.
2. S. M. Abbas, T. Tonnellier, **F. Ercan**, M. Jalaleddine and W. J. Gross, "High-Throughput VLSI Architecture for Soft-Decision Decoding with ORBGRAND", *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2021.
3. S. M. Abbas, T. Tonnellier, **F. Ercan**, W. J. Gross, "High-Throughput VLSI Architecture for GRAND", In: *IEEE International Workshop on Signal Processing Systems (SiPS)*, Coimbra, Portugal, 2020.
4. **F. Ercan**, T. Tonnellier, and W. J. Gross, "Energy-Efficient Hardware Architectures for Fast Polar Decoders,", in *IEEE Transactions on Circuits and Systems I - Regular Papers (TCAS-I)*, 2020.
5. **F. Ercan**, C. Condo, and W. J. Gross, "Improved Bit-Flipping Algorithm for Successive Cancellation Decoding of Polar Codes,", *IEEE Transactions on Communications (TCOM)*, vol. 67, no. 1, pp. 61-72, 2019.

EXPERIENCE

Boston University November 2021 - present
Postdoctoral Associate *Boston, MA, USA*

· Algorithms & hardware implementations of emerging universal decoding algorithms.

Octasic Inc. June 2020 - August 2021
5G PHY Algorithm Developer *Montréal, QC, Canada*

· Design and optimization of 5G Wireless Protocol Systems, including development of MATLAB reference models to optimized embedded C/ASM DSP implementations.

McGill University September 2015 - August 2020
Teaching Assistant *Montréal, QC, Canada*

· Designed and performed tutorials & labs for Computer Organization, Digital System Design, Digital Logic courses.

Middle East Technical University September 2012 - June 2015
Teaching & Research Assistant *Ankara, Turkey*

· Designed and performed tutorials & labs for Digital Logic Design, Analog & Digital Electronics, Computer Architecture and VLSI Design courses.

Intel Labs July 2011 - July 2012
Full Time Research Intern *Hillsboro, OR, USA*

· System-level energy-aware dynamic voltage/frequency scaling (DVFS) management policy description, implementation and verification on enterprise platforms.

ASELSAN Summer 2010
Summer Intern *Ankara, Turkey*

· Data transfer optimization on military radio products.

AWARDS

2020 IEEE Communications Society Student Grant Award for ICC 2020.

2020 Third place in the province at Quebec Engineering Competition Graduate Research Track.

2019 First place award at McGill Engineering Competition Graduate Research Track for the oral presentation featuring "Energy-efficient hardware architectures for fast polar decoders".

2019 Second place award at 6^{th} IEEE Montreal Research Boost for the poster presentation titled "Energy-efficient polar decoders for 5G and beyond".

2018 Outstanding Teaching Assistant Award from the Faculty of Engineering, McGill University for tutoring Digital System Design course.

2018 Graduate Research Enhancement and Travel (G.R.E.A.T) award for conference proceeding to be presented in IEEE Wireless Communications and Networking Conference (WCNC), Barcelona, Spain.

2017 Exemplary Student Branch Award for chairing McGill IEEE Student Branch.

2015 McGill Engineering Doctoral Award (Roger Boudreault Doctoral Fellowship).

2015 Best Paper Award in 5th International Conference on Energy Aware Computing Systems & Applications (ICEAC) 2015, Cairo, Egypt.

2011 Graduated with first rank in the Department of Electrical & Electronics Engineering, METU NCC.

2007-2011 Several High Honour degrees for excellence throughout the undergraduate degree.

TECHNICAL STRENGTHS

Languages	C/C++, VHDL, LaTeX, Perl, MATLAB, ASM
Tools & Platforms	ASIC, FPGA, Quartus, Xilinx, Visual Studio, ModelSim, Cadence, Linux, Git, SVN, Agile

PROFESSIONAL VOLUNTEERING & LEADERSHIP

Ongoing Vice-Chair of IEEE Montreal Section.

Ongoing Reviewer for numerous top-tier international conferences and journals in multiple fields such as Wireless Communications, Circuits & Systems, Digital Signal Processing.

2021 Demos & Exhibits Co-Chair of IEEE 5G World Forum 2021.

2021 Lead organizer and panelist of IEEE Montreal Section Keynote Event 2021.

2021 Technical Organization Committee at IEEE ICC 2021 Women in Engineering Panel.

2018 Volunteer instructor at Montréal Turkish Community Center for pre-college education.

2017 Volunteer coordinator in 5^{th} IEEE Global Conference on Signal and Information Processing Conference.

2016 Chair of McGill IEEE Student Branch.

2013 Graduate Program Student Delegate at Middle East Technical University NCC.

2012 Technical organization of 3^{th} IEEE International Conference on Energy Aware Computing Systems.

2011 Founded and chaired IEEE METU NCC Student Branch.

2010 Technical organization of Mediterranean Microwave Symposium (MMS).

REFERENCES

	Affiliation	Email	Reference for
Prof. Warren Gross	McGill University	warren.gross@mcgill.ca	Ph.D. Advisor
Prof. Ali Muhtaroglu	METU	amuhtar@metu.edu.tr	M.Sc. Advisor
Prof. Boris Vaisband	McGill University	boris.vaisband@mcgill.ca	Teaching Assistant
Prof. Frank Ferrie	McGill University	frank.ferrie@mcgill.ca	Teaching Assistant
Prof. Fabrice Labeau	McGill University	fabrice.labeau@mcgill.ca	IEEE Activities