Abdullah T. Mughrabi

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EDUCATION

North Carolina State University (NCSU)	Raleigh, NC
Doctor of Philosophy - Computer Engineering	Aug 2015 - Dec 2021
North Carolina State University (NCSU)	Raleigh, NC
Master of Science - Computer Engineering	Aug 2013 - Dec 2015
Jordan University of Science and Technology (JUST)	Irbid, Jordan
Bachelor of Science - Computer Engineering	Sept 2007 – June 2012

RELEVANT COURSEWORK & SKILLS (github.com/atmughrabi)

- Computer Architecture: CUDA, OpenMP, MPI.
- CAPI-Precis a Coherent Accelerator Processor (CAPI) Abstract Layer.
- AccelGraph is an FPGA graph processing benchmark suite.
- GraphBlox: A Re-Configurable Graph Processing Overlay.
- TriPIM: Efficient Triangle Counting on UPMEM (PIM)

PROFESSIONAL EXPERIENCE

Postdoctoral Research Associate *Dec 2021 – Current*
University of Virginia (UVA) Charlottesville, *VA*
- Prof. Kevin Skadron and I are working on (**GraphBlox**) cluster scale Graph Processing, GNNs, and Automata FPGA Acceleration.
- Prefetching, caching, and branch prediction optimizations in Graph Algorithms (**ECG**).

Co-op Engineer *Aug 2020 –Aug 2021*
AMD Research *Raleigh, NC*
- System-level GPU kernel scheduling and performance optimization.
- PIM-based acceleration and performance profiling.

Research Assistant *Aug 2016 —Aug 2020*
NC State University (NCSU) *Raleigh, NC*
- I worked with Prof. Greg Byrd on IBM's state-of-the-art Coherent Accelerator Processor Interface (CAPI) with FPGA (**QPR**).

Research Assistant *Aug 2013 --- Aug 2016*
NC State University (NCSU) *Raleigh, NC*
- I worked with Prof. Yan Solihin on statistically cloning I/O behavior based on the characteristics of SSDs.

Teaching Assistant (Selected Classes - 7 different other courses) *Aug 2013— Aug 2021*
NC State University (NCSU) *Raleigh, NC*
- Compiler Optimization and Scheduling (ECE 566).
- The architecture of Parallel Computers (ECE 506).
- Object-Oriented Programming for Electrical and Computer Engineers (ECE 309).

Ericsson Multi-Mediation System Administrator *Sept 2012—June 2013*
Jawwal-Palestinian cellular communication *West Bank, Palestine, Ramallah*

PUBLICATIONS/TALKS (Accepted)

- (Journal of Network Protocols and Algorithms 2012) Mazen Kharbutli, Monther Aldwairi, and **Abdullah Mughrabi**, "Function and Data Parallelization of Wu-Manber Pattern Matching for Intrusion Detection Systems," in Journal of Network Protocols and Algorithms (USA), vol. 4, no. 3, pp. 46-61, Sept. 2012.
- (IPDPS 2021) **Abdullah T. Mughrabi**, Mohannad Ibrahim, and Gregory T. Byrd, "**QPR**: Quantizing PageRank with Coherent Shared Memory Accelerators."
- (ICFPT 2022) **Abdullah T. Mughrabi**, and Gregory T. Byrd, "**CAPI-Precis**: Towards a Compute Centric Interface for Coherent Shared Memory Accelerators."
- (IPDPS GrAPL 2024)/(TECHCON 2023) - **Abdullah T. Mughrabi**, Morteza baradaran, Ahmed Samara, and Kevin Skadron "**ECG**: Expressing Locality and Prefetching for Optimal Caching in Graph Structures"
- (TECHCON 2024) Khyati Kiyawat, Morteza baradaran, Akhil Shekar, **Abdullah T. Mughrabi,** and Kevin Skadron "TriPIM: Efficient Triangle Counting on PIM Technologies - A Binary Search Approach."

PUBLICATIONS (Pending - Projects currently leading)

- (VLDB 2025) **Abdullah T. Mughrabi**, Beenish Ghul, Mohannad Ibrahim, Kevin Skadron, and Gregory T. Byrd, "**GraphBrew**: Infusing Graph Reordering Techniques for Accelerated Graphs."
- (ASPLOS 2025) **Abdullah T. Mughrabi**, Tom Tracey, Beenish Ghul, and Kevin Skadron "**GraphBlox**: A Vertex Centric Re-Configurable Graph Processing Overlay."
- (ASPLOS 2025) Ahmed Samarah, **Abdullah T. Mughrabi**, and James Tuck, "**Graph-Guru**: Data-Aware Branch Prediction for Graphs."

TECHNICAL COMPETENCIES

- C++, C, Datastructures, Algorithms, Graphs, AXI4, AMBA.
- Java, Python, Bash, Perl, TCL.
- CUDA, OpenMP, MPI.
- Snipersim, gem5
- HIP, ROCm, OpenCL.
- FPGAs, Intel® Quartus Prime/AMD® Xilinx Vitis,Vivado.
- Verilog/SystemVerilog/VHDL/SoC Architecture.
- English, Arabic, Hebrew.