Abenezer Wudenhe

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EDUCATION

University of California, Riverside (UCR) — PhD (Computer Science)
- SMART Fellow — Expected: May 2024
- Chancellor's Distinguished Fellow
- GAANN Fellow

University of Maryland, Baltimore County (UMBC) — BS (Computer Engineering)
- Meyerhoff Scholar — May 2018 (Cum Laude)
- NSA Scholar

PROFESSIONAL EXPERIENCE

Intel OneAPI Graduate Student Software Internship — Oct 2021 – Feb 2022

Software Engineering Research Intern

- **Participate in a 3 month internship to extend existing research project to Intel OneAPI.**
- **Extend existing compiler infrastructure to produce Data Parallel C++ device code to run on CPU, GPU, and FPGA.**

Extreme Storage and Computer Architecture Lab (ESCAL) — 2018 Aug – Present

Graduate research assistant to Dr. Hung-Wei Tseng.

- *Optimizing memory hierarchy for mixed precision computing*
  - Developed an GPGPU-sim extension to enable more accurate simulation of NVIDIA's half-precision computation and evaluation of the overhead.
  - Developed a set of Rodinia benchmarks to utilize the half-precision support.
  - Accelerate the performance of GPU kernels with reasonable accuracy using CUDA
- *TPUPoint: Profiler and optimizer for TPU cloud*
  - Designed and developed an automatic profiling and optimization tool for Google's TPU-based ML Cloud Platform.
  - Achieved up to 1.12x speedup for programmer's optimizations using TensorFlow.
  - Ported a set of MLPerf applications to Google's TPU Cloud Platform.

ARMY CYBER DWD Internship — 2019 May – Aug 2019

Software Engineering Intern.

- Assessed new technologies for ARMY Big Data Platform.
- Explored Amazon Kinesis tool for data stream processing for reduction of database overhead.

PUBLICATION

A. Wudenhe, Hung-Wei Tseng. "TPUPoint: Automatically Characterizing Hardware Accelerated Data Center Machine Learning Program Behavior". In IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS 2021), 2021.

Q. Meng, D. Gupta, **A. Wudenhe**, X. Du, L. Hong, F. Choa. "Three-Dimensional EEG Signal Tracking for Reproducible Monitoring of Self-Contemplating Imagination". In Advances in Science, Technology and Engineering Systems Journal (ASTESJ), 2017.

TECHNICAL SKILLS

- Experience programming in **C, C++, python**, **CUDA**, html, MPI, php, Arduino, OpenMP, Open MPI, TensorFlow, Skilearn, Javascript, NodeJS
- Experience writing technical documents using LaTex, BibTex, Word
- Experience with Xilinx Design Tool, MATLAB, Cadence's Allegro Design Entry CIS, Atmel Studio