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

Google Software Engineering Intern — Jun. 2023 – Sep 2023
Software Engineering Intern under Dr. Jaswanth Sreeram
- Participate in a 13-week internship program for the Google XLA TPU Backend Compiler team.
- Developed Low Level Instruction analysis tool to identify performance gaps in compiler heuristics.
- Participated in internal Core Machine Learning (ML) training program, "Core ML University".

Google Software Engineering Intern — Jun. 2022 – Sep 2022
Software Engineering Intern under Dr. Ayub Gubran
- Participate in a 14-week internship program for the Google gChips Architecture Team.
- Developed System Verilog based tools for architects to utilize in debugging/analysis of SoCs files.
- Participated in Google Intern Mentorship Program during weeks 5 - 12.

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.
- *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.

TECHNICAL SKILLS

- Experience programming in **C, C++, python**, **CUDA**, Bazel, Makefile, CMake, 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