Abenezer Wudenhe

awude001@ucr.edu | https://abe157.github.io/ | (240) 418-4302 (mobile) | Google Scholar

RESEARCH INTEREST

- Accelerator hardware including GPGPU, TPU, FPGA, and embedded devices
- Application specific domains including machine learning, data mining, and bioinformatics
- Memory architecture for accelerating data dependent application and near/in data processing

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

ARMY CYBER DWD Internship — 2019 May – Aug 2019
Software Engineering Intern.
Assess new technologies for ARMY Big Data Platform. Determine potential and cost of machine learning application Explore Amazon Kinesis tool for reduction of database overhead.

Extreme Storage and Computer Architecture Lab (ESCAL) — 2018 Aug – Present
Graduate research assistant to Dr. Hung-Wei Tseng.
Conduct research with a focus on memory acceleration and hardware software co-design. Investigate new accelerator for domain specific application. Extract and evaluate potential for new architecture in unanticipated applications or use cases.

University of Michigan Lab 4PROGRESS REU — 2017 May - Aug 2017
Undergraduate research assistant to Dr. Chad Jenkins
Applied cluster computing methods to robotic visualization techniques and object recognition. Utilized computer networking and Message Passing Interface (OpenMPI) for applicationsDeveloped GPU accelerated image rendering using Nvidia drivers and CUDA programing.

Electroencephalograph (EEG) Study on Image Formation — 2016 May - Aug 2016
Undergraduate research assistant to Dr. Fow-Sen Choa
Examined a new approach to link single measurement with behaviors that can monitor brain functions reproducibly without repeating measurements. Organized data management from experiments. Programed MATLAB model for 3D graph plotting and analysis.

CONFERENCE PRESENTATIONS

A. Wudenhe, Jinyoung Choi, Yu-Ching Hu, Hung-Wei Tseng. Poster presentation delivered at the Non-Volatile Memory Workshop (NVMW19), San Diego, CA, March 10-12, 2019.

A. Wudenhe. Three-dimensional EEG signal tracking for reproducible brain activity monitoring. Poster presentation delivered at the Institute of Electrical and Electronics Engineers (IEEE) Signal Processing in Medicine and Biology Symposium (SPMB16), Philadelphia, PA., December 3, 2016.

A. Wudenhe, F. Avila-Soto, A. Beri, E.Valenzuela. Parallelization for Fast Image Reconstruction using the Stochastic Origin Ensemble Method for Proton Beam Therapy. Poster presentation delivered at the UMBC Summer Undergraduate Research Fest (SURF), Baltimore, MD, August 5, 2015.

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.

A. Wudenhe, F. S. Choa, Q. Meng. Three-dimensional EEG signal tracking for reproducible brain activity monitoring. IEEE Xplore Digital Library 2017. 7846869.

Q. Meng, D. Gupta, **A. Wudenhe**, X. Du, L. Hong, F. Choa. Three-Dimensional EEG Signal Tracking for Reproducible Monitoring of Self-Contemplating Imagination. Advances in Science, Technology and Engineering Systems Journal, vol. 2, no. 3, pp. 1634-1646 (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

PROFESSIONAL ACTIVITIES

IEEE President 2017 – 2018

- Conduct and coordinate meetings between Baltimore IEEE branch
- Supervise workshops and socials
- Facilitate outreach in STEM fields to minority schools in Baltimore
- Lead circuit design workshops

REFERENCES

Hung-Wei Tseng, PhD
Assistant Professor
Department of Electrical and Computer Engineering
University of California, Riverside
+1 (951) 827-1012
htseng@ucr.ed

Chad Jenkins, PhD
Professor
Department of Computer Science and Engineering
University of Michigan
(734) 763-6985
ocj@umich.edu

Fow-Sen Choa, PhD
Professor
Department of Computer Science and Electrical Engineering
UMBC

(410) 455-3272
choa@umbc.edu

Matthias K. Gobbert, PhD
Professor
Department of Mathematics and Statistics
UMBC
410-455-2404 (Office)
gobbert@umbc.edu

Bonny Tighe
Senior Lecturer
Department of Mathematics and Statistics
UMBC
410-455-2425 (Office)
tighe@umbc.edu

Mudduppa Gowda, PhD
Professor
Department of Mathematics and Statistics
UMBC
410-455-2431 (Office)
gowda@math.umbc.edu