

# Sandino N. Vargas-Pérez

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RESEARCH INTERESTS Design and analysis of parallel and distributed algorithms • Computational biology problems in genomics • Big data analytics and processing • High performance computing optimizations

EDUCATION **Western Michigan University**, Kalamazoo, MI

*Ph.D. Computer Science* Sep 2012 – Dec 2017

- Dissertation Title: *A Hybrid Parallel Approach to High-Performance Compression of Big Genomic Files and In Compresso Data Processing*
- Advisor: Fahad Saeed, Ph.D.
- Defense date: August 2017

*M.S. Computer Science* Sep 2009 – Jan 2012

- Advisor: Ala Al-Fuqaha, Ph.D.

**Pontificia Universidad Católica Madre y Maestra**, Santiago, Dominican Republic

*B.S. Computer and Systems Engineering, magna cum laude* Jan 2004 – Jul 2008

- Final Project: NGO Administrative Software for Acción Callejera

WORK EXPERIENCE **Instructor (adjunct)** Sep 2017 – May 2018

Department of Computer Science  
Western Michigan University  
CS-3500 – *Introduction to Web Technologies*  
Supervisor: Li Yang, Ph.D.

**Research Assistant** Jan 2015 – Dec 2017

Parallel Computing and Data Science Laboratory  
Western Michigan University  
Supervisor: Fahad Saeed, Ph.D.

**Teaching Assistant** Jan 2016 – Apr 2017

Department of Computer Science  
Western Michigan University  
CS-3500 – *Introduction to Web Technologies*  
CS-4430/CS-5430 – *Database Management Systems*  
Supervisor: Li Yang, Ph.D.

**VuFind Library Catalog Programmer** Jan 2012 – Apr 2015

Western Michigan University Libraries (Waldo Library)  
Western Michigan University  
Supervisor: Keith Kelley, Ph.D.

**Graduate Assistant** Sep 2010 – Dec 2011

Western Michigan University Libraries (Waldo Library)  
Western Michigan University  
Supervisor: Keith Kelley, Ph.D.

JOURNAL PUBLICATIONS 1. **Vargas-Pérez, S.**, and Saeed, F. “A Hybrid MPI-OpenMP Strategy to Speedup the Compression of Big Next-Generation Sequencing Datasets.” *IEEE Transactions on Parallel and Distributed Systems*, issue 99, 2017. DOI: 10.1109/TPDS.2017.2692782

CONFERENCE  
PUBLICATIONS

1. **Vargas-Pérez, S.**, and Saeed, F. “A Parallel Algorithm for Compression of Big Next-Generation Sequencing Datasets.” *Proceedings of Parallel and Distributed Processing with Applications (IEEE ISPA-15)*, Vol. 3, pp. 196-201, Helsinki, Finland, August 2015. DOI: 10.1109/Trustcom.2015.632
2. **Vargas-Pérez, S.**, and Saeed, F. “Scalable Data Structure to Compress Next-Generation Sequencing Files and its Application to Compressive Genomics.” *2017 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*. Vol. 0, pp. 1923-1928, November 2017. DOI:10.1109/BIBM.2017.8217953.

AWARDS

**Research Award**

- Computer Science Graduate Student Research Award Apr 2017

**XSEDE Allocation** – TG-CCR150017

Apr 2015 – Jun 2018

- Allocation of time and space to work on the National Science Foundation’s (NSF) Extreme Science and Engineering Discovery Environment (XSEDE) super-computing infrastructure (the most advanced, powerful, and robust collection of integrated advanced digital resources and services in the world).
- Extension of allocation: 2016 and 2017.

**Travel Awards**

- Tapia Conference 2016 (Declined). Austin, TX Sep 2016
- 3rd IEEE International Workshop on Parallelism in Bioinformatics. Helsinki Aug 2015

**WMU Grad Talks** – 3MT Competition

Feb 2016

- Three-Minute Thesis Competition, highest score winner
- Representative of Western Michigan University at the Midwestern Association of Graduate Schools (MAGS) Conference, Chicago, IL April 2016

PRESENTATIONS

**Academic Computing Society**. Kalamazoo, MI

Oct 2016

- “Compression Strategies for Big Data,” (invited speaker)

**Guest Lecturer**, WMU Department of Computer Science

- CS6030 – *High Performance Algorithms for Big Data Applications* Feb 2017
- CS4310 – *Design & Analysis of Algorithms* Apr 2016
- CS6030 – *High Performance Architecture & Algorithms* Jan 2015

**Research and Creative Activities Poster Day**, WMU

Apr 2013

- “Identifying Overexpression of Genes in Cancerous Colorectal Tissue”

SERVICE

**IEEE Network**

Oct 2017

- Invited reviewer for the peer-reviewed journal IEEE Network.
- Journal impact factor: 7.230

**OutFront Kalamazoo**

Jun 2014 – Jun 2017

*Formerly the Kalamazoo Gay-Lesbian Resource Center*

- Volunteer for the Kalamazoo Pride 2014, 2015, and 2017.
- Volunteer for the Winter Gala and Awards Ceremony 2015.

COMPUTER  
SKILLS

**Programming Language**

- C/C++, Java, Bash, SQL, Python, MATLAB

**Application Programming Interfaces (API)**

- MPI, OpenMP, CUDA, OpenCL

**Web Programming**

- HTML, PHP, CSS (Bootstrap framework), JavaScript and jQuery

**Operating Systems**

- Linux (Ubuntu, CentOS), macOS, Microsoft Windows, Android

**Software**

- Apache, Microsoft Visual Studio, Draw.io, MySQL, GCC

**Typesetting**

- L<sup>A</sup>T<sub>E</sub>X, LibreOffice, Microsoft Office, Pages

REFERENCES

**Fahad Saeed, Ph.D.**

Assistant Professor  
Department of Computer Science  
Western Michigan University

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**Li Yang, Ph.D.**

Professor  
Department of Computer Science  
Western Michigan University

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**Christine Byrd-Jacobs, Ph.D.**

Professor  
Department of Biological Sciences  
Interim Dean Graduate College  
Western Michigan University

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