

# 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 2018 – Present

Department of Computer Science  
Kalamazoo College  
COMP 481 – *Applied Parallel Algorithms*  
COMP 210 – *Data Structures*

**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	<ol style="list-style-type: none"> <li>1. <b>Vargas-Pérez, S.</b>, and Saeed, F. “A Hybrid MPI-OpenMP Strategy to Speedup the Compression of Big Next-Generation Sequencing Datasets.” <i>IEEE Transactions on Parallel and Distributed Systems</i>, issue 99, 2017. DOI: 10.1109/TPDS.2017.2692782</li> </ol>	
CONFERENCE PUBLICATIONS	<ol style="list-style-type: none"> <li>1. <b>Vargas-Pérez, S.</b>, and Saeed, F. “A Parallel Algorithm for Compression of Big Next-Generation Sequencing Datasets.” <i>Proceedings of Parallel and Distributed Processing with Applications (IEEE ISPA-15)</i>, Vol. 3, pp. 196-201, Helsinki, Finland, August 2015. DOI: 10.1109/Trustcom.2015.632</li> <li>2. <b>Vargas-Pérez, S.</b>, and Saeed, F. “Scalable Data Structure to Compress Next-Generation Sequencing Files and its Application to Compressive Genomics.” <i>2017 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)</i>. Vol. 0, pp. 1923-1928, November 2017. DOI:10.1109/BIBM.2017.8217953.</li> </ol>	
AWARDS	<p><b>Research Award</b></p> <ul style="list-style-type: none"> <li>• Computer Science Graduate Student Research Award <span style="float: right;">Apr 2017</span></li> </ul> <p><b>XSEDE Allocation</b> – TG-CCR150017 <span style="float: right;">Apr 2015 – Jun 2018</span></p> <ul style="list-style-type: none"> <li>• 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).</li> <li>• Extension of allocation: 2016 and 2017.</li> </ul> <p><b>Travel Awards</b></p> <ul style="list-style-type: none"> <li>• Tapia Conference 2016 (Declined). Austin, TX <span style="float: right;">Sep 2016</span></li> <li>• 3rd IEEE International Workshop on Parallelism in Bioinformatics. Helsinki <span style="float: right;">Aug 2015</span></li> </ul> <p><b>WMU Grad Talks</b> – 3MT Competition <span style="float: right;">Feb 2016</span></p> <ul style="list-style-type: none"> <li>• Three-Minute Thesis Competition, highest score winner</li> <li>• Representative of Western Michigan University at the Midwestern Association of Graduate Schools (MAGS) Conference, Chicago, IL April 2016</li> </ul>	
PRESENTATIONS	<p><b>Academic Computing Society.</b> Kalamazoo, MI <span style="float: right;">Oct 2016</span></p> <ul style="list-style-type: none"> <li>• “Compression Strategies for Big Data,” (invited speaker)</li> </ul> <p><b>Guest Lecturer,</b> WMU Department of Computer Science</p> <ul style="list-style-type: none"> <li>• CS6030 – <i>High Performance Algorithms for Big Data Applications</i> <span style="float: right;">Feb 2017</span></li> <li>• CS4310 – <i>Design &amp; Analysis of Algorithms</i> <span style="float: right;">Apr 2016</span></li> <li>• CS6030 – <i>High Performance Architecture &amp; Algorithms</i> <span style="float: right;">Jan 2015</span></li> </ul> <p><b>Research and Creative Activities Poster Day,</b> WMU <span style="float: right;">Apr 2013</span></p> <ul style="list-style-type: none"> <li>• “Identifying Overexpression of Genes in Cancerous Colorectal Tissue”</li> </ul>	
SERVICE	<p><b>IEEE Network</b> <span style="float: right;">Oct 2017</span></p> <ul style="list-style-type: none"> <li>• Invited reviewer for the peer-reviewed journal IEEE Network.</li> <li>• Journal impact factor: 7.230</li> </ul> <p><b>OutFront Kalamazoo</b> <span style="float: right;">Jun 2014 – Jun 2017</span> <i>Formerly the Kalamazoo Gay-Lesbian Resource Center</i></p> <ul style="list-style-type: none"> <li>• Volunteer for the Kalamazoo Pride 2014, 2015, and 2017.</li> <li>• Volunteer for the Winter Gala and Awards Ceremony 2015.</li> </ul>	

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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