

GERMÁN HARVEY ALFÉREZ SALINAS, Ph.D.

Email: harveya@southern.edu

Website: <https://www.cs.southern.edu/harveya/>

ORCID: <https://orcid.org/0000-0002-9668-1132>

SCOPUS: <https://www.scopus.com/authid/detail.uri?authorId=53363255000>

SHORT BIO

I am a professor and the director of the Center for Innovation and Research in Computing (CIRC) at the School of Computing, Southern Adventist University, USA. I also serve as the chair of this institution's Academic Research Committee (ARC).

I hold a Ph.D. in Computer Science (Summa Cum Laude) from Universitat Politècnica de València (Spain), a MSc in Information and Communication Technology from Assumption University (Thailand), and a BSc in Computer Science Engineering from Universidad EAFIT (Colombia). Also, I did a postdoc at the Geoscience Research Institute, in collaboration with Loma Linda University (USA). I am certified in data science and big data analysis by the Massachusetts Institute of Technology (MIT), USA, in statistical analysis by the University of Canterbury, NZ, and in Geographic Information Systems (GIS) by the University of Alaska Fairbanks, USA.

My research interests include Artificial Intelligence, Services Computing, Model-Driven Engineering, Models at Runtime, Autonomic Computing, Data Science, Big Data, and Dynamic Software Product Lines. I have contributed to publications in top journals, book chapters, and international conferences (Scopus h-index: 12). I have worked in universities, IT companies, and research groups of four continents (America, Asia, Australia, and Europe).

I received the President's Award for Excellence in Scholarship (2023-2024) at Southern Adventist University. Also, my research contributions were recognized by the National Council of Science and Technology (CONACYT), Government of Mexico by awarding me a distinction in the National System of Researchers (SNI 1) during 2018-23. Also, I was a research fellow of Peru's National Council for Science, Technology and Technological Innovation (CONCYTEC) during 2016-21.

RESEARCH INTERESTS

Artificial Intelligence, Autonomic Computing, Big Data, Computer Vision, Data Science, Dynamic Software Product Lines, Machine Learning, Model-Driven Software Development, Natural Language Processing, Service-Oriented Architectures, and Software Product Lines

ACADEMIC INFORMATION

Ph.D. in Computer Science

December 2013

- **University:** Universitat Politècnica de València, Spain
- **Thesis Title:** Achieving Autonomic Web Service Compositions with Models at Runtime (<http://hdl.handle.net/10251/34672>)
- **Degree of Praise:** Summa Cum Laude. Chosen as one of the best theses in 2013-2014 at Universitat Politècnica de València (<http://www.upv.es/entidades/EDOCTORADO/info/904322normalc.html>)

Master of Science in Information and Communication Technology

January 2008

- **University:** Assumption University, Thailand
- **Specialty:** Technology Management

- **Thesis Title:** Aspect-Oriented Driven Variability in Software Product Lines (<https://www.dropbox.com/s/alem0tcwptp0v2x/ThesisHarveyAlferez.pdf>)
- **GPA:** 4.0/4.0. President's Award for Academic Excellence

Bachelor of Science in Computer Science Engineering

December 2004

- **University:** Universidad EAFIT, Colombia
- **Specialty:** Software Engineering and Databases
- **Senior Project Title:** Análisis de un Sistema de Información Bajo la Aproximación de la Orientación a Aspectos. Caso Práctico: Manejo de Solicitudes en la Mesa de Ayuda de Servicios Generales de una Universidad (<https://research.ebsco.com/c/7pr3vo/search/results?q=005.12%20CD%20A386>)

WORK EXPERIENCE

Professor & Director of the Center for Innovation and Research in Computing (CIRC), School of Computing, Southern Adventist University, USA

January 2022 – Present

- **Duties and Responsibilities:**
Teach the following courses at the School of Computing:
 - **Undergraduate:** Artificial Intelligence, Senior Seminar, Senior Project, and Southern Connections
 - **Master of Science in Computer Science/ Master of Science in Applied Computer Science:** Advanced Database Systems, Programming in Data Analytics, Databases and Data Warehouses, Data Mining and Analytics, Data Visualization, Project, and Thesis
 - **Non-Degree Graduate Course for Faculty:** Topics in Education: Hands-On Integration of Generative AI in the Classroom - School of Education, Psychology, and Counseling

As the director of the Center for Innovation and Research and Computing (CIRC), I lead projects developed with students at the School of Computing (<https://www.southern.edu/academics/computing/circ.html>). Specifically, CIRC offers a scenario in which students work on research and development projects to benefit the church, the industry, and the university. By paying students to work on these projects, CIRC provides students with the opportunity to fund their education through on-campus, computing-related work (similar in nature to computing internships)

Director, Institute of Data Science, School of Engineering and Technology, Universidad de Montemorelos, Mexico – <http://icd.um.edu.mx>

September 2018 – December 2021

- **Duties and Responsibilities:** Led international research and industrial projects in data science and big data
- **Accomplishments:** I led a team of four engineers. We are developing several internal and external projects related to data science and big data (<http://icd.um.edu.mx>). The external projects are being developed for organizations in the USA

Postdoctoral Fellow, Geoscience Research Institute in collaboration with Loma Linda University, USA

July 2020 – June 2021

- **Duties and Responsibilities:** I worked on the project entitled “Data Science Applied to Geochemical Data within a Seventh-day Adventist Paradigm” under the supervision of Dr. Benjamin L. Clausen and sponsored by the Faith and Science Council of the General Conference of Seventh-day Adventists
- **Accomplishments:** I worked with a team of students in computer science engineering at Universidad de Montemorelos in two areas: automatic identification of plutonic rock images and analysis of geochemical big data. Software tools were created, and scholarly publications were published during my postdoctoral studies

Director (Founder), Global Software Lab, School of Engineering and Technology, Universidad de Morelos, Mexico
August 2014 – December 2021

- **Duties and Responsibilities:** Led international software-engineering research and development projects to solve current problems in industry, and society
- **Accomplishments:** Founder of this lab. Several software-related research and development projects have been carried out

Professor, School of Engineering and Technology, Universidad de Morelos, Mexico
January 2014 – December 2021

Courses Taught:

- **Undergraduate:** Software Engineering, Artificial Intelligence, Artificial Neural Networks, Natural Language Processing, Pattern Recognition, Computer Vision, English for Engineers, and Introduction to Research
- **Master of Science in Computer Science:** Software Engineering, Object Oriented Programming, Software Development Methodologies, and Research Project

Sessional Lecturer, Graduate School of Engineering and Architecture, Peruvian Union University, Peru
January 2019 – May 2019

Taught a Ph.D. in Computer Science course on Big Data

Sessional Lecturer, Department of Computer Science, Faculty of Arts & Sciences, Middle East University, Lebanon
January 2019 – May 2019

Taught a M.Sc. in Computer Science course on Artificial Intelligence and Neural Computation

Researcher, Research Center on Software Production Methods, Universitat Politècnica de València, Spain
October 2010 – December 2013

- **Duties and Responsibilities:** Ph.D. thesis work at this international research center
- **Accomplishments:** Several top international scientific publications. I led a joint project with Prof. Camille Salinesi and his team at Université Paris 1 Panthéon-Sorbonne. Our results were presented in the Journal of Systems and Software

Director, Center for Research and Technology Development, School of Engineering and Technology, Universidad de Morelos, Mexico
August 2008 – September 2010

- **Duties and Responsibilities:** Coordinated lecturers and students in projects with several important institutions such as NASA
- **Accomplishments:** Exponential growth of scientific publications and research projects

Lecturer, School of Engineering and Technology, Universidad de Morelos, Mexico
January 2008 – September 2010

Courses Taught:

- **Undergraduate:** Emergent Technologies, Object Oriented Programming, Software Engineering, Systems Analysis and Design, and Visual Programming

- **Master of Science in Computer Science:** Object Oriented Methodologies, Software Architectures, Software Engineering, Software Development Methodologies, and Object-Oriented Programming

Coordinator, Computer Information Systems Department, Faculty of Business Administration, Asia-Pacific International University (Formerly Mission College), Thailand

August 2007 – December 2007

- **Duties and Responsibilities:** Monitored program quality and integrity. Managed the assessment process (curriculum, advising, placement, cooperative education, and internships). Recruited and supervised associate faculty
- **Accomplishments:** Created the IT Evangelistic Team. In this team a group of students developed IT solutions to support education in Southeast Asia

Sessional Lecturer, School of Education, Avondale College, Australia

July 2006 – April 2007

Master of Education (Extension in Asia-Pacific International University): Sessional academic employment to support IT-related research projects

Lecturer, Computer Information Systems Department, Faculty of Business Administration, Asia-Pacific International University, Thailand

June 2005 – December 2007

Courses Taught: Essentials of Computer Programming, Network and Data Communications, Web-Based Application Development, Visual Basic Programming, Systems Analysis and Design, and Computer Business Applications

Systems Analyst and Web Manager, Information Technology Systems Department, Asia-Pacific International University, Thailand

June 2005 – July 2007

- **Duties and Responsibilities:** Analyzed, developed, and improved software. Developed the website and the intranet of this university
- **Accomplishments:** Developed The Dorado Project, a multi-layered Web application that integrates several departments

Systems Analyst, UNE (Formerly Orbitel S.A. E.S.P), Colombia

July 2003 – December 2003

- **Duties and Responsibilities:** Managed the development cycle of a system for the quality and productivity of the company's processes using the Rational Unified Process (RUP) and the Capability Maturity Model (CMM)
- **Accomplishments:** Pioneer using Visual Studio .NET and MySQL in this international company. The financial benefits of the developed system were presented to the president and vice-presidents of this company

Researcher, Software Engineering Research Group, EAFIT University, Colombia

February 2001 – June 2001; January 2003 – May 2003

Duties and Responsibilities: Developed and maintained several software tools

PROFESSIONAL CERTIFICATIONS, DISTINCTIONS, AND AFFILIATIONS

Academic Awards:

- Best presentation award for the paper titled “Open Zero-Watermarking Approach to Prevent the Unauthorized Use of Images in Deep Learning.” Intelligent Systems Conference 2024 held from 5-6 September 2024 in Amsterdam, The Netherlands (<https://www.cs.southern.edu/harveya/various/BestPresentationAward.pdf>)
- President’s Award for Excellence in Scholarship (2023-2024) at Southern Adventist University
- My Ph.D. thesis was chosen as one of the best theses in 2013-2014 at Universitat Politècnica de València, Spain
- Rector's Award for Academic Excellence, MSc Thesis. Assumption University, Thailand, 2007
- Prof.Dr. Srisakdi Charmonman Award for Excellence in Education, Thailand, 2007

Scholarly Memberships:

- Chair of the Academic Research Committee (ARC) at Southern Adventist University
- Member of the Southern Scholars committee at Southern Adventist University
- Member of the Faith and Science Council of the General Conference of the Seventh-day Adventist Church
- My research contributions were recognized by the National Council of Science and Technology (CONACYT), Government of Mexico by awarding me a distinction in the National System of Researchers (SNI). 2018-23
- Research fellow of Peru’s National Council for Science, Technology and Technological Innovation (CONCYTEC), 2016-21

Professional Certificates:

- Professional Certificate in Geographic Information Systems (GIS) Essentials by the University of Alaska Fairbanks. July 2022 (<https://credentials.edx.org/credentials/fb5a6c1f315d4310add51eebee74737e/>). This certificate is composed of three courses: GIS Foundations (<https://courses.edx.org/certificates/a86beab260124de39b4dfd56d1045466>), 3D GIS (<https://courses.edx.org/certificates/b1c529f1c73b4e97bad2fe5bede1283e>), and GIS Image Analysis in ArcGIS Pro (<https://courses.edx.org/certificates/a066c4778cd6449f9f1a51a25bef01a9>)
- Professional Certificate in Statistical Modeling Using R by the University of Canterbury, NZ. September 2021 (<https://credentials.edx.org/credentials/5dab3a38ef9e43bbb97bb15b0ea11760/>). This certificate is composed of two courses: Basics of statistical inference and modeling using R (<https://courses.edx.org/certificates/14bee5b5fbf843d9966cef1c9ecef805>) and Advanced Statistical Inference and Modeling Using R (<https://courses.edx.org/certificates/870d499c478b41aa859c26ebb3b047ae>)
- Certificate in Data Science and Big Data Analytics: Making Data-Driven Decisions by the Massachusetts Institute of Technology (MIT), USA. October 29th, 2018 (<https://mitxpro.mit.edu/certificates/4bd210437eab48209491be3f1042db79>)

Other Certificates and Affiliations:

- Amateur Radio Operator – General (KQ4YAV). Issued by the Federal Communications Commission. 11/05/2024 – 11-05-2034
- Vice-president of the Greater Collegedale Adventist Radio Club (GCARC) – 2025: <https://www.collegedalehams.org>
- Member of Advancing Earth and Space Sciences (AGU). 2023
- Member of the Geological Society of America. 2021
- Member of the IEEE Monterrey Section. Member of the IEEE Computer Society. 2017
- Counselor of the Companions and Explorers Units. Pathfinders Club of McDonald Rd Church, Seventh-day Adventist Church, Tennessee. Master Guide. 2022 – 2025

SOFTWARE KNOWLEDGE

- **Languages:** Python, R, Java, .NET (Visual Basic and C#), C, C++, JavaScript, SQL, and PL/SQL

- **Data Science and Artificial Intelligence:** Weka, TensorFlow, Pytorch, Scikit-Learn, NLTK, SpaCy, LangChain, and Alteryx
- **Data Visualization:** Tableau, Shiny, Dash, and Streamlit
- **Big Data:** Apache Spark, Apache Kafka, MongoDB, Delta Lake, and Apache Cassandra
- **Mathematical and Statistical Analysis:** Jamovi, PSPP, Statgraphics, WinQSB, and LAPACK
- **Geographic Information Systems (GIS):** ArcGIS Pro
- **DBMS:** Oracle, Oracle Forms, SQL Server, MySQL, PostgreSQL, and MS Access
- **Web Site Design:** Dreamweaver
- **UML Modeling:** Rational Rose, Visual Paradigm, and Enterprise Architect
- **Application Servers:** IIS, Apache Tomcat, and Flask
- **Development of Web Services and Web Service Compositions:** Apache Axis2, Apache CXF, and Apache ODE (WS-BPEL)
- **Business Process Management:** Activiti (BPMN2) and Babel
- **Models at Runtime:** EMF and Jena
- **Others:** OSGi, AspectJ, OpenCV, Eclipse, NetBeans, XML, and several free and open-source applications

RELEVANT PROJECTS

- Leader of several research and development projects at the Center for Innovation and Research in Computing (CIRC), Southern Adventist University. 2022-present.
- Post-doctoral Research on Data Science Applied to Geochemical Data within a Seventh-day Adventist Paradigm, sponsored by the Faith and Science Council of the Seventh-day Adventist Church (\$36,100 USD). 2020-2021. Contact: Dr. Benjamin L. Clausen (bclausen@llu.edu).
- Project leader in several intensive data science projects in Montemorelos University. 2015-2019. Contact: Alejandro García (awgarcia@um.edu.mx).
- Project leader in a data strategy project for the North American Division of the Seventh-day Adventist Church. I proposed a prototype of a platform to build and manage the strategic plan of the Division at different levels. July 2018. Contact: Elder Alvin Kibble (AlvinKibble@nadadventist.org).
- Project leader in a data science project for the North American Division of the Seventh-day Adventist Church. May-June, 2017. Contact: Elder Alvin Kibble (AlvinKibble@nadadventist.org).
- Researcher in the SMART ADAPT Project (TIN2013-42981-P, Ministry of Economy and Competitiveness, Spain): Adaptive Software Development in an Intelligent World. Technological Challenges in Model Driven Engineering. 2015-2017. Contact: Dr. Vicente Pelechano (pele@dsic.upv.es).
- Researcher in the EVERYWARE project (TIN2010-18011, Ministry of Science and Innovation, Spain): Building Adaptive Software for Integrating People, Services and Things using Models at Runtime. 2011-2013. Contact: Dr. Vicente Pelechano (pele@dsic.upv.es).

REVIEWER

- **Peer reviewer for grants calls**
 - UK Natural Environment Research Council (NERC) Standard grants call, 2020.
 - Mexican National Council of Science and Technology (CONACYT) grants call, 2018.
- **Peer reviewer for journals**
 - Journal of Digital Imaging, Springer.
 - Machine Vision and Applications, Springer.
 - Journal of Cereal Science, Elsevier.
 - IEEE Access.
 - Revista Internacional de Estudios Sobre Educación, Universidad de Montemorelos.

- ACM Transactions on Software Engineering and Methodology (TOSEM).
- Frontiers of Computer Science, Springer.
- Informatics in Medicine Unlocked, Elsevier.
- Journal of Computational Methods in Sciences and Engineering (JCMSE), IOS Press.
- Journal of Information Technology & Software Engineering, OMICS.
- CyberTech Publishing's International Advisory Review Board.
- PLOS Computational Biology.
- PLOS ONE.
- Communications Earth & Environment, Nature.

▪ **Peer reviewer for research conferences**

- 2021 International Conference on Adaptive and Self-Adaptive Systems and Applications, ADAPTIVE 2021.
- 2018 International Conference on Adaptive and Self-Adaptive Systems and Applications, ADAPTIVE 2018, Barcelona, Spain, February 18-22, 2018.
- 2017 International Conference on Adaptive and Self-Adaptive Systems and Applications, ADAPTIVE 2017, Athens, Greece, February 19-23, 2017.
- 2016 Software Product Lines Conference, SPLC 2016. Beijing, China, September 19-23, 2016.
- 2015 Software Product Lines Conference, SPLC 2015. Nashville, USA, July 20-24, 2015.
- 7th International Conference on Research Challenges in Information Science, RCIS 2013. Paris, France, May 29-31, 2013.
- 25th International Conference on Advanced Information Systems Engineering, CAiSE 2013. Valencia, Spain, June 17-21, 2013.

ADDITIONAL INFORMATION

My website contains the following additional information:

- Software development projects: http://www.harveyalferez.com/software_products_prototypes.html
- Projects and presentations in the news (Adventist Review, Adventist News Network, etc.): <http://www.harveyalferez.com/press.html>
- Presentations in several international venues (Andrews University, Loma Linda University, GAIN (General Conference of the Seventh-day Adventist Church, etc.): http://www.harveyalferez.com/relevant_presentations.html
- Podcasts (in Spanish): <http://www.harveyalferez.com/podcasts.html>
- Other interests: http://www.harveyalferez.com/other_interests.html

Publications

h-index: 12 (<https://www.scopus.com/authid/detail.uri?authorId=53363255000>).

Book

Alfárez, G.H. (2020). Ideas para docentes-investigadores adventistas. Editorial Publicaciones Universidad de Morelos, México. ISBN: 978-607-8001-21-7.
<https://www.computing.southern.edu/harveya/docentesinvestigadores/>

Peer-Reviewed Journal Articles

- Bahn, J., Alfárez, G.H., & Snyder, K. (2025). Machine learning classification of fossilized *Pectinodon bakkeri* teeth images: insights into troodontid theropod dinosaur morphology. *Machine Learning and Knowledge Extraction*, 7(2). <https://doi.org/10.3390/make7020045>
- Alfárez, G.H., Esteban, O.A., Clausen, B.L., & Martínez Ardila, A.M. (2022). Automated machine learning pipeline for geochemical analysis. *Earth Science Informatics*, 15. <https://doi.org/10.1007/s12145-022-00821-8>
- Olivas, L.G., Alfárez, G.H., & Castillo, J. (2021). Glaucoma detection in Latino population through OCT's RNFL thickness map using transfer learning. *International Ophthalmology*, 41. <https://doi.org/10.1007/s10792-021-01931-w>
- Alfárez, G.H., Vázquez, E.L., Martínez Ardila, A.M., & Clausen, B. (2021). Automatic classification of plutonic rocks with deep learning. *Applied Computing and Geosciences*, 10. <https://doi.org/10.1016/j.acags.2021.100061>
- Aguilar, K., Alfárez, G.H., & Aguilar, C. (2020). Detection of difficult airway using deep learning. *Machine Learning and Applications*, 31(4). <https://doi.org/10.1007/s00138-019-01055-3>
- Quiroz, I.A. & Alfárez, G.H. (2020). Image recognition of Legacy blueberries in a Chilean smart farm through deep learning. *Computers and Electronics in Agriculture*, 168. <https://doi.org/10.1016/j.compag.2019.105044>
- Alfárez, G.H. & Pelechano, V. (2017). Achieving autonomic Web service compositions with models at runtime. *Computers and Electrical Engineering*, 63, 332-352. <https://doi.org/10.1016/j.compeleceng.2017.08.004>
- Heradio, R., Pérez-Morago, H., Alfárez, M., Fernández-Amoros, D., Alfárez, G.H. (2016). Augmenting measure sensitivity to detect essential, dispensable and highly incompatible features in mass customization. *European Journal of Operational Research*, 248(3), 1066-1077. <https://doi.org/10.1016/j.ejor.2015.08.005>
- Alfárez, G.H. & Pelechano, V. (2014). Facing uncertainty in web service compositions. *International Journal of Services Computing*, 2(2), 1-16. <http://hipore.com/stsc/2014/IJSC-Vol2-No2-2014-pp1-16-Alfarez.pdf>
- Alfárez, G.H., Pelechano, V., Mazo, R., Sailinesi, C., & Diaz, D. (2014). Dynamic adaptation of service compositions with variability models. *Journal of Systems and Software*, 91, 24-47. <https://doi.org/10.1016/j.jss.2013.06.034>
- Tabares, M. S., Alfárez, G.H., & Alfárez, E.M. (2008). El desarrollo de software orientado a aspectos: Un caso práctico para un sistema de ayuda en línea. *Avances en Sistemas e Informática, Universidad Nacional de Colombia*, 5(2), 61-68. <https://revistas.unal.edu.co/index.php/avances/article/view/10024>

Adventist Journal Articles

- Alfárez, G.H. (2026). Beyond Homo deus: Building a Biblical Worldview in an AI Era. *Ministry*, 98(1), 24-26.
- Alfárez, G.H. (2016). Tweeting in New York City - data science can teach us to sympathize. *Adventist Review*, 193(2), 47-49.
- Alfárez, G.H. (2015). Big data for reaching a big world. *Adventist Review*, 192(11), 47-51.

Scientific Articles in Proceedings of International Events

- Ermer, M., Moses-Pakkianathan, A., & Alférez, G.H. (2025). Comparing AI and Human Self-assessments in Memorization Performance. *Proceedings of the Future Technologies Conference (FTC) 2025*, Munich, Germany. https://doi.org/10.1007/978-3-032-07992-3_6
- Vakal, I., Regalado, E., & Alférez, G.H. (2025). Evaluating Hyper-V vs. Proxmox: Performance Comparison for Virtualization. *Proceedings of the Future Technologies Conference (FTC) 2025*, Munich, Germany. https://doi.org/10.1007/978-3-032-07995-4_10
- Rivera, S.E., Park, J., Alférez, G.H., Mayr, S., Tolbert, M.W. (2024). Game-Based Engagement Management System. *Proceedings of the Future Technologies Conference (FTC) 2024*, London, England. https://doi.org/10.1007/978-3-031-73128-0_22
- Gustrowsky, B., Villarreal, J.L., Alférez, G.H. (2024). Using Generative Artificial Intelligence for Suggesting Software Architecture Patterns from Requirements. *Proceedings of the Intelligent Systems and Applications Conference (IntelliSys) 2024*, Amsterdam, the Netherlands. https://doi.org/10.1007/978-3-031-66336-9_19
- Downs, R., Illangovan, D., & Alférez, G.H. (2024). Open Zero-Watermarking Approach to Prevent the Unauthorized Use of Images in Deep Learning. *Proceedings of the Intelligent Systems and Applications Conference (IntelliSys) 2024*, Amsterdam, the Netherlands. https://doi.org/10.1007/978-3-031-66431-1_27
- Hýbl, A. & Alférez, G.H. (2024). Using AutoML to Analyze the Effect of Attendance and Seat Location on University Student Grades. *Proceedings of the Intelligent Systems and Applications Conference (IntelliSys) 2023*, Amsterdam, the Netherlands. https://doi.org/10.1007/978-3-031-47721-8_42
- Domínguez, R., Alférez, G.H., González-Mejia, V., & Donías, N. (2023). Data Science Application for Creation of Maternal Morbidity and Mortality Predictive Software. *Proceedings of the 27th World Multi-Conference on Systems, Cybernetics and Informatics (WMSCI 2023)*, Orlando, FL, USA. <https://doi.org/10.54808/WMSCI2023.01.1>
- Hines, J., Cunningham, N., & Alférez, G.H. (2023). Performance Comparison of Operations in the File System and in Embedded Key-Value Databases. *Proceedings of the Computing Conference 2023*, London, England. https://doi.org/10.1007/978-3-031-37963-5_27
- Bateman, L.T., Butler, M.A., & Alférez, G.H. (2022). Database Query Execution Through Virtual Reality. *Proceedings of the Future Technologies Conference 2022 (FTC 2022)*, Vancouver, Canada. https://doi.org/10.1007/978-3-031-18458-1_42
- Cookenmaster, D.C., Bahn, J.A., & Alférez, G.H. (2022). Introducing Database Normal Forms to Students: A Comparison Between Theory-First and Practice-First Educational Approaches. *Proceedings of the Future Technologies Conference 2022 (FTC 2022)*, Vancouver, Canada. https://doi.org/10.1007/978-3-031-18344-7_12
- Bosquez, S., Alférez, G.H., Martínez Ardila, A.M., & Clausen B.L. (2022). Automatic Classification of Felsic, Mafic, and Ultramafic Rocks in Satellite Images from Palmira and La Victoria, Colombia. *Proceedings of the Computing Conference 2022*, London, England. https://doi.org/10.1007/978-3-031-10464-0_36
- Alférez, G.H., Hernández Serrano, S., Martínez Ardila, A.M., & Clausen, B.L. (2021). Automatic Classification of Plutonic Rocks with Machine Learning Applied to Extracted Shades and Colors on iOS Devices. *Proceedings of the Future Technologies Conference 2021 (FTC 2021)*, Vancouver, Canada. https://doi.org/10.1007/978-3-030-89906-6_6
- García, J.D., García Garza, A.L., Alférez, G.H., Clausen, B.L., & Martínez Ardila, A.M. (2021). Machine Learning in Geochemistry: A Bibliometric Analysis. *Proceedings of the 23rd International Conference on Artificial Intelligence (ICAI 2021)*, Las Vegas, NV, USA. ISBN: 1-60132-514-2, American Council on Science & Education (CSCE 2021). <https://www.american-cse.org/static/CSCE21%20book%20abstracts.pdf>
- Synice, J. & Alférez, G.H. (2018). Dynamic Evolution of Simulated Autonomous Cars in the Open World Through Tactics. *Proceedings of the Future Technologies Conference 2018 (FTC 2018)*, Vancouver, Canada. https://doi.org/10.1007/978-3-030-02686-8_21
- Espinoza, M., Alférez, G.H., & Castillo, J. (2018). Prediction of Glaucoma through Convolutional Neural Networks. *Proceedings of the 2018 International Conference on Health Informatics and Medical Systems (HIMS 2018)*, Las Vegas, NV, USA. <https://csce.ucmss.com/cr/books/2018/LFS/CSREA2018/HIM3459.pdf>

- Medina, J., Urango, O., Arboleda, W., Alférez, G.H., & Anaya, R. (2016). Implementación de una Arquitectura Open Health Data para la Gestión y Consumo de Datos de Salud. *Proceedings of the 2o Congreso de Investigación Universitaria de la División Interamericana (CIDIA 2016)*, Montemorelos, NL, Mexico.
- Alférez, G.H., Jiménez, J., Hernández-Navarro, H., González, M., Domínguez, R., Briones, A., & Hernández-Villalvazo, H. (2016). Aplicación de Ciencia de Datos en las Historias Clínicas de una Clínica Ubicada en el Noreste de México para Corroborar la Relación entre Caries Dental y Diabetes. *Proceedings of the 2o Congreso de Investigación Universitaria de la División Interamericana (CIDIA 2016)*, Montemorelos, NL, Mexico.
- Alférez, G.H., Jiménez, J., Hernández-Navarro, H., González, M., Domínguez, R., Briones, A., Hernández-Villalvazo, H. (2016). Application of Data Science to Discover the Relationship between Dental Caries and Diabetes in Dental Records. *Proceedings of the 2016 International Conference on Health Informatics and Medical Systems (HIMS 2016)*, Las Vegas, NV, USA. ISBN: 1-60132-437-5, CSREA Press.
<https://www.techrxiv.org/doi/full/10.36227/techrxiv.20311734.v1>
- Alférez, G.H., Rodríguez, J., Clausen, B., & Pompe, L.R. (2015). Interpreting the Geochemistry of Southern California Granitic Rocks Using Machine Learning. *Proceedings of the 2015 International Conference on Artificial Intelligence (ICAI 2015)*, Las Vegas, NV, USA. <http://worldcomp-proceedings.com/proc/p2015/ICA2786.pdf>
- Zabala, B. & Alférez, G.H. (2015). Proactive Control of Traffic in Smart Cities. *Proceedings of the 2015 International Conference on Artificial Intelligence (ICAI 2015)*, Las Vegas, NV, USA. <http://worldcomp-proceedings.com/proc/p2015/ICA2939.pdf>
- Marín, C., Alférez, G.H. Córdova, J., & González, V. (2015). Detection of Melanoma Through Image Recognition and Artificial Neural Networks. *Proceedings of the 2015 IUPESM World Congress on Medical Physics and Biomedical Engineering (WC 2015)*, Toronto, Canada. https://doi.org/10.1007/978-3-319-19387-8_204
- Torres, M., & Alférez, G.H. (2014). Software Architecture Evolution in the Open World through Genetic Algorithms. *Proceedings of the 2014 International Conference on Software Engineering Research and Practice (SERP 2014)*, Las Vegas, NV, USA. <http://worldcomp-proceedings.com/proc/p2014/SER3160.pdf>
- Alférez, G.H. & Pelechano, V. (2013). Facing Uncertainty in Web Service Compositions. *Proceedings of the IEEE 20th International Conference on Web Services (ICWS 213)*, Santa Clara, CA, USA.
<https://doi.org/10.1109/ICWS.2013.38>
- Alférez, G.H. & Pelechano, V. (2012). Dynamic Evolution of Context-Aware Systems with Models at Runtime. *Proceedings of the ACM/IEEE 15th International Conference on Model Driven Engineering Languages & Systems (MODELS 2012)*, Innsbruck, Austria. https://doi.org/10.1007/978-3-642-33666-9_6
- Ayora, C., Alférez, G.H., Torres, V., Pelechano, V. (2012). Applying CVL to Business Process Variability Management. *Proceedings of the VARY workshop at MODELS 2012*, Innsbruck, Austria.
<https://doi.org/10.1145/2425415.2425421>
- Alférez, G.H. & Pelechano, V. (2011). Context-Aware Autonomous Web Services in Software Product Lines. *Proceedings of the 15th International Software Product Line Conference (SPLC'11)*, München, Germany.
<https://doi.org/10.1109/SPLC.2011.21>
- Alférez, G.H. & Pelechano, V. (2011). Systematic Reuse of Web Services through Software Product Line Engineering. *Proceedings of the European Conference on Web Services 2011 (ECOWS'11)*, Lugano, Switzerland.
<https://doi.org/10.1109/ECOWS.2011.13>
- Ayora, C., Alférez, G.H., Torres, V., Pelechano, V. (2011). Procesos de Negocio Auto-Adaptables al contexto. *Proceedings of the VII Jornadas de Ciencia e Ingeniería de Servicios (JCIS 2011)*, A Coruña, Spain.
https://lbd.udc.es/jornadas2011/actas/JCIS/JCIS/S5/S5_1_paper.pdf
- Alférez, G.H. (2009). Grupos de Investigación Tecnológica en Universidades Adventistas: Educación y Misión. *Proceedings of the 39th International Seminar on the Integration of Faith and Learning*, Montemorelos, Mexico.
https://christinthe classroom.org/vol_39/39cc_001-016.pdf
- Alférez, G.H. & Poonphon, S. (2007). An Aspect-Oriented Product Line Framework to Support the Development of Software Product Lines of Web Applications. *Proceedings of the 24th South East Asia Computer Conference*, Bangkok, Thailand.
<https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=eb7faec27e170e8f43c118823bfb223844c1b9e>

Book Chapters

- Alférez, G.H. (2025). Artificial intelligence: ethical and theological implications. In Brasil de Souza, E. and Paroschi, K (Eds.), *Technology, Ethics, and the Future: Navigating the Digital Age with a Biblical Focus*. Silver Spring, Maryland, USA: Biblical Research Institute. ISBN: 978-0-925675-66-8.
- Alférez, G.H. (2021). Intelligent computational agents require a designer. In Gibson, L.J. et al. (Eds.), *Design and Catastrophe: 51 Scientists Explore Evidence in Nature*. Berrien Springs, Michigan, USA: Andrews University Press. ISBN: 978-1-940980-30-0.
- Alférez, G.H. & Mazo, R. (2018). Integración de los modelos de componentes con los modelos de variabilidad. In Mazo, R. (Ed.), *Guía Para la Adopción Industrial de Líneas de Productos de Software* (pp. 385-393). Medellín, Colombia: Editorial Eafit. ISBN: 978-958-720-506-0.
- Pelechano, V., Fons, J., Alférez, G.H., & Gómez, M. (2012). Modelos en tiempo de ejecución. In García, J. et al. (Eds.), *Desarrollo de Software Dirigido por Modelos: Conceptos, Métodos y Herramientas* (pp. 529-551). Madrid, Spain: RA-MA. ISBN: 978-84-9964-215-4.
- Alférez, G.H. & Alférez, E.M. (2011). An aspect-oriented framework to model non-functional requirements in software product lines of service-oriented architectures. In N. Milanovic (Ed.), *Methodologies for Non-Functional Requirements in Service Oriented Architecture: Requirements Engineering, Model-Driven Development and Security* (pp. 246-267). Hershey, Pennsylvania, USA: IGI Global. ISBN:1605667943 9781605667942.

Research Posters

- O'Hare,D.J., Martínez Ardila, A.M., Clausen,B.L. & Germán H. Alférez (2025). Machine Learning Algorithms Successfully Predict Mantle Reservoirs of Basalts Using Trace Elements as Proxies for Isotopic Data. *CONNECTS 2025, The Geological Society of America*. <https://gsameetings.secure-platform.com/connects25/solicitations/103002/sessiongallery/schedule/items/95107/application/10405>
- Vakal, I., Regalado, E., & Alférez, G.H. (2025). Evaluating Hyper-V vs Proxmox: Performance Comparison for Virtualization. *Campus Research Day, Southern Adventist University*. <https://knowledge.e.southern.edu/crd/2025/MorningPosterSession/10/>
- Ermer, M., Moses-Pakkianathan, A., & Alférez, G.H. (2025). Comparing AI and Human Self-Assessments in Memorization Performance. *Campus Research Day, Southern Adventist University*. <https://knowledge.e.southern.edu/crd/2025/MorningPosterSession/9/>
- Erickson, L., Gustrowsky, A., & Alférez, G.H. (2025). Integrity First: Redefining the Future of Senior Care Referrals Through Entrepreneurship Project. *Campus Research Day, Southern Adventist University*. <https://knowledge.e.southern.edu/crd/2025/MorningPosterSession/8/>
- Weiss, C. & Alférez, G.H. (2025). A Machine-Learning Tool-Supported Methodology for Nonprofit Donor Analysis. *Campus Research Day, Southern Adventist University*. <https://knowledge.e.southern.edu/crd/2025/AfternoonPosterSession/14/>
- Kasahara, J. & Alférez, G.H. (2025). Visualizing Chattanooga's Freeway Accidents: An Interactive Dashboard Built on US National Laboratory Data. *Campus Research Day, Southern Adventist University*. <https://knowledge.e.southern.edu/crd/2025/AfternoonPosterSession/11/>
- Patel, J. & Alférez, G.H. (2025). AI-Powered Health & Nutrition Dashboard: Enhancing Personalized Wellness with AI. *Campus Research Day, Southern Adventist University*. <https://knowledge.e.southern.edu/crd/2025/AfternoonPosterSession/12/>
- Erskine, K. & Alférez, G.H. (2025). Mobile Application for Historical Markers. *Campus Research Day, Southern Adventist University*. <https://knowledge.e.southern.edu/crd/2025/AfternoonPosterSession/10/>
- Swansi, K. & Alférez, G.H. (2025). The Effects of AI Tutors on Beginner Programmers. *Campus Research Day, Southern Adventist University*. <https://knowledge.e.southern.edu/crd/2025/AfternoonPosterSession/13/>
- O'Hare, D.J., Martínez Ardila, A.M., Clausen, B.L. & Germán H. Alférez (2024). Identifying Mantle Reservoirs in Hawaiian Ocean Island Basalts: A Machine Learning Approach with Trace Element Ratios as Isotopic Proxies.

CONNECTS 2024, The Geological Society of America.

<https://gsa.confex.com/gsa/2024AM/meetingapp.cgi/Paper/405139>

- Ferreira, T. & Alf  rez, G.H. (2024). Law and Human Rights: Assault along the Southern Texas Border. *Campus Research Day, Southern Adventist University*. <https://knowledge.e.southern.edu/crd/2024/PosterSession/16/>
- Braun, I. & Alf  rez, G.H. (2024). Dashboard to Quickly Estimate the Coast and Duration of an NYC Green Taxi Trip. *Campus Research Day, Southern Adventist University*. <https://knowledge.e.southern.edu/crd/2024/PosterSession/17/>
- Rhea, J. & Alf  rez, G.H. (2024). Visualizing NFL Player Metrics. *Campus Research Day, Southern Adventist University*. <https://knowledge.e.southern.edu/crd/2024/PosterSession/22/>
- Sapkota, A., Alf  rez, G.H. & Chadwick, A. (2023). Visualizing Paleocurrents in a Web Application using GPlates. *AGU23*. <https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1344812>
- Nelsen, D.R., Corbit, A.G. & Alf  rez, G.H. (2023). A Tool for Selecting Ecological Survey Locations in the Southeastern United States Using a Matched-Paired Design. *Campus Research Day, Southern Adventist University*. <https://knowledge.e.southern.edu/crd/2023/postersession/32/>
- Hamstra, E., Rivas, M. H  bl, A. & Alf  rez, G.H. (2023). An Interactive Dashboard for Southern Adventist University Weather Data. *Campus Research Day, Southern Adventist University*. <https://knowledge.e.southern.edu/crd/2023/postersession/44/>
- Chiley, C., Mayr, S. & Alf  rez, G.H. (2023). Generating University Course Catalogs via a PHP Based Module. *Campus Research Day, Southern Adventist University*. <https://knowledge.e.southern.edu/crd/2023/postersession/40/>
- Rivera, S., Mayr, S. & Alf  rez, G.H. (2023). Game-Based Learning Activities and Assignments. *Campus Research Day, Southern Adventist University*. <https://knowledge.e.southern.edu/crd/2023/postersession/41/>
- Park, J., Mayr, S. & Alf  rez, G.H. (2023). Creating Characters in a Game Based Learning System. *Campus Research Day, Southern Adventist University*. <https://knowledge.e.southern.edu/crd/2023/postersession/38/>
- Stover, J., Mayr, S. & Alf  rez, G.H. (2023). Game Based Learning: Engaging Students and Measuring Their Progress. *Campus Research Day, Southern Adventist University*. <https://knowledge.e.southern.edu/crd/2023/postersession/34/>
- Lewis, J. & Alf  rez, G.H. (2023). Understanding Enterprise-Level Cybersecurity Posture Through Data Visualization. *Campus Research Day, Southern Adventist University*. <https://knowledge.e.southern.edu/crd/2023/virtualsessionam/1/>
- Cookenmaster, D. & Alf  rez, G.H. (2023). Visualizing the Spread of Western Music throughout the World Using Big Data. *Campus Research Day, Southern Adventist University*. <https://knowledge.e.southern.edu/crd/2023/postersession/35/>
- Zaldivar, R. & Alf  rez, G.H. (2023). Web Repository of Southern's Research Projects. *Campus Research Day, Southern Adventist University*. <https://knowledge.e.southern.edu/crd/2023/postersession/37/>
- Butler, M. & Alf  rez, G.H. (2023). Interactive Dashboard of Diabetes in the US. *Campus Research Day, Southern Adventist University*. <https://knowledge.e.southern.edu/crd/2023/postersession/39/>
- Deschamps T. & Alf  rez, G.H. (2023). Open Data Indicates that Collegedale could be a Bluezone. *Campus Research Day, Southern Adventist University*. <https://knowledge.e.southern.edu/crd/2023/postersession/36/>
- Sampson, E. & Alf  rez, G.H. (2023). Security with pfSense. *Campus Research Day, Southern Adventist University*. <https://knowledge.e.southern.edu/crd/2023/postersession/24/>
- Kannenberg, A. & Alf  rez, G.H. (2023). State of Tennessee Health Visualized. *Campus Research Day, Southern Adventist University*. <https://knowledge.e.southern.edu/crd/2023/postersession/45/>
- H  bl, M., Alf  rez, G.H. & Clausen, B. (2022). Interactive Earthquake Visualization with Open Data. *Campus Research Day, Southern Adventist University, USA*. <https://knowledge.e.southern.edu/crd/2022/postersession/20/>
- Bateman, L. & Alf  rez, G.H. (2022). Chattanooga Crime Over Time: An Analysis of Police Incident Open Data. *Campus Research Day, Southern Adventist University, USA*. <https://knowledge.e.southern.edu/crd/2022/postersession/19/>

- Esteban, O., Alférez, G.H., Martínez Ardila, A.M., & Clausen, B.L. (2021). Understanding the Geochemistry of Southern California Plutonic Rocks Using Automated Machine Learning. *2021 Geological Society of America (GSA) Cordilleran Online Section Meeting, USA*.
- Hernández Serrano, S., Alférez, G.H., Martínez Ardila, A.M., & Clausen, B.L. (2021). Automatic Classification of Plutonic Rocks with Machine Learning Applied to Dominant Colors on iOS Devices. *2021 Geological Society of America (GSA) Cordilleran Online Section Meeting, USA*.
- Alférez, G.H. (2017). Discovering Health-Related Needs in the Community with Data Science and Open Data. *2017 Adventist Human Subjects Researchers Association (AHSRA) Conference, Loma Linda University, USA*.

Technological and Scientific Magazines/Repositories

- Harmse, J., Peden, E., & Alférez, G.H. (2024). Innovating Inventory and Alert Systems with Object Tracking. *Campus Research Day, Southern Adventist University*.
- Bateman, L., Butler, M. & Alférez, G.H. (2022). Database Query Execution through Virtual Reality. *Campus Research Day, Southern Adventist University*.
- Cookenmaster, D.C., Bahn, J.A. & Alférez, G.H. (2022). Introducing Normal Forms to Students: A Comparison of Theory-First vs. Project-First Educational Approaches. *Campus Research Day, Southern Adventist University*.
- Jensen, M., Manestar, M. & Alférez, G.H. (2022). Realtime Visualization of Kafka Architecture. *Campus Research Day, Southern Adventist University*.
- Hines, J., Cunningham, N. & Alférez, G.H. (2022). Performance Comparison of the Filesystem and Embedded Key-Value Databases. *Campus Research Day, Southern Adventist University*.
- González, M. & Alférez, G.H. (2020). Application of Data Science to Discover Violence-Related Issues in Iraq. *arXiv*.
- Cruz, E. & Alférez, G.H. (2014). Gestionando procesos de negocios usando BPMN 2.0. *Software Guru*, 46, 32-33.
- Serrano, J.A., Regalado, L.C., Villa, V.F., & Alférez, G.H. (2014). Diagnóstico físico utilizando Google Glass y machine learning. *Software Guru*, 45, 50-51.
- Núñez, R. & Alférez G.H. (2012). Propuesta para el mejoramiento de Adventist Forge (second part). *Revista Unaciencia, Corporación Universitaria Adventista*, 8, 25-33.
- Alférez, G.H., & Avila, P.D. (2010). Documentando en Scrum con Google Wave. *Software Guru*, 27, 18-19.
- Mago, E.R. & Alférez G.H. (2010). El papel de la arquitectura de software en Scrum. *Software Guru*, 30, 38-40.
- Núñez, R. & Alférez G.H. (2011). Propuesta para el mejoramiento de Adventist Forge (first part). *Revista Unaciencia, Corporación Universitaria Adventista*, 6, 26-29.
- Sánchez, R.J., Hernández, J., & Alférez, G.H. (2010). Repositorio de componentes de software para sistemas de la Iglesia Adventista del Séptimo Día. *Revista Unaciencia, Corporación Universitaria Adventista*, 4, 144-152.
- Alférez, G.H. & Alférez, E.M. (2009). Utilización de CLAPACK para resolver sistemas de ecuaciones lineales mediante paralelismo y optimización de memoria. *Revista Unaciencia, Corporación Universitaria Adventista*, 3, 27-33.
- Soto, O.O. & Alférez, G.H. (2009). An architecture proposal for academic software in Adventist universities. *Catalyst, Asia-Pacific International University*, 4(1), 35-44.
- Soto, O.O. & Alférez, G.H. (2009). Scrum, ¿un paradigma de administración de proyectos que cumple lo que promete? *Software Guru*, 25, 35-37.
- Alférez, G.H. (2008). Measurement of the support in the development stages of an aspect-oriented software product line framework. *Catalyst, Asia-Pacific International University*, 3(1), 14-24.

Master Theses/Projects Advised

- Sapkota, A. (2024). Visualization of Paleocurrents on a Web Application Using GPlates. Southern Adventist University, USA. https://knowledge.e.southern.edu/cgi/viewcontent.cgi?article=1002&context=mscs_theses

- Hýbl, A. (2024). Comprehensive Question and Answer Generation with LLaMA 2. Southern Adventist University, USA. https://knowledge.e.southern.edu/cgi/viewcontent.cgi?article=1001&context=mscs_theses
- Butler, M. (2024). Immersive Japanese Language Learning Web Application Using Spaced Repetition, Active Recall, and an Artificial Intelligent Conversational Chat Agent Both in Voice and in Text. Southern Adventist University, USA. https://knowledge.e.southern.edu/cgi/viewcontent.cgi?article=1011&context=mscs_reports
- Cunningham, N. (2024). A Further Performance Comparison of Operations in the File System and in Embedded Key-Value Databases. Master of Science in Computer Science. Southern Adventist University, USA. https://knowledge.e.southern.edu/cgi/viewcontent.cgi?article=1012&context=mscs_reports
- Soto, O. (2023). Augmenting Measure Sensitivity to Detect Core and Dead Features in Scrum. Maestría en Ciencias Computacionales. Universidad de Morelos, Mexico. <https://dspace.um.edu.mx/handle/20.500.11972/3889>
- Bahn, J. (2023). Automated Classification of Fossilized Pectinodon Bakkeri Teeth Images Using Machine Learning. Master of Science in Computer Science. Southern Adventist University, USA. https://knowledge.e.southern.edu/cgi/viewcontent.cgi?article=1009&context=mscs_reports
- Manestar, M. (2023). Comparing Igneous Geochemical Data from Hawaii and Southern California via Machine Learning. Master of Science in Computer Science. Southern Adventist University, USA. https://knowledge.e.southern.edu/cgi/viewcontent.cgi?article=1008&context=mscs_reports
- Aguilar, K.A. (2022). Aplicación Web para la Gestión del Plan Estratégico de la Universidad de Morelos. Caso de estudio: Facultad de Ingeniería y Tecnología. Maestría en Ciencias Computacionales. Universidad de Morelos, Mexico. <https://dspace.um.edu.mx/handle/20.500.11972/1965>
- González, M. (2018). Software Para la Aplicación de Ciencia de Datos en la Unión del Medio Oriente y Norte de África. Caso de Estudio en Iraq. Maestría en Ciencias Computacionales. Universidad de Morelos, Mexico. <https://dspace.um.edu.mx/handle/20.500.11972/545>
- Domínguez, R. (2017). Aplicación de Ciencia de Datos para la Creación de Software Predictivo de Morbimortalidad Materna en México. Maestría en Ciencias Computacionales. Universidad de Morelos, Mexico. <https://dspace.um.edu.mx/handle/20.500.11972/542>
- De La Fuente, J. (2012). Herramienta para la Generación y Despliegue de Composiciones de Servicios Web Mediante Modelos BPMN. Máster en Ingeniería del Software, Métodos Formales y Sistemas de la Información. Universitat Politècnica de València, Spain. <https://riunet.upv.es/handle/10251/18022>