

Reynier Hernández Torres, *Ph.D.*

📍 São José dos Campos, São Paulo, Brasil

📞 +55 (12) 98145 9364

✉ reynierhdez@gmail.com

🌐 www.researchgate.net/profile/Reynier_Hernandez_Torres

in reynierhdez

🔗 lattes.cnpq.br/9732945233432684

Educational Background

2013
2017

Ph.D. Applied Computing, National Institute for Space Research (INPE), São José dos Campos, São Paulo, Brazil.

THESIS Vibration-based damage identification using hybrid optimization algorithms

ADVISORS Dr. Haroldo Fraga de Campos Velho, Dr. Leonardo Dagnino Chiwiakowsky

FUNDING AGENCY *Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq)*

2009
2011

MSc Industrial Informatic and Automatization, Higher Polytechnic Institute “José Antonio Echeverría”, now Technological University of Havana “José Antonio Echeverría” (CUJAE), , Havana, Cuba.

THESIS Parameter estimation in the process of liquid chromatography using techniques based on metaheuristic algorithms

ADVISOR Dra. Mirtha Irizar Mesa

2009
2010

University Specialization Automation and Control, Technical University of Valencia (UPV), Valencia, Spain.

2002
2007

BSc Engineering in Automation, CUJAE, Havana, Cuba.

THESIS Using of non-linear controllers on a double-effect evaporator

ADVISOR MSc. Arístides Reyes Bacardí

REVALIDATION Electrical Engineering, emphasis on Automation and Control, University of São Paulo (*Universidade de São Paulo*, USP), 2018

Research Experiences

2019

Data Science Consultant, *Geoambiente Sensoriamento Remoto Ltda.*

2018
2019

Associate Researcher, *Geoambiente Sensoriamento Remoto Ltda.*, São José dos Campos, São Paulo, Brazil.

Project: Adaptive meta-heuristics with automatic calibration of parameters for the development of a planning and management system for Municipal Services, integrated with geolocation and mobile devices.

FUNDING AGENCY *Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP)* - Level 5 - Technical Training Fellowship

2017
2018

Associate Researcher, *Esportes Company Tecnologia Esportiva*, Campinas, São Paulo, Brazil.

Project: Development of techniques for automatic identification of highlights in society soccer

FUNDING AGENCY

FAPESP - Level 5 - Technical Training Fellowship

2012
2013

Researcher, *Polytechnical Institute of the State University of Rio de Janeiro (IPRJ-UERJ)*, Nova Friburgo, Rio de Janeiro, Brazil.

Project: Intelligent Computational Methods for Direct and Reverse Problem Solving in Biotechnological Processes

FUNDING AGENCY

Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES)

Teaching Experience

2007
2013

Assistant Professor, *CUJAE*, Havana, Cuba.

Introduction to Computing (C)

Programming (C++)

Project in Automation Engineering (C++, MatLab)

Virtual Instrumentation (LabVIEW)

Technological Processes (Industrial Automation)

Coordination of teaching processes and university extension of the second year of the Automation Engineering course (2010–2011, 2011–2012)

2007
2010

Instructor, *CUJAE*, Havana, Cuba.

Introduction to Computing (C)

Programming (C++)

Project in Automation Engineering (C++, MatLab)

2002
2007

Volunteer, *CUJAE*, Havana, Cuba.

Introduction to Computing (C)

Programming (C++)

Other courses

2019

Deep Learning with Python, *Geoambiente Sensoriamento Remoto Ltda.*, São José dos Campos, São Paulo, Brazil.

2015

Metaheuristics with Opposition Based Computing for solving Inverse Problems, *IX Summer School of the Associated Laboratory of Computing and Applied Mathematics (ELAC) - INPE*, São José dos Campos, São Paulo, Brazil.

Lecture in the Inverse Problems mini-course - Dr. Haroldo Fraga de Campos Velho

Awards

2009

Award - Exposición Nacional de las Brigadas Técnicas Juveniles (BTJ), *Havana, Cuba*.

Languages

Spanish	Native	<i>Born in Cuba</i>
Portuguese	Fluent	<i>Living in Brazil since 2012</i>
English	Advanced Intermediate	<i>Good Understanding, Medium Speaking, Good Writing</i>
French	Basic	<i>Diplôme d'Études en Langue Française (DELF) - A2 Alliance Française de La Havane</i>

Skills

Computer Sciences	Operations research, Compilation, Graph Theory, Data analysis
Development languages	C, C++, Fortran, MATLAB, LabVIEW, Java, Android, VHDL, Python, Shell/bash
Web development	HTML, CSS, JavaScript, Django, Spring, Angular, Bootstrap
Database	MySQL, PostgreSQL
Computer Vision	OpenCV, PIL
Machine learning tools	Tensorflow, Keras, Pytorch, Microsoft Cognition Toolkit, Sklearn
Programming paradigms	Object oriented programming, Test driven development, Agile methodology
Collaboration work	Version control: git, Continuous integration: Jenkins
Edition	TeX, LaTeX, pdfLaTeX, XeTeX, LuaTeX, PGF/TikZ, LibreOffice, Microsoft Office, Adobe Photoshop, Inkscape, GIMP
Mathematics	Statistics, Linear Regression, Monte Carlo Simulation, Differential & Integral Calculus, Mathematical Modeling
Engineering & desing	NASTRAN, PATRAN, AutoCAD

Research Interests

COMPUTING	<ul style="list-style-type: none"> Deep learning in Computer Vision Machine learning Stochastic Optimization in Smart Cities
AUTOMATION	<ul style="list-style-type: none"> Robotic Digital Control

Participation In Events

2018

XVII EPGMET - Encontro dos alunos de pós-graduação em meteorologia do CPTEC/INPE, Cachoeira Paulista, São Paulo, Brazil.

2017

XXXVII Congresso Nacional de Matemática Aplicada e Computacional (CNMAC 2017), São José dos Campos, São Paulo, Brazil.

2016	XXXVI Congresso Nacional de Matemática Aplicada e Computacional (CNMAC 2016), Gramado, RS, Brazil.
2016	4th Conference of Computational Interdisciplinary Science (CCIS 2016), São José dos Campos, São Paulo, Brazil.
2016	5th International Conference on Engineering Optimization (EngOpt 2016), Foz de Iguaçu, Paraná, Brazil.
2016	XXXVI Congresso Nacional de Matemática Aplicada e Computacional, Brazil.
2015	10th International Conference on Composite Science and Technology (ICCST/10), Lisbon, Portugal.
2015	XXXVI Ibero-Latin American Congress on Computational Methods in Engineering, Rio de Janeiro, Brazil.
2014	XXXV Congresso Nacional de Matemática Aplicada e Computacional, Natal, RN, Brazil.
2011	XIV International Convention and Fair Informática 2011. X Simposio Internacional de Automatización, Havana, Cuba.

Event Organization

2016	4th Conference of Computational Interdisciplinary Science (CCIS 2016), INPE, São José dos Campos, São Paulo, Brazil. Member of the Organizing Committee http://www.lac.inpe.br/ccis2016/ .
2016	XVI Workshop de Computação Aplicada (WorCAP 2016), INPE, São José dos Campos, São Paulo, Brazil. Member of the Organizing Committee http://www.lac.inpe.br/worcap2016/ .
2015	XV Workshop de Computação Aplicada (WorCAP 2015), INPE, São José dos Campos, São Paulo, Brazil. Member of the Organizing Committee http://www.lac.inpe.br/worcap2015/ .
2014	XIV Workshop de Computação Aplicada (WorCAP 2014), INPE, São José dos Campos, São Paulo, Brazil. Member of the Organizing Committee http://www.lac.inpe.br/worcap2014/ .

Certificates

2019	Computer Vision and Image Analysis, <i>edX</i> .
2019	Google Maps Platform Tech, <i>Google</i> .
2019	Scrum Foundation Professional Certificate (SFPC), <i>CertiProf</i> .

2019 • DevOps Essentials Professional Certificate (DEPC), CertiProf.

2017 • Complete Guide to TensorFlow for Deep Learning with Python, Udemy, <https://www.udemy.com/certificate/UC-HKRJO09G/>.

Publications

Journals

2014 • R. Hernández Torres, M. Irizar Mesa, O. Llanes Santiago, L. D. T. Câmara, A. J. da Silva Neto, and L. M. Zumalacárregui de Cárdenas., Comparación de diferentes algoritmos metaheurísticos en la estimación de parámetros del modelo relacional general de cromatografía líquida en columna. *Ingeniare. Revista chilena de ingeniería*, 22:14 – 25, 01 2014. ISSN 0718-3305. DOI 10.4067/S0718-33052014000100003. URL https://scielo.conicyt.cl/scielo.php?script=sci_arttext&pid=S0718-33052014000100003&nrm=iso.

2011 • R. Hernández Torres, M. I. Mesa, L. Tavares Câmara, A. J. da Silva Neto, and O. L. Santiago, Application of genetic algorithms for parameter estimation in liquid chromatography. *Revista Científica de Ingeniería Electrónica, Automática y Comunicaciones* ISSN: 1815-5928, 32 (3):13–20, 2011.

Book chapters

2019 • R. Hernández Torres, H. F. de Campos Velho, and L. D. Chiwiacowsky., Rotation-based multi-particle collision algorithm with hooke-jeeves approach applied to the structural damage identification. In G. M. Platt, X.-S. Yang, and A. J. Silva Neto, editors, *Computational Intelligence, Optimization and Inverse Problems with Applications in Engineering*, pages 87–109. Springer International Publishing, Cham, 2019. ISBN 978-3-319-96433-1. DOI 10.1007/978-3-319-96433-1_5. URL https://doi.org/10.1007/978-3-319-96433-1_5.

2015 • R. Hernández Torres, E. Luz, and H. C. Velho., Multi-particle collision algorithm for solving an inverse radiative problem. In *Integral Methods in Science and Engineering*, pages 309–319. Springer, 2015.

Proceedings

2019 • R. Hernández Torres, H. F. Campos Velho, and L. D. Chiwiacowsky., Regularized Solution for Structure Health Monitoring. In *Proceedings XL Ibero-Latin American Congress on Computational Methods in Engineering*, 2019 (submitted).

2018 • R. Hernández Torres, M. C. Scarabello, H. F. Campos Velho, L. D. Chiwiacowsky, A. C. Soterroni, and F. M. Ramos., Structural Damage Identification Problem solved by metaheuristic approaches. In *Proceedings... XIX Convención Científica de Ingeniería y Arquitectura (CCIA 19)*, 2018.

2018

R. Hernández Torres, H. F. Campos Velho, and L. D. Chiwiacowsky., Multi-particle Collision Algorithm with Hooke Jeeves applied to the damage identification in a Kabe problem. In *Proceeding Series of the Brazilian Society of Computational and Applied Mathematics*, 6(1), 2018.

2017

R. Hernández Torres and H. F. Campos Velho., Rotation-based Multi-particle Collision Algorithm with Hooke Jeeves. SB-MAC - Sociedade de Matemática Aplicada e Computacional, DOI: 10.5540/03.2017.005.01.0473. 2017.

2016

R. Hernández Torres, H. F. Campos Velho, and L. D. Chiwiacowsky., Vibration-based damage identification using the multi-particle collision algorithm with Hooke-Jeeves coupled with NASTRAN. In *Proceedings 4th Conference of Computational Interdisciplinary Science (CCIS 2016)*, 2016.

2016

J. A. Anochi, H. F. Campos Velho, and R. Hernández Torres., Climate precipitation prediction using optimal neural network architecture in southeast region of brazil. In *Proceedings 4th Conference of Computational Interdisciplinary Science (CCIS 2016)*, 2016.

2016

R. Hernández Torres, H. F. Campos Velho, and L. D. Chiwiacowsky., Rotation-based sampling mpca-hj for vibration-based damage identification. In *EngOpt Proceedings*, 2016.

2015

R. Hernández Torres, L. D. Chiwiacowsky, and H. F. Campos Velho., Multi-particle collision algorithm with Hooke-Jeeves for solving a structural damage detection problem. In *Proceedings...*, volume 1, pages 1–12. 10th International Conference on Composite Science and Technology. (ICCST/10), Instituto Superior Técnico, 2015. URL http://www.dem.ist.utl.pt/iccst10/files/ICCST10_Proceedings/pdf/WEB_PAPERS/ICCST10_Upload_195.pdf. ISBN 9789899942424..

2015

R. Hernández Torres, E. F. P. da Luz, and H. F. Campos Velho., Multi-Particle Collision Algorithm with Reflected Points. In *Proceeding Series of the Brazilian Society of Computational and Applied Mathematics*, 2015. DOI 10.5540/03.2015.003.01.0433. URL <http://proceedings.sbmec.org.br/sbmec/article/view/745..>

2015

R. Hernández Torres, M. C. Scarabello, H. F. Campos Velho, L. D. Chiwiacowsky, A. C. Soterroni, and F. M. Ramos., A hybrid method usign q-gradient to identify structural damage. In *Proceedings... XXXVI Iberian Latin-American Congress on Computational Methods in Engineering*, 2015.

2015

R. Hernández Torres, E. F. P. Luz, and H. F. Campos Velho., Multi-particle collision algorithm for solving an inverse radiative problem. In *Integral Methods in Science and Engineering*, pages 309–319. Springer International Publishing, 1 edition, 2015b. ISBN 9783319167268. doi: 10.1007/978-3-319-16727-5_26.

2014

R. Hernández Torres, E. F. P. Luz, and H. F. Campos Velho., Multi-particle collision algorithm with reflected points. In *Anais do XXXV Congresso Nacional de Matemática Aplicada e Computacional*, 2014.

2013

R. Hernández Torres, M. Irizar Mesa, O. Llanes Santiago, A. J. S. Neto, and L. D. T. Câmara., Parameter estimation of the liquid chromatography general rate model using different stochastic methods. In *Proc. 4th Inverse Problems, Design and Optimization Symposium (IPDO)*, 2013.

2012

R. Hernández Torres, M. Irizar Mesa, O. Llanes Santiago, A. J. S. Neto, L. D. T. Câmara, and L. M. Zumalacarregui de Cárdenas., Parameter estimation of liquid chromatography model using quasi-oppositional differential evolution. In *Anais do Congresso de Matemática Aplicada e Computacional CMAC Nordeste 2012*, 2012. ISBN 23173297.

2011

R. Hernández Torres, M. Irizar Mesa, L. D. T. Câmara, A. J. S. Neto, and O. Llanes Santiago., Application of genetic algorithms for parameter estimation in liquid chromatography. In *Informática 2011. XIV Convención y Feria Internacional. X Simposio Internacional de Automatización.*, 2011. ISBN 978959721301..

2011

R. Hernández Torres, M. F. Irizar Mesa, L. Câmara, A. J. Silva Neto, and O. Llanes Santiago., Using of Metaheuristics Methods for Solving Inverse Problems in Liquid Chromatography. In *Proc. 7th International Conference on Inverse Problems in Engineering: Theory and Practice*, pages 37–42, Orlando, FL, United States of America, 2011.

2010

R. Hernández Torres and A. Reyes Bacardí, Regulación de un evaporador de doble efecto. controlador borroso. In *UCIENCIA '10 V Conferencia Científica de la Universidad de las Ciencias Informáticas.*, 2010. ISBN 9789592860.

Invited Talks

2015

Young Cubans: Are We Happy? - An overview of the lives of young people in Cuba, 2nd fair of Science, Technology and Culture, ETEC, São José dos Campos, São Paulo, Brazil.

2013

Parameter identification in chromatography using differential evolution, INPE, São José dos Campos, São Paulo, Brazil.

Affiliations

Overleaf Advisor (<https://www.overleaf.com/advisors>)

References

Luis Manuel Garcés Socarrás

Titular Professor

Department of Automation and Computing, Faculty of Automatic and Biomedical Engineering, CUJAE

Havana, Cuba

📧 <http://lattes.cnpq.br/2461031909074992>

✉ lmgarcess@automatica.cujae.edu.cu

Haroldo Fraga de Campos Velho

Senior Researcher

Associate Laboratory for Computing and Applied Mathematics (LABAC), INPE

São José dos Campos, SP, Brazil

📧 <http://lattes.cnpq.br/5142426481528206>

✉ haroldo.camposvelho@inpe.br

Reinaldo R. Rosa

Titular Researcher & Full Professor

Associate Laboratory for Computing and Applied Mathematics (LABAC), Computational Space Physics Group, INPE

São José dos Campos, SP, Brazil

📧 <http://lattes.cnpq.br/2840176439889517>

✉ reinaldo.rosa@inpe.br

Leonardo Dagnino Chiwiacowsky

Adjunct Professor

University of Caxias do Sul

Caxias do Sul, RS, Brazil

📧 <http://lattes.cnpq.br/2945278651389111>

✉ ldchiwiacowsky@ucs.br

Juliana Aparecida Anochi

Research Technologist

Center for Weather Forecast and Climatic Studies (CPTEC), INPE

Cachoeira Paulista, SP, Brazil

📧 <http://lattes.cnpq.br/2720072834057575>

✉ juliana.anochi@inpe.br