CURRICULUM VITAE

Name and Surname:

Fidel Ernesto Hernández Montero

Date of birth, birthplace:

November 21, 1972. Pinar del Río, Cuba.

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Undergraduate studies:

Telecommunications and Electronic Engineering, University of Pinar del Rio, Cuba. 1995.

Postgraduate titles:

1. MSc. in Digital Systems, Higher Technical Institute José Antonio Echeverría, Cuba. 2000.
2. PhD. in Technical Sciences, Higher Technical Institute José Antonio Echeverría, Cuba. 2006.
3. PhD. in Industrial Automation and Electronics, University of Mondragon, Spain, 2006.

Languages:

	Speak	Write	Read
English	Regular	Good	Good
French	Regular	Regular	Good
Portuguese	Regular	Regular	Good

Professional activities:

1. Professor, researcher, Telecommunications Department, University of Pinar del Río, since September 1995 until July 2014.
2. Head of Communications Theory Group, Telecommunications Department, University of Pinar del Rio, Cuba, since September 2002 until July 2014.
3. Head of Research Group for Advanced Machine Diagnosis (GIDAM), University of Pinar del Rio, Cuba, since January 2000 until July 2014.
4. Researcher, Signal and Communications Group, University of Mondragon, Spain, since September 2014 until July 2015.
5. Professor, researcher, Department of Telecommunications and Telematics, Higher Polytechnic Institute Jose Antonio Echeverria, since September 2015.
6. Head of Communications Theory Group, Department of Telecommunications and Telematics, Higher Polytechnic Institute Jose Antonio Echeverria, since January 2016.

Publications:

Journals:

1. F.E. Hernández Montero, E. Palomino Marín, V. Atxa Uribe, M.L. Ruiz Barrios, “Análisis de vibraciones para el diagnóstico aplicando procesamiento estadístico de orden superior” – *“Vibration analysis for diagnosis by applying higher-order statistics”*. Revista Ingeniería Mecánica – *Journal of Mechanical Engineering*, vol 7, No. 2, ISPJAE, Cuba. 2004. ISSN 1815-5944.

2. F.E. Hernández Montero, V. Atxa Uribe, “Técnicas clásicas y avanzadas de procesamiento de vibraciones al diagnóstico de cojinetes. Parte II: Análisis experimental” – *“Classical and advanced statistical vibration processing techniques for bearing diagnostics. Part II: Experimental analysis”*. Revista Ingeniería Mecánica – *Journal of Mechanical Engineering*, vol 10, No. 1, ISPJAE, Cuba. 2007. ISSN 1815-5944.
3. F.E. Hernández Montero, O. Caveda Medina, “Consideraciones para la aplicación del procesamiento cicloestacionario avanzado al diagnóstico de cojinetes de rodamientos” – *“Considerations about application of advanced cyclostationary analysis on rolling bearings diagnosis”*. Revista Ingeniería Mecánica – *Journal of Mechanical Engineering*, vol 10, No. 2, ISPJAE, Cuba. 2007. ISSN 1815-5944.
4. F.E. Hernández Montero, O. Caveda Medina, “The application of bispectrum on diagnosis of rolling element bearings: a theoretical approach”. Mechanical Systems and Signal Processing, vol 22, No. 3, Ed. Elsevier, 2008. ISSN: 0888-3270.
5. Fidel E. Hernández, Carlos A. Celorio, “Acceso remoto a datos en plataforma ARM vía Ethernet” – *“Remote data Access for ARM hardware board through Ethernet”*. Revista Telematique – *Journal Telematique*, vol. 9, No. 1, 2010. Ed. University Rafael Belloso Chapín, 2010, Venezuela. ISSN: 1856-4194.
6. Fidel Ernesto Hernández Montero, Michel Gutiérrez García, “Enfoques del análisis de envolvente al procesamiento de vibraciones para el diagnóstico de maquinarias” – *“Envelope analysis approaches for machine diagnosis through vibration analysis”*. Revista Ingeniería Mecánica – *Journal of Mechanical Engineering*, vol 13, No. 1, ISPJAE, Cuba. 2010. ISSN 1815-5944.
7. Ismel Domínguez Rodríguez, Fidel E. Hernández Montero, Mario L. Ruiz Barrios, “Sistema de digitalización de señal basado en FPGA y configurado utilizando Matlab” – *“FPGA-based signal digitizing system, configured using Matlab”*. Revista Científica – *Scientific Journal*, Vol. 14, No. 3, pp. 129-135, 2010, Ed. ESIME, IPN, México. ISSN 1665-0654.
8. Fidel Ernesto Hernández Montero, Mario Luis Ruiz Barrios, Juan Raúl Rodríguez Suárez, Alberto Rolo Naranjo, Samir N Y Gerges, Luis Javier de Miguel, “Sistema de bajo costo para el monitoreo por condición a aplicar en parques eólicos” –

“Low-cost condition monitoring system to be applied on wind farms”. Revista Ingeniería Energética – *Journal of Energy Engineering*, No. 1, Vol. 32, Ed. ISPJAE, Cuba. 2011. ISSN: 1815-5901.

9. Fidel Ernesto Hernández Montero, Mario Luis Ruiz Barrios, Juan Raúl Rodríguez Suárez, Alberto Rolo Naranjo, Samir N Y Gerges, Luis Javier de Miguel, “Monitoreo por condición a aplicar en parques de turbinas eólicas” – *“Condition monitoring system for wind turbines”*. Revista de Ciencia y Tecnología – *Journal of Science and Technology*, No. 15, Ed. UNAM, Argentina. 2011. ISSN: 1851-7587.
10. Joel Pino Gómez, Ailyn M. Hernández Mauri, Yosvany Vento Ramos, Fidel E. Hernández Montero, “Algoritmos para visualización a través de módulos LCD gráficos” – *“Displaying algorithms for graphic LCD modules”*. Revista de Ingeniería Electrónica, Automática y Comunicaciones – *Journal of Electronics, Automation and Communications Engineering*, Vol. 33, No. 1., Ed. ISPJAE, Cuba. 2012. ISSN 1815-5928.
11. Miguel E. Iglesias Martínez, Bárbaro M. López Portilla y Fidel E. Hernández, “Estimación de armónicos sobre FPGA aplicando estadística de orden superior y convolución” – *“Harmonics estimation by applying higher-order statistics and convolution techniques in FPGA”*, Revista de Ingeniería Electrónica, Automática y Comunicaciones – *Journal of Electronics, Automation and Communications Engineering*, No. 34, Vol. 2, Ed. ISPJAE, Cuba. 2013. ISSN 1815-5928.
12. Fidel E. Hernández, Alaina Sánchez, “El trabajo científico como espacio esencial para la labor educativa” – *“Scientific work as an essential field for education”*, Revista de Ciencia y Tecnología Tecnología – *Journal of Science and Technology*, No. 19, Ed. UNAM, Argentina. 2013. ISSN: 1851-7587.
13. Neydis Cabezas Defaus, Pedro P. Cruz Pérez, Miguel E. Iglesias Martínez, Fidel E. Hernández, “El procesamiento estadístico de orden superior: herramienta útil para el análisis de señales” – *“Higher-order statistical analysis: an useful tool for signal processing”,* Revista de Ciencia y Tecnología – *Journal of Science and Technology*, No. 20, Ed. UNAM, Argentina. 2013. ISSN: 1851-7587.
14. Maité Hernández, Jorge Hernández, Fidel E. Hernández, “Sistema para la gestión de la condición de los transformadores de potencia” – *“System for Condition*

Management of Power Transformers", Revista Científica – *Scientific Journal*, vol. 17, No. 2, p. 83-88, abril-junio 2013, Ed. ESIME, IPN, México. ISSN 1665-0654.

15. Miguel E. Iglesias y Fidel E. Hernández, "Detection of Periodic Signals in Noise Based on Higher-Order Statistics Joined to Convolution Process and Spectral Analysis", Lecture Notes in Computer Science, No. 8258, 488-495, Springer, 2013. ISSN 0302-9743.
16. F. Hernández, G. Armas, "Esquema no coherente de demodulación de BPSK" – *"Non coherent BPSK demodulator"*, Revista de Ingeniería Electrónica, Automática y Comunicaciones – *Journal of Electronics, Automation and Communications Engineering*, No. 1, Vol. 25, Ed. ISPJAE, Cuba. 2014. ISSN 1815-5928.
17. Yasmany Prieto Hernández, Fidel Ernesto Hernández Montero, Alfredo Novales Ojeda, "Reducción de ruido aplicando redes neuronales artificiales" – *"Noise reduction by applying Artificial Neural Networks"*, Revista Investigación Operacional – *Journal of Operations Research*, Vol. 35, No. 2, p. 110-120, Ed. University of Havana, 2014. ISSN 0257-4306.
18. J. Torres, F. Hernandez, and J. Habermann, "Digital Demodulator for BFSK waveform based upon Correlator and Differentiator Systems," Radioengineering, Vol. 23, No. 4, p. 1161-1168. December 2014. ISSN 1210-2512.
19. J. Torres, F. Hernandez, and J. Habermann, "Low Complexity Demodulator for BFSK Waveforms based on Polygonal Approximation," Journal Facultad de Ingeniería, No. 74, p. 50-59, Ed. Universidad de Antioquia, 2015. ISSN 0120-6230.
20. J. Torres, F. Hernandez, and Y. El Hajj Shehadeh, "Timing synchronization method for pilot-based coherent detection", International Journal of Communication Systems 10/2015. ISSN 1099-1131.
21. J. Torres, F. Hernandez, and J. Habermann, "New digital demodulator with matched filters and curve segmentation techniques for BFSK demodulation: Analytical description," Revista Ingeniería e Investigación, Vol. 35, No. 3, p. 92-99, 2015. ISSN 0120-5609.
22. J. Torres, F. Hernandez, and J. Habermann, "New digital demodulator with matched filters and curve segmentation techniques for BFSK demodulation: FPGA

implementation and results," Revista Ingeniería e Investigación, Vol. 36, No. 1, p. 105-110, 2016. ISSN 0120-5609.

In books:

1. F.E. Hernández, Vicente Atxa, E. Palomino, J. Altuna, "On the Application of Cumulant-based Cyclostationary Processing on Bearings Diagnosis" in book "Innovative Algorithms and Techniques in Automation, Industrial Electronics and Telecommunications", Sobh, T., Elleithy, K. Mahmood, A. Karim, M. (Eds.), Springer, p. 141 - 145. 2007. ISBN: 978-1-4020-6265-0.
2. F. E. Hernández, O. Caveda, V. Atxa, J. Altuna, "Application of Higher-order Statistics on Rolling Element Bearings Diagnosis" in book "Innovative Algorithms and Techniques in Automation, Industrial Electronics and Telecommunications", Sobh, T., Elleithy, K. Mahmood, A. Karim, M. (Eds.), Springer, p. 145 - 149. 2007. ISBN: 978-1-4020-6265-0.
3. J. R. Rodríguez Suárez, M. L. Ruiz Barrios, F. E. Hernández Montero, "Diagnóstico de fallos y dispositivos electrónicos de transportación" – *"Failure diagnosis and transportation electronic devices"* in book "Casos de Estudio de Mantenimiento Industrial. Tratamiento y Recomendación" – *"Case Studies of Industrial Maintenance. Treatment and Recommendations"*, Ed. CARTIF, Spain, p. 101 – 123. 2009. ISBN: 978-84-612-9877-8.
4. Miguel Enrique Iglesias Martínez, Fidel E. Hernández Montero, "Cancelación de ruido aplicando estadística de orden superior y sistemas multiprocesador sobre FPGA", in book "CASE 2012 Libro de Trabajos" – *"CASE 2012 Book of memories"*, Ed. Engineering Faculty, UBA, Argentina. 2012. ISBN 978-987-9374-82-5.
5. I. Domínguez Rodríguez, J. R. Suárez Rodríguez, F. E. Hernández Montero, "Sistema para la Cuantificación del Temblor Humano" – *"System for Human Tremor Quantification"*, in book "CLAIB 2011, IFMBE Proceedings", Vol. 33, J. Folgueras Méndez et al. (Eds.), p. 658-661, Springer. 2013. ISBN 978-3-642-21197-3.

Some recent publications in congress memories:

1. Miguel Enrique Iglesias Martínez, Fidel Ernesto Hernández Montero, Bárbaro M. López Portilla, "Detección de Señales Periódicas sobre FPGA basada en la Derivada del Espectro de Potencia y Convolución" – *"Periodic signal detection based upon spectrum derivate and convolution technique, in FPGA system"*, VIII Congreso Internacional de Telecomunicaciones y Telemática CITTEL 2014 – *International Congress of Telecommunications and Telematics*, November 2014, Havana, Cuba.
2. Jayro Lázaro Barrera Álvarez, Fidel Ernesto Hernández Montero, "Clasificación automática de modulaciones MPSK utilizando cumulantes de octavo orden" – *"Automatic classification of MPSK modulations using 8th-order cumulants"*, VIII Congreso Internacional de Telecomunicaciones y Telemática CITTEL 2014 – *International Congress of Telecommunications and Telematics*, November 2014, Havana, Cuba.
3. Jorge Torres Gómez, Fidel Hernández Montero, Joachim Habermann, "Demodulador de baja complejidad para señales BFSK con base en la aproximación poligonal" – *"Low complexity demodulator for BFSK waveform based on polygonal approximation",* VIII Congreso Internacional de Telecomunicaciones y Telemática CITTEL 2014 – *International Congress of Telecommunications and Telematics*, November 2014, Havana, Cuba.
4. Fidel Hernández, Aitzol Iturrospe, "Direct analysis of non-quadratic phase coupling for detection of linearly modulated signals", Annual Conference of the Prognostics and Health Management Society 2015, Oct 18-24, 2015, San Diego, CA, USA.
5. Fidel E. Hernández, Mario L. Ruiz, Juan R. Rodríguez, Joel Pino, "National Development of Industrial Monitoring and Diagnostics Technology: prospect of economic growth based on knowledge." VIII Evento Científico MECATRONICS 2016, April, 20, 2016, Havana, Cuba.

Project participation:

Internationals

1. Cuban coordination of International Project CYTED-SEDIPRE, Action 307AC0331, "Sistemas embebidos de bajo coste para diagnóstico de fallos orientado al mantenimiento predictivo" – *"Low cost embedded system for failure diagnostic, predictive maintenance addressed"*, 2007 - 2011.
2. Cuban coordination of International Project CAPES/MES (Brazil/Cuba), "Desarrollo de sistema embebido de bajo coste para el monitoreo y diagnóstico industrial" – *"Low cost embedded system development for industrial monitoring and diagnosis"*. 2010 - 2012.
3. Cuban coordination of International Project CAPES/MES (Brazil/Cuba), "Desarrollo de técnicas de demodulación y clasificación de señales de comunicación" – *"Development of communication signal demodulation and classification techniques"*. 2014 – 2016.

Other recent Projects

4. Coordination of Project "Software para la automatización del diagnóstico de fallas y pronóstico de averías en turbinas de vapor" – *"Software for automation of fault diagnostics and failure prognosis of steam turbine"*, Higher Education Ministry, Cuba, 2013 – 2017.
5. Participation in Project "Sistema de medición de temblor humano" – *"Human tremor measurement system"*. Higher Education Ministry, Cuba, 2013 - 2014.
6. Participation in Project *"Machine health monitoring",* Orona EIC S. Coop., Spain, 2014 – 2015.
7. Participation in Project "New reliability analysis approach in aerospace industry", SENER, Spain, 2014 – 2015.
8. Participation in Project "Failure Diagnosis in Power Plants through Pattern Recognition Techniques Application", Higher Education Ministry, Cuba, 2015 – 2018.
9. Participation in Project "Gait monitoring in elderly people", Cuban Neurosciences Center, Cuba, 2016-2017.

Others:

1. Evaluator Expert, Iberoamerican Program CYTED.
2. Associate Editor, Journal Advances on Acoustics and Vibration, Hindawi Corp.
3. Associate Editor, Revista Ingeniería Energética – Journal of Energy Engineering CUJAE, Cuba.
4. Reviewer, Journal Mechanical Systems and Signal Processing, Elsevier.
5. Reviewer, Journal Applied Soft Computing, Elsevier.
6. Reviewer, Journal Ingeniare, University of Tarapacá, Chile.
7. Reviewer, Journal of Science and Technology, Ed. UNAM, Argentina.