Curriculum Vitae

Personal Profile

First name : Ali

Last name : Hafez El Nasser

Birth date: [November,2nd ,1977]

Sex: Male

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Jan., 2021

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Education

Completion Date (Month, Year)	Degree	Name of University	Field	Grade/Title
Under-Graduate Education				
June, 1999	Bachelor Degree	Faculty of Engineering, Minia University,Egypt	Communication and Electronic Engineering	Very good with honour's degree Design and Simulation of Photo-Voltaic power Generation.
Post-Graduate Education				
Nov. 2004	Master of Science (M.Sc.)	Faculty of Engineering, Minia University, Egypt	Digital Signal Processing	Modern techniques of spectral analysis of digital seismic data for earth crust disturbance detection.
Oct. 2005- Sept. 2006	Research Student	Graduate School of Information Science and Electrical Engineering, Kyushu University- Japan	Mathematics and Digital Signal Processing	
September, 2009	PhD	Kyushu University-Japan	Informatics	Digital Signal Processing Techniques for Extracting P-wave in Seismic Signals
April 2010- Dec. 2011	Post doctor	Yayama lab, Faculty of Sciences, Kyushu University-Japan	Physics	Heat Switch in ADR and microscope cryostat.

Work History

Period	Institution	Position
Sept.2015 – Now	Department of Electrical Engineering, Faculty of Eng., Nahda Univ. (NUB) http://www.nub.edu.eg/faculty.php?id=3&page=31	Department Head
June 2021, now	National Research Institute of Astronomy and Geophysics	Professor
June 2015 – June 2021	National Research Institute of Astronomy and Geophysics	Associate Professor
Oct. 2009 – June 2015	National Research Institute of Astronomy and Geophysics	Assistant Professor
Jan. 2012-Now	LTLab, Inc. (Venture company of Kyushu University) http://www.ltlab.com/gaiyou1.html	Director
April 2010-Dec. 2011	LTLab, Inc. (Venture company of Kyushu University)	Researcher
Nov. 1999-Sept. 2009	National Research Institute of Astronomy and Geophysics	Research Associate

Research Grants Awarded

Year of the fund	Research theme	Source of the fund	Amount
October 2005 – October 2009	Digital Signal processing	Scholarship to obtain PhD from Egyptian Government	15,600,000 Yen
April 2010 – March 2011	Construction of Heat Switch in Adiabatic Demagnetization Refrigerator (ADR)	Post Doctor JST at LTLab, Inc.	2,760,000 Yen
April 2011-August 2011	Manufacturing Low Temperature Microscope Cryostat	Fraunhofer Institute	2,000,000 Yen
May 2013-April 2014	Manufacturing Electrical Measurements at 2K with in 8 Tesla magnetic field	Okayama University	34,000,000 Yen
June 2017-June 2018	Developing P-wave Array picking algorithm for Earthquake Early Warning System	STDF	439,204 EGP
June 2020-June 2022	Manufacture of the prototype of a Triggered Digitizer for Earthquake Monitoring System	STDF	992,480 EGP

Achieved Projects

- **Developing P-wave Array picking algorithm for Earthquake Early Warning System.**
- **Developing and installation of Gas-Gap Heat Switch in ADR.**
- **Design and Manufacture of Microscope Cryostat which monitors biological live cells under low temperature (Patent if filed).**
- **Design and manufacture of Vibrating Sample Magnetometer in temperature range of 1.7-330 K.**
- **Design and manufacture of Resistivity and Hall Effect measurement system in temperature range of 1.7-330 K.**
- **Making fully automated Software and drivers for controlling the previous systems using LABVIEW.**

Teaching Experience

In addition to teaching the following courses the students had to make a project in each course where they can apply the knowledge of the course in an interesting application.

- **Basics** **Electrical Circuit Theory (2^{nd} level), Electronic Circuits (4^{th} level) Signal Analysis (3^{rd} level), Acoustics and Illumination (4^{th} level).**
- **Application** **Digital Signal Processing, Digital Communication Systems (4^{th} and 5^{th} level), Electrical Communication (4^{th} level).**
- **HRD** **Technical Report Writing (2^{nd} and 3^{rd} level)**

PhD Summary

Through my PhD I had studied different digital signal processing tools in order to use it to extract different patterns from digital streams. I have used these tools to develop several algorithms which detect for example; earthquake arrivals, precursory signals which appear in front of some impulsive earthquakes and geomagnetic storm commencement.

Post Doctor Summary

The Target of this post doctor position was to making fully automated Software and drivers for controlling a Heat Switch in Adiabatic demagnetization refrigerator and making analysis for the vibration at the cold head of the dilution refrigerator.

In addition to this target, we had built a microscope cryostat which uses liquid nitrogen. This cryostat is very unique because it has the lowest nitrogen consumption when compared to the existing cryostats. Where its consumption rate is less than 3 lit/day where other cryostats consume 2-3 lit/hour. We had a patent in this cryostat as clear in the attached publication list.

Automatic detection of geomagnetic storm sudden commencement (GSC) algorithms had been developed and published in international journals. Importance of automatic detection of GSC is to make early alarm for satellite stations to take preventive actions towards these

storms which often affect radio and television interference and blackouts, hazards to orbiting astronauts and spacecrafts and power grids.

Current Research Work

- **Earthquake Early Warning (EEW) System design and implementation.**
- **Recognition and extracting micro pulsations from the geomagnetic data.**
- **Enhancement of closed cycle refrigerators.**

Technical Skills

Networking

- **Cisco ccna&ccnp (qualification to be Network administrator).**
- **Routing & Switch Configuration for LANS & WANS.**
- **Working in the VSAT seismic remote sites installation and maintenance**
- **Working in transmission of the seismic data through radio waves, its lab work and data bases.**
- **Working in transmission of the seismic data through leased lines.**

Hardware

- **Making Cables (Network cables - serial cables ------).**
- **Computer Interface with Machine.**
- **PLC (Programmable Logic Controller).**
- **Microprocessor Based System.**

Other Experiences

- **Programming with LabView to control measurement devices used in low temperature experiments such as Temperature bridges, lock in amplifiers etc...**
- **20 years' experience in programming with MATLAB.**
- **Dealing with electronic circuit and data sheet.**
- **Carrying cryogenic experiments.**
- **Dealing with different machines in workshop.**
- **Making vacuum sealed cells for low temperature experiments.**
- **Design and manufacture of automated Helium Gas handling systems.**
- **Working on Bipolar super conducting magnet.**

Language Skills

Language	Reading	Writing	Conversation
Arabic	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent
Japanese	Good	Fair	Good

Academic Accomplishments

Refereed Journal papers

Paper Title	Impact Factor
1. **Ali G. Hafez, Tahir A. Khan and T. Kohda." Earthquake onset detection using spectro-ratio on multi-threshold time-frequency sub-band. Digital Signal Process., Vol. 19, Issue 1, pp. 118-126 doi:10.1016/j.dsp, 2009.**	**1.871**
2. **Ali G. Hafez, Tahir A. Khan and T. Kohda. Clear P-wave arrival of weak events and automatic onset determination using wavelet filter banks. Digital Signal Processing, Vol. 20, Issue 3, pp. 715-723, May, 2010.**	**1.871**
3. **Ali G. Hafez and Essam Ghamry. Automatic detection of geomagnetic sudden commencements via time frequency clusters. Advances in Space Research. Vol. 48, Issue 9, pp. 1537-1544, Nov. 2011.**	**1.121**
4. **Ali G. Hafez, Essam Ghamry, Hideki Yayama and KiyohumiYumoto. A Wavelet Spectral Analysis Technique for Automatic Detection of Geomagnetic Sudden Commencements. IEEE Transactions on Geoscience and Remote Sensing, Vol. 50 (Issue11), pp. 4503 - 4512, 2012.**	**3.467**
5. **Ali G. Hafez and Essam Ghamry. Geomagnetic sudden commencement automatic detection via MODWT. IEEE Transactions on Geosciences and Remote Sensing, Vol. 65 (Issue3), pp. 1547-1554, 2013.**	**3.467**
6. **Ali G. Hafez, Essam Ghamry, Hideki Yayama and KiyohumiYumoto. Systematic examination of the Geomagnetic Storm Sudden Commencement using multi resolution analysis. Advances in Space Research, Vol. 51, Issue 1, pp. 39–491 January 2013.**	**1.121**

7. **Ali G. Hafez, Essam Ghamry, Hideki Yayama and Kiyohumi Yumoto.** **Un-decimated discrete wavelet transform based algorithm for extraction of geomagnetic storm sudden commencement onset of high resolution records. Computers & Geosciences Vol. 51, pp. 143–152, February 2013.**	**1.188**
8. **Ali G. Hafez, Mostafa Rabie and T. Kohda.** **Seismic Noise Study for Accurate P-wave Arrival Detection via MODWT Computers&Geosciences,Vol. 54, pp. 148–159, April 2013.**	**1.188**
9. **Ali G Hafez,Mostafa Rabie and T. Kohda.** **Detection of precursory signals in front of impulsive P-waves. Digital Signal Process., Volume 23 Issue 3, May, 2013. Pages 1032-1039.**	**1.871**
10. **Essam Ghamry, Ali G. Hafez, KiyohumiYumoto, and Hideki Yayama** **Effect of SC on frequency content of geomagnetic data using DWT application: SC automatic detection. Earth Planets Space, Vol. 65 (No. 9), pp. 1007-1015, 2013.**	**2.92**
11. **Ahmed Mohamed Tawfiek, Guanzheng TAN1, Ali G. Hafez, Abdullah Al-Amri, Nassir Alarif, Kamal Abdelrahman, Automatic identification of fake patterns caused by short-width wavelets in seismic data Arab J Geosci (2016) 9:580 DOI 10.1007/s12517-016-2578-4**	**0.99**
12. **Hideki Yayama, Yugo Nishimura, Hiroka Uchiyama, Hiroshi Kawai, Jean-Paul van Woensel, Ali G Hafez, Electric response induced by second sound in superfluid helium, Journal of Low Temperature Physics, Vol., 44, Issue 10, pp. 1090-1096**	**1.044**
13. **Ghada Ali, Ali G. Hafez, El-Sayed Soliman A.Said, Lotfy Samy, Characterizing the Relationship between Sampling Rate and the Appearance of FIR Precursors Infornt of Local Earthquakes *International Journal of Advanced Science and Technology, 28*(16), 1671 (2019).**	**--**
14. **Omar M. Saad, Ali G. Hafez and M. Sami Soliman Deep Learning Approach for Earthquake Parameters Classification in Earthquake Early Warning System, IEEE Geoscience and Remote Sensing Letters PP(99):1-5 June 2020.**	**3.534**
15. **Ali G. Hafez, Ahmed Abdel Azim, M. Sami Soliman & Hideki Yayama. Real-time P-wave picking for earthquake early warning system using discrete wavelet transform, NRIAG Journal of Astronomy and Geophysics Pages: 1-6. Published online: 09 Jan 2020**	**--**
16. **Sarah A. Elgiddawy, Ali G. Hafez, Ahmed Lethy, Omar M. Saad, Ashraf A. M. Khalaf, Akimasa Yoshikawa, Hesham F. A. Hamed, The multi-optimized-parameter technique for near on-line automatic determination of geomagnetic sudden commencement arrival time, Arabian journal for science and engineering, , July, 2020**	**1.518**

17. **. Esraa Rabie, Ali G. Hafez, Omar M. Saad Naif AL Otaibi Geomagnetic micro-pulsation automatic detection via deep leaning approach guided with discrete wavelet transform, , Journal of King Saud University - Science 33(1):101263, 2021.**	**3.819**
18. **GhadaAli, Ali G.Hafez, El-Sayed Soliman,A.Said, KamalAbdelrahman, ElkhedrIbrahim, NaifAlotaibi Relationship between precursory signals and corresponding earthquakes using different spectral analysis techniques, Journal of King Saud University – Science In press, 2021.**	**3.819**
19. Emad B Helal, Omar M Saad, Ali G. Hafez, Y Chen, GM Dousoky, Seismic Data Compression Using Deep Learning, IEEE Access 9, 58161-58169, 2021.	**3.74**

20. **E. Ahmed, H. Nofal, Ali G. Hafez and F. Al-Geldawy.**
    Automatic detection of the earthquake first arrival via time frequency representations.
    Engineering Research Journal, ISSN,1687-1340, No.2 pp. 37-46, Oct. 2004.
21. **Ali G. Hafez, Tahir A. Khan and T. Kohda.**
    Detecting Micro-Seisms and Local Earthquake P-wave arrival Using Haar wavelet.
    Journal of the National Research Inst. Of Astronomy & Geophysics Ser "B", ISSN 1687-0999, Dec. 21, 2008.

Refereed Conference Papers

22. **F. Al-Geldawy, H. Nofal, E. Ahmed andA. Hafez.**
    Estimation of site effect and seismic noise signature via spectrograms.
    The third international conference for earthquake engineering, faculty of engineering, Cairo university, pp. 222-233, Dec. 2004.
23. **H. Nofal, E. Ahmed, F. Al-Geldawy andA. Hafez**
    Near optimum detection of the P-wave arrival using the spectrograms.
    IEEE Conference Activity,International Conference on Electrical, Electronic and Computer Engineering ICEEC'04, pp. 710 – 715, Sep. 2004.
24. **Ali G. Hafez, Tahir A. Khan and T. Kohda,**
    Spectro-Ratio on Multi-Threshold Time-Frequency Sub-Band for P-wave Arrival Detection,
    Proceeding of 15th IEEE International Workshop on Nonlinear Dynamics of Electronic Systems, NDES'07, pp. 137-140, July 23-26, 2007.

25. **Ali G. Hafez, Tahir A. Khan and T. Kohda.**
    Clear P-wave arrival of weak events and automatic onset determination using wavelet filter banks.
    27th ECGS Workshop on Seismicity Patterns in the Euro-Med Region, Luxembourg, Nov. 17-19, 2008.
26. **Ali G. Hafez and T. Kohda,**
    Accurate P-wave arrival detection via MODWT,
    Proceedings of The 2009 International Conference on Computer Engineering and Systems, ICCES'09, DOI: 10.1109/ICCES.2009.5383235, pp. 391-396, Dec., 2009.

Doctor Thesis

27. **Ali G. Hafez**

Digital Signal Processing Techniques for Extracting P-wave in Seismic Signals Kyushu University,Japan. September 2009.

Master Thesis

28. **Ali G. Hafez**
    Modern techniques of spectral analysis of digital seismic data for earth crust disturbance detection
    Minia University, Egypt. Nov. 2004.

Professional Presentations

29. **Ali G. Hafez, Tahir A. Khan and T. Kohda.**
    Spectro-Ratio on Multi-Threshold Time-Frequency Sub-Band for P-Wave Arrival Detection.
    Poster presentation in 九州大学, 第 4 回博士学生交流セミナー2007, August 8th 2007.
30. **Ali G. Hafez, Tahir A. Khan and T. Kohda.**
    Earthquake Onset Detection using Spectro-Ratio on Multi-Threshold Time-Frequency Sub-Band.
    IEICE Technical Report, NLP2007-106,Vol. 107,no. 349,pp. 61-64, Nov. 2007.
31. **Ali G. Hafezand T. Kohda.**
    Earthquake Onset Detection using Spectro-Ratio on Multi-Threshold Time-Frequency Sub-Band.
    The First Egypt-Japan International Symposium on Science and Technology (EJISST2008) page: 128, June 8:10, 2008.
32. **Ali G. Hafez, Tahir Khan and TohruKohda.**
    Clear P-Wave Arrival of Weak Events and Automatic Onset Determination Using Wavelet Filter Banks.
    平成20 年度電気関係学会九州支部連合大会, Oita Univ, Oita, Japan12-1P-01, Sep 24-25, 2008.
33. **Ali G. Hafez and TohruKohda.**
    Detection of Artifacts in Seismic traces Caused by Haar Wavelet.
    The 31st Symposium on Information Theory and its Application (SITA 2008), Kinugawa, Japan, Oct. 7-10, 2008.
34. **Ali G. Hafez and T. Kohda.**
    Auto-Regressive Model to Identify Unrealistic Patterns in Multi-Resolution Analysis of Seismic Records.
    International Symposium: Fifty Years after IGY - Modern Information Technologies and Earth and Solar Sciences, AIST, Tsukuba, Japan, Poster presentation, Poster-61, November 10-13, 2008
35. **金崎直史、Ali G. Hafez、矢山英樹。**
    機械式冷凍機を用いた液体ヘリウムフリー希釈冷凍機の振動解析。
    第16回日本物理学会九州支部会、長崎大学、2010年12月4日。
36. **Hideki Yayama and Ali G. Hafez.**
    LHe free Dilution Refrigerator.
    International Workshop Non-equilibrium Phenomena in Complex Quantum SystemsApril 23-26, 2012.

Patents

37. **特願 2011-160833、顕微鏡用クライオスタットシステム、**
    発明者：矢山英樹、ハフィズエルナセルアリガマルラビエ、
    出願人：㈱低温技術研究所