

MALEK ADJOUADI
Updated 06-01-2022

EDUCATION

- Ph.D. Electrical Engineering, University of Florida, August 1985
- M.S. Electrical Engineering, University of Florida, June 1981
- B.S. Electrical Engineering, Oklahoma State University, June 1978.
- Baccalaureate Degree in Experimental Sciences (avec Mention), 1974
- Begun undergraduate studies at the University of Bab Ezzouar in the Fall of 1974 (the first year of its opening) now called the University Des Sciences et de la Technology Houari Boumediene.
- Came to the US in August 1975 after one semester at the University of Bab Ezzouar, Algiers to pursue a BS degree at Oklahoma State University.

FULL-TIME ACADEMIC EXPERIENCE

- Distinguished University Professor, Florida International University, August 2021-Present
- Ware Professor, Dept. of Electrical and Computer Engineering, Florida International Univ. March 2017-Present
- Full Professor, Dept. of Electrical and Computer Engineering, Florida International Univ. Aug. 07-Present
- Acting Chair, Dept. of Electrical and Computer Engineering, Florida International Univ. August 97- Feb-2001.
- Member of the New York Academy of Sciences February 1998- January 1999
- Associate Professor, Dept. of Electrical and Computer Engineering, Florida International Univ. Aug. 95-July 07.
- Director, NSF Center for Advanced Technology and Education, Spring 1993 - Present.
- Assistant Prof., Dept. of Electrical and Computer Engineering, Florida International Univ., Aug. 90- Aug. 95.
- Assist. Prof., Dept. of Electrical Engineering, Univ. of Hawaii at Manoa, Aug. 85 to Sept. 88.

PART-TIME ACADEMIC EXPERIENCE

- Research Professor, Pacific International Center for High Technology Research, Univ. of Hawaii, 1/ 86 – 10/ 88.
- Member of the Board of Directors, Southeastern Center for Electrical Engineering Education, 11/ 97-10/ 99.

NON-ACADEMIC EXPERIENCE

- Consultant to Coulter Corporation, March 1995 – March 1997.
- Consultant to Baptist Hospital, May 2011 – Present.
- Collaborator with Miami Children’s Hospital, September 2010-Present
- Consultant to the University of Miami Center for Cognitive Neuroscience and Aging, March 2018-Present.
- Consultant to Mount Sinai Medical Center and the 1Florida ADRC, Aug. 2015-2019
- Invited for Short-Time Assignments with the World Health Organization, Geneva, Switzerland, June 1990.
- Mandatory Military Service: Served as Lieutenant with the Service Informatique, Computer Information Science Group, Algiers, Algeria Oct. 88 - Jan. 90.
- Engineer in Hardware Diagnostics for Television Switching Boards, VITAL Industries, Inc., Gainesville, Florida, June 1981 to August 1982.

EXTERNALLY-FUNDED PROJECTS- (Earliest to Latest)

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|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| \$ 100,000 | Veterans Administration: Computer Vision to Help People with Visual Impairment and Blindness, VA-Washington D.C.
M. Adjouadi, C. Chemtob, and E. Weldon
August 1986-September 1987 |
| \$ 30,164 | Baptist Hospital of Miami: 3-D MRI Workstation for Stereo-tactic Surgery, FY 1992 |

M. Adjouadi and S. Gonzalez-Arias
May 1991 - April 1992

\$ 49,977 **National Science Foundation: NSF-EIA - Award Number:9114589**, Planning of Computer Vision and Computer Engineering Laboratories PI: M Adjouadi, Co-PIs: G. Ray, J. Story and D Barton
September 1991 - August 1992

\$ 36,000 **Coulter Corporation:** Imaging Algorithms for Enhanced Pattern Classification of Blood Cells,
PI: M. Adjouadi
April 1, 1994 - March 31, 1995

\$ 900,044 **National Science Foundation: CISE-EIA: Award Number: 9313624** - Establishment of an Institutional Infrastructure: Center for Advanced Technology and Education - CATE, (includes \$ 100,000 for Research Experience for Undergraduates (Sept.95- Present)
M. Adjouadi, G. Roig, J. Story, M. Evangelist, F Arefi, D. Holmes, Y. Deng
September 1993 - August 1996

\$ 267,000 **National Science Foundation:** Integrated Sensing Towards Real-Time Vision, Cognition, and Three-Dimensional Modeling,
M. Adjouadi, P. Schmidt, G. Larkins, J. Andrian
September 1995 - August 1997.

\$ 5,000 **Coulter Corporation:** Cell Probe Internet Web Design
M. Adjouadi
April 1, 1996 - March 31, 1997

\$ 18,000 **Coulter Corporation:** Multivariate Data Analysis
M. Adjouadi
April 1, 1996 - March 31, 1997

\$ 221,065 **National Science Foundation:** Multidimensional and Multispectral Information Processing and Computational Aspects,
M. Adjouadi
September 1996 - August 1999

\$ 210,000 **USAF-Wright Peterson Laboratory:** Time Frequency Analysis and Noise Filtering of Non-Stationary Signals, May 1996 - April 1999 [PI: Dr. Jean Andrian] Co-PI: M. Adjouadi.

\$ 208,750 **National Science Foundation: Award Number: 9871252**- Acquisition of EEG-Based System for HCI Research, M. Adjouadi, A. Barreto, J. Jacko, A. Pasztor, G. Roig
September 1, 1998 – August 31, 1999

\$ 333,973 **NSF-CISE:** A Software-Hardware Integrated Approach for Real-Time Information Processing and Computer Design, [PI: A. Barreto], Co-PIs: M. Adjouadi, J. Jacko, G. Roig, and A. Pasztor.
July 1998 – June 2001

\$1,006,000 **Office of Naval Research: Science, Engineering and Mathematics Education Program:** Educational Innovations in Engineering – Promoting Academic Excellence in Areas of Critical Technology Needs -- M. Adjouadi, G. Roig, A. Barreto, R. Coatie, N. Rische, Y. Darici, M. Leckband, R. Mezziani, A. Pasztor, M. Martinez
August 1999 – June 2004.

\$1,437,770 **NSF: CISE-EIA: Award Number:9906600** - CISE MII: Institutional Infrastructure in Support of Computer and Software Engineering with Special Focus on Human-Computer Interface Research and Information Processing, M. Adjouadi, A. Barreto, M. Martinez, A. Pasztor, G. Roig, M. Martinez ,
August 15, 1999 – July 31, 2006.

\$ 10,000 **Beckman-Coulter:** University Partnership in Research
M. Adjouadi
August 2, 2000 - November 30, 2000

\$ 24,000 **Beckman-Coulter Corporation – 2000-2001:** University Partnership in Research
M. Adjouadi
April 1, 2000 - March 30, 2002

\$4,608,999 **NSF-HRD: Award Number: 0317692 - CREST:** Center of Emerging Technologies for Advanced Information Processing and High-Confidence Systems-- Director Yi Deng Co-PIs M. Adjouadi (also Co-Director), N. Rische, A. Barreto, X. He
September 2003 - August 2008

\$ 745,563 **NSF – CISE- IIS: Universal Access Program:** “On-Screen Deconvolution to Facilitate Access for Users with Visual Impairments Involving Higher-Order Wavefront Aberrations”
PI: A. Barreto, Co-PIs: M. Adjouadi and J. Jacko
August 2003- August 2006.

\$1,000,000 **NSF: CISE-CNS:** Hardware-Software Integration for the Design of Real-Time Prototypes Merging Assistive Technologies to Neuroscience,
M. Adjouadi, A. Barreto, P. Jayakar, A. Pasztor, and G. Roig.
Sep 2004 – Aug 2009.

\$ 349,460 **NSF-CNS:** MRI: Development of a Highly Integrated Instrumentation Setup for Affective Sensing Research, , PI: A. Barreto, Co-PI: M. Adjouadi.
August 1, 2005 –July 30th, 2008

\$ 2,197,000 **NSF-BPC:** BPC-A: Computing Alliance for Hispanic-Serving Institutions, [PI: A. Gates - UTEP], Co-PIs: M. Adjouadi - FIU, Mohsen Beheshti CSUDH, Desh Ranjan-NMSU, and Nestor Rodriguez -UPRM.
March 1, 2006 – February 28, 2010

\$ 49,900 **American Epilepsy Society:** Multi-Site Pediatric Network for fMRI Mapping in Childhood Epilepsy. [PI: William Gaillard, the George Washington University School of Medicine & Health Sciences], January 2006 - December 2007.

\$1,000,000 Ware Foundation Endowment: \$1 million paid in six annual installments of \$167,000 with the last one of \$165,000. PIs: M. Adjouadi, Co-PIs P. Jayakar, R. Schoephoerster, A. Barreto. The grant is to establish a joint Neuro-Engineering Program between Miami Children’s Hospital and FIU. The event was celebrated both at the FIU-President University House and at the Torch Society Gold Flame Induction Ceremony.

\$ 1,828,474 **National Science Foundation NSF-BPC:** BPC-AE: Computing Alliance for Hispanic-Serving Institutions, [PI: Dr. Ann Gates - UTEP], CO-PIs: Karen Villaverde- NMSU, Mohsen Beheshti CSUDH, John Fernandez, Texas A&M University Corpus Christi, Nestor Rodriguez -UPRM. Senior Personnel: M. Adjouadi – FIU. February 2006 – January 2009

\$5,715,513 **National Science Foundation NSF-HRD:** CREST: Center for Innovative Information Systems Engineering —PI: N. Rische, Co-PIs, X. He, M. Adjouadi, and A. Barreto.
September 2008 - August 2013.

\$8,074 **Miami Children’s Hospital:** PI: M. Adjouadi; Co-PI: M. Cabrerizo: Functional Brain Mapping in Pediatric Epilepsy
August 28, 2009-- June 13, 2010.

\$40,000 **Miami Children’s Hospital:** PI: M. Adjouadi; Co-PI: M. Cabrerizo: Functional Brain Mapping in Pediatric Epilepsy
June 14, 2010- June 13, 2011.

\$2,939,515 **National Science Foundation: NSF-CNS: Award Number: 0959985 - MRI-R2-ARRA:** Development of an Instrument for Information Science and Computing in Neuroscience PI: M. Adjouadi; Co-PIs: N. Rische, A. Barreto, P. Jayakar, and W.D. Gaillard
June 1, 2010- May 31, 2015.

\$3,757,533 **National Science Foundation: NSF-CNS: BPC-AE: Computing Alliance of Hispanic-Serving Institutions, PI: A. Gates; Co-PIs: M. Adjouadi, M. Beheshti, J. D. Fernandez, and E. Pontelli** September 1, 2010- May 31, 2018.

\$100,000 **National Science Foundation: NSF-I/UCRC-IIP: I/UCRC: Collaborative Research: Data Correlation and Fusion for Medical Monitoring, PI: N. Rishe, Co-PI, M. Adjouadi.** August 1, 2012 – July 31, 2013.

\$573,250 **National Science Foundation: NSF-I/UCRC-IIP: Phase II: Center for Advanced Knowledge Enablement, PI: N. Rishe, Co-PI, Sitharama Iyengar, Malek Adjouadi, Scott Graham, Shaolei Ren** October 1, 2013– September 30, 2013.

\$414,000 **National Science Foundation: NSF-CNS-MRI: Award Number:1429345 - MRI: Development of an Instrument for Acquisition, Management, and Analysis of Super-resolution Aerial Imagery, PI: N. Rishe, Co-PIs, Tao Li, Malek Adjouadi, Sitharama Iyengar, Abraham Kandel** September 1, 2014– August 31, 2017.

\$290,513 **National Science Foundation: Supplement to CREST Subproject II: NSF-HRD: Integrated Approach to Information Processing in Neuroscience, PI: M. Adjouadi; Co-PIs: M. Cabrerizo** June 4, 2015- December 31, 2015.

\$500,000 **Ed and Ethel Moore Alzheimer’s Disease Research Program Consortium-UM lead Institution with FIU and UF and others. A Consortium to Study Novel Markers of Early Alzheimer's disease; Award for FIU: \$ 40,498; Consortium PI: David Loewenstein, FIU PI: Malek Adjouadi** February 1, 2015- June 30, 2015.

\$3,755,112 **National Science Foundation: NSF-CNS: MRI: Development of an Integrated Neuroimaging Instrument with Temporal and Spatial Alignments for Brain Research, PI: M. Adjouadi; Co-PIs: M. Cabrerizo, S. Gonzalez-Arias, A. Laird, and N. Rishe** September 16, 2015 – September 15, 2020.

\$199,998 **National Science Foundation: NSF-CNS: MRI: Development of an Integrated Neuroimaging Instrument with Temporal and Spatial Alignments for Brain Research- Special Supplement to grant above: PI: M. Adjouadi; Co-PI: M. Cabrerizo** June 10, 2016 – June 9, 2018.

\$4,044,580 **National Science Foundation-CNS: BPC-A: Award Number:1551221 - Computing Alliance of Hispanic-Serving Institutions--Building a Resilient, Sustainable, and Adaptable CAHSI Ecosystem, [PI: Ann Gates - UTEP], Co-PIs: M. Adjouadi FIU, Mohsen Beheshti CSUDH, Nayda Santiago – UPRM, Enrico Pontelli, NMSU. October 1, 2016 to September 30, 2021. – FIU Portion \$ 288,049.**

\$7,793,477 **National Science Foundation-INCLUDES Computing Alliance of Hispanic Serving Institutions: Award Number: 1834620 , Award Amount: Award Amount: \$4,792,740. September 1, 2018 – August 31, 2023 (PI Ann Gates UTEP) - FIU PI: Malek Adjouadi; Portion: \$328,131 for FY 2018, FY 2019, FY 2020 received.**

\$3,338,665 **National Science Foundation: NSF-CNS: Award Number:1920182 MRI: Development of an Instrument for a Comprehensive Study of Alzheimer's Disease: Multimodal Imaging, Visualization, Machine Learning and Therapeutic Brain Stimulation, PI: M. Adjouadi; Co-PIs: M. Cabrerizo, S. Burke, A. Barreto, and N. Rishe** September 1, 2019 – August 31, 2024.

\$135,747 **National Science Foundation: NSF-CNS: Supplement for a Postdoc Position to Award Number:1920182 MRI: Development of an Instrument for a Comprehensive Study of Alzheimer's Disease: Multimodal Imaging, Visualization, Machine Learning and Therapeutic Brain Stimulation, PI: M. Adjouadi; Co-PIs: M. Cabrerizo, S. Burke, A. Barreto, and N. Rishe** August 27, 2020 – May 18, 2020.

\$15,000,000 **National Institutes of Health’s National Institute on Aging: NIH-1P30AG066506-01**--The 1Florida Alzheimer’s Disease Research Center (1Florida ADRC), a University of Florida-organized consortium of leading research institutions, a collaboration of UF, Mount Sinai Medical Center in Miami Beach, the University of Miami, Florida Atlantic University and Florida International University.
Malek Adjouadi is co-Lead with David Vaillancourt at UF of the Biomarker Core
FIU Portion with Malek as PI: \$533,299
04/01/2020 to – 03/31/ 2025.

TOTAL to date: \$ 70,070,378 as PI and CO-PI — \$ 21,035,842 as PI

GRADUATE FELLOWSHIPS TO CATE STUDENTS SUPERVISED BY M. ADJOUADI

1. NATIONAL SCIENCE FOUNDATION - GRADUATE FELLOWSHIP PROGRAM (GRFP) OBTAINED BY CATE STUDENTS

- **These fellowships range from \$89,500 in early years to now \$138,000 for the full three-year period**

Malek Adjouadi as Mentor and Major Advisor

571830300 -- Ms. Sonia Duranza: Time Varying Images Using Confocal Microscopy,
Sept. 1996 – Aug. 1999

571851900 - - Ms. Erica Suarez: Image Interpretation based on Edge Information, Sept.1998 - August 2001

541824100 -- Ms. Danmary Sanchez: Functional Brain Mapping
Sept. 1999– July 2002

541828800 -- Ms. Mercedes Cabrerizo: EEG brain research for Auditory Processing,
Sep 2002-August 2005

541828800-Ms. Anaelis Sesin: Assistive Technology to Help People with Motor Disability,
Sep 2004-August 2007

541828800-Mr. Daniel Sanchez, “Computational Neuroscience and Signal Processing Towards 3D Localization of Brain Disorders”
Sep 2005-August 2008

AWD00000005733 GRFP - NSF Project 800007393. Mr. Harold Martin, “A Portable Automated Reading Device for Persons with Visual Impairment and Blindness”, August 24, 2016-August 23, 2019.

Mercedes Cabrerizo as Mentor and Major Advisor, Malek Adjouadi as Co-Mentor

New 2021_ Rodriguez-Nieves, Josue David, “ Accurate localization of the epileptogenic zone and its propagation pathways outside the seizure focus”, August 2021-July 2024.

2. NATIONAL DEFENSE SCIENCE AND ENGINEERING GRADUATE FELLOWSHIP

National Defense Science and Engineering Graduate (NDSEG) Fellowship for Mr. Paul Mc. Call, “EEG Brain Research for the Automated Detection of Seizure”
Summer 2010 –Summer 2013.

Note: These three- year fellowships averaged anywhere between 27.5K in the early years to 46K for the last couple of years. NSF gives a small increase each year for each fellowship.

PUBLICATIONS

BOOKS

1. Armando Barreto, Malek Adjouadi, Francisco R. Ortega, Nonnarit O-Iarnnithipong, **Intuitive Understanding of Kalman Filtering with MATLAB®**, 221 pages, CRC Press, Taylor and Francis Group, New York, DOI:10.1201/9780429200656, ISBN: 9780429200656, June 2020.
2. Francisco R. Ortega, Fatemeh S. Abyarjoo, Armando B. Barreto, Naphtali D. Rische, and Malek Adjouadi, **3D User Input Interfaces: The world of modern input devices for research, applications, and games**, 742 pages, CRC Press, Taylor and Francis Group, New York, 2015.

ARTICLES APPEARING AS BOOK CHAPTERS

1. V. Potapenko, M.Adjouadi, N. Rische, Chapter 16: Efficient End-to-End Asynchronous Time-series Modeling with Deep Learning to Predict Customer Attrition, Chapter in the book: **Advanced Issues in Control Flow and Data Flow**. Editors: Veljko Milutinovic and Milos Kotlar, IGI Global, Hershey, PA. Chapter 16. pp. 268-281, DOI: 10.4018/978-1-7998-7156-9, 2021.
2. Y. Chen and M. Adjouadi, Chapter Title: Iris; in Encyclopedia of Cryptography and Security (2nd ed.), Henk C.A. van Tilborg, Sushil Jajodia, Editors-in-Chief, Springer, 2011, Part 9, Page: 638-646, ISBN 978-1-4419-5905-8, DOI: 10.1007/978-1-4419-5906-5_742
3. N. Rische, B. Furht, M. Adjouadi, A. Barreto, E. Cheremisina, D. Davis, O. Wolfson, N. Adam, Y. Yesha, Y. Yesha. Chapter 15, Title: "Geospatial Data Management with TerraFly." **Handbook of Data Intensive Computing**, pp.637-665, B. Furht and A. Escalante (Eds.), Springer Verlag, 2011.
4. N. Rische, B. Furht, M. Adjouadi, A. Barreto, E. Cheremisina, D. Davis, O. Wolfson, N. Adam, Y. Yesha, Y. Yesha. Chapter 25, Title "Semantic Wrapper: Concise Semantic Querying of Legacy Relational Databases." **Handbook of Data Intensive Computing**, pp.415-444, B. Furht and A. Escalante (Eds.), Springer Verlag, 2011.
5. L. Melendez, O.Wolfson, M. Adjouadi, and N. Rische, Chapter 5: Qualitative Analysis of Commercial Social Network Profiles, **Handbook of Social Network Technologies and Applications**, pp.95-113, Springer, 2010.
6. M. Cabrerizo, M. Adjouadi, M. Ayala, and P. Jayakar "Subdural Interictal EEG Analysis for Extracting Discriminating Features Towards Electrode Classification Using Artificial Neural Networks", Book Title: **Brain Mapping Research Progress**, Editors: Ines C. Girard and Jade S. Andre JS, pp. 87-108, **Pub. Date:** May 2009, ISBN: 1604567848: 9781604567847.
7. M. Mourad, M. Adjouadi, M. Ayala, and I. Yaylali, **Chapter 9:** Registration of Optical Topographic Maps to Magnetic Resonance Imaging (MRI), pp. 175-199, Book Title: **New Trends in Brain Research** NOVA Science, ISBN 1-59454-834-X, 2006.
8. M. Cabrerizo, M. Adjouadi, M. Ayala, **Chapter 5:** An Application of Eigensystem and Frequency Analysis in Brain Functional Mapping, pp. 177-204, Book Title: **Progress in Brain Mapping Research**, NOVA Science, ISBN 1-59454-580-4, 2006.
9. J. Tou and M. Adjouadi, "Computer Vision for the Blind", in D.H.Warren and E.R. Strelow (Eds.), **Electronic Spatial Sensing for the Blind**, Martinus Nijhoff, Dordrecht, pp. 83-124. For U.S. and Canada, Kluwer Academic Publishers, xvi, 521 p., 1985. **ISBN:** 9024732387. **LC Control Number:** 85021453.

JOURNAL ARTICLES

JOURNALS WHERE PUBLISHED (ALPHABETIC ORDER)

- ACM Transactions on Computing Education
- Alzheimer's & Dementia: Diagnosis, Assessment & Disease Monitoring
- Annals of Biomedical engineering
- Archives of Clinical Neuropsychology
- Artificial Intelligence in Medicine
- Behavior & Information Technology
- Bilingualism-Language and Cognition
- Biomedical Physics & Engineering Express
- Biomedical Signal Processing and Control
- BMC Bioinformatics
- Brain Topography
- Clinical and Translational Imaging
- Computer Applications in Engr. Educ.
- Computers in Biology and Medicine
- Computers in Education
- Computers in Human Behavior
- Computational Intelligence and Neuroscience
- Current Alzheimer Research
- Cytometry
- Frontiers in Aging Neuroscience
- Genie Biologique et Medical
- Human Brain Mapping
- IEEE Access
- IEEE Journal of Biomedical and Health Informatics
- IEEE Sensors Journal
- IEEE Transactions on Affective Computing
- IEEE Transactions on Biomedical Engineering
- IEEE Transactions on Image Processing
- IEEE Transactions on Info. Tech. in BioMedicine
- IEEE Trans. Pattern Anal. and Machine Intel.
- IEEE Transactions on Signal processing
- IET Image Processing
- Image and Vision Computing
- Intl. Journal on Artificial Intelligence Tools
- Intl. Journal of Image and Graphics
- Intl. J. of Innovative Computing, Info. & Control
- Intl. Journal of Medical and Health Sciences
- International Journal of Neural Systems
- Inverse Problems in Science and Engineering
- Journal of Applied Remote Sensing
- J. Rehabilitation Research and Development
- Medical Physics
- Molecular Imaging and Radionuclide Therapy
- Neurocomputing
- NeuroImage
- Neuroimage Clinical
- Neuroinformatics
- Neurology
- Particle and Particle Systems Characterization
- Signal Processing
- World Scientific Journal

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1. S. Tabarestani, M. Eslami, M. Cabrerizo, A. Barreto, N. Rishe, R.E. Curiel, A. Barreto, N. Rishe, D. Vaillancourt, S.T. DeKosky, D.A. Loewenstein, R. Duara, M. Adjouadi, "A Tensorized Multitask Deep Learning Network for Progression Prediction of Alzheimer's Disease", **Frontiers in Aging Neuroscience**, Vol. 14, Article Number: 810873, DOI: 10.3389/fnagi.2022.810873, May 2022. PMID: 35601611.
 2. U. Morar, W. Izquierdo, H. Martin, P. Forouzaneshad, E. Zarafshan1, E. Unger, Z. Bursac, M. Cabrerizo, A. Barreto, D. E. Vaillancourt, S. T. DeKosky, D. Loewenstein, R. Duara, and M. Adjouadi, "A study of the longitudinal changes in multiple cerebrospinal fluid and volumetric magnetic resonance imaging biomarkers on converter and nonconverter Alzheimer's disease subjects with consideration for their Amyloid- β status", **Alzheimers Dement (Amst)**. 2022 Feb 23;14(1):e12258. doi: 10.1002/dad2.12258.PMID: 35229014.
 3. M. Aghili, S. Tabarestani, M. Adjouadi "Addressing the missing data challenge in multi-modal datasets for the diagnosis of Alzheimer's disease", **Journal of Neuroscience Methods**, 2022 Mar 26;375:109582. doi: 10.1016/j.jneumeth.2022.109582. Online ahead of print.PMID: 35346696
 4. V.L. Torres, M. Rosselli, D.A. Loewenstein, M. Lang, I. Velez-Urbe, F. Arruda, J. Conniff, R.E. Curiel, M.T. Greig, W.W. Barker, M.J. Rodriguez, M. Adjouadi, D.E. Vaillancourt, R. Bauer, R. Duara, "The Contribution of Bilingualism to Cognitive Functioning and Regional Brain Volume in Normal and Abnormal Aging", **Bilingualism-Language and Cognition**, Vol. 25 (2), pp.337-356, March 2022. DOI: 10.1017/S1366728921000705.

5. A. Hossam Mohammed;U. Morar;M. Cabrerizo;H. Rajaei;A. Pinzon;I. Yaylali;M. Adjouadi, “Dynamics of Electrical Activity in Epileptic Brain and Induced Changes due to Interictal Epileptiform Discharges”, **IEEE Access**, DOI: 10.1109/ACCESS.2021.3138385, December 2021.
6. W.T. Chu, W.E. Wang, L. Zaborszky , T.E. Golde, S. DeKosky , R. Duara, D.A. Loewenstein, M. Adjouadi, S.A. Coombes, D.E. Vaillancourt, “Association of Cognitive Impairment With Free Water in the Nucleus Basalis of Meynert and Locus Coeruleus to Transentorhinal Cortex Tract”, **Neurology**, Vol. 98 (7), pp. E700-E710. PMID: 34906980
7. M. Shojaie, S. Tabarestani, M. Cabrerizo, M., DeKosky, M. T., Vaillancourt, D. E., Loewenstein, D., Duara, R., and Adjouadi, M, 2021 “PET Imaging of Tau Pathology and Amyloid- β , and MRI for Alzheimer’s Disease Feature Fusion and Multimodal Classification”, **Journal of Alzheimer’s Disease**, Vol. 84 (4), pp. 1497-1514, 2021. PMID 34719488.
8. H. Martin, U. Morar, W. Izquierdo, M. Cabrerizo, A. Cabrera, and M. Adjouadi, “Real-time Frequency-independent Single-Lead and Single-Beat Myocardial Infarction Detection”, Vol. 121, Article Number 102179, **Artificial Intelligence in Medicine**, November, 2021.
9. H. Martin, W. Izquierdo, M. Cabrerizo, A. Cabrera, M. Adjouadi, “Near real-time single-beat myocardial infarction detection from single-lead electrocardiogram using Long Short-Term Memory Neural Network”, **Biomedical Signal Processing and Control**, Volume 68, 102683, 11 pages, July 2021. <https://doi.org/10.1016/j.bspc.2021.102683>.
10. M. S. Masouleh; A. K. Behbahani, M. Adjouadi, “Design, Analysis, and Optimization of the Array of Axial Rectangular Slots on a Cylindrical Waveguide”, **IEEE Access**, Vol. 9, pp. 98218-98230, DOI: 10.1109/ACCESS.2021.3092997, July 16, 2021.
11. F. Arruda, M. Rosselli, M.T. Greig, D.A. Loewenstein, M. Lang, V.L. Torres, I. Velez-Urbe, J. Conniff, W.W. Barker, R.E. Curiel, M. Adjouadi, R. Duara, “The Association Between Functional Assessment and Structural Brain Biomarkers in an Ethnically Diverse Sample with Normal Cognition, Mild Cognitive Impairment, or Dementia”, **Archives of Clinical Neuropsychology**, Vol. 36 (1), pp. 51-61, February 2021. PMID: 32890393.
12. A. H. Mohammed, M. Cabrerizo, U. Morar, H. Rajaei, A. Pinzon, I. Yaylali, and S. Gonzalez-Arias, Penalized Functional Connectivity Maps for Patients With Focal Epilepsy, **IEEE Access**, Vol 9, pp. 204 – 217, DOI: 10.1109/ACCESS.2020.3046851, December 2020.
13. M. Mafi, W. Izquierdo, H. Martin, M. Cabrerizo, M. Adjouadi, “Deep Convolutional Neural Network for Mixed Random Impulse and Gaussian Noise Reduction in Digital Images,” **IET Image Processing**, Vol.14 (15) pp. 3791-3801 , December15, 2020.
14. M. Mafi, W. Izquierdo, M.. Cabrerizo, A. Barreto, J. Andrian, N. . Rishe and M. Adjouadi “A survey on Mixed Impulse and Gaussian denoising filters,” **IET Image Processing**, Vol. 14 (16), pp. 4027-4038, December 19, 2020.
15. W. Barker, C. Quinonez, M. T. Greig, R. Behar, C. Chirinos, R. Rodriguez, M. Rosselli, M. Rodriguez, R. Curiel Cid, T. Rundek, K. McFarland, K. Hanson, G. Smith, S. DeKosky, D. Vaillancourt, M. Adjouadi, M. Marsiske, N. Ertuken-Taner, T. Golde, D. A. Loewenstein, R. Duara, “Utility of Plasma Neurofilament Light in the 1Florida Alzheimer’s Disease Research Center (ADRC), J Alzheimers Dis. 2020 Nov 13. doi: 10.3233/JAD-200901Article No. 20-0901, **Journal of Alzheimer Disease**, Nov 2020. PMID: 33216030
16. C. Fang, C. Li, P. Forouzaneshad, M. Cabrerizo, R.E. Curiel, D. Loewenstein, R. Duara, M. Adjouadi, “Gaussian Discriminative Component Analysis for Early Detection of Alzheimer’s Disease: A Supervised Dimensionality Reduction Algorithm”, **Journal of Neuroscience Methods**, Vol. 344, Article 108856, October 2020. PMID: 32663548.
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239. F. Ortega, N. Rische, A. Barreto, F. Abyarjoo and M. Adjouadi, " Multi-Touch Gesture Recognition Using Feature Extraction", Lecture Notes in Electrical Engineering, Vol. 313, pp. 291-296, 2015.
240. P. Ren, A. Barreto, Y. Gao, M. Adjouadi., Digital filtering of the pupil diameter signal for affective assessment of a computer user, Lecture Notes in Electrical Engineering 151 LNEE , pp. 183-196, 2013.
241. J. Cofino, A. Barreto, M. Adjouadi, Comparing two methods of sound spatialization: Vector-based amplitude panning (VBAP) versus linear panning (LP), Lecture Notes in Electrical Engineering 152 LNEE , pp. 359-370, 2013.

242. J. Huang, A. Barreto, M. Adjouadi, and M. Alonso, Contrast enhancement in image pre-compensation for computer users with visual aberrations, Chapter 32, Lecture Notes in Electrical Engineering 152 LNEE , pp. 371-380, 2013.
243. J. Huang, A. Barreto, M. Alonso, and M. Adjouadi, Image pre-compensation for visually impaired computer users with variable pupil size, Lecture Notes in Electrical Engineering 151 LNEE , pp. 171-182, 2013.
244. F. Ortega, N. Rishe., A. Barreto and M. Adjouadi, Interaction with 3D environments using multi-touch screens, Lecture Notes in Electrical Engineering 152 LNEE , pp. 381-392, 2013.

PUBLISHED CONFERENCE ABSTRACTS WITH PRESENTATIONS

1. N. Rishe, M. Adjouadi, F. Ortega. "Smart Bracelets for Remote Monitoring of Wearers' Physical and Affective State." Rishe's Keynote Talk at the 9th Mediterranean Conference on Embedded Computing MECO-2020. Budva, Montenegro. June 8-11, 2020. p.1. IEEE, 2020. DOI: 10.1109/MECO49872.2020.9134093.
2. C. Li, R. Duara, D. Loewenstein, M. Cabrerizo, W. Barker, and M. Adjouadi, "Greater Regional Cortical Thickness is Associated With Selective Vulnerability to Atrophy in Alzheimer's Disease, Independent of Regional Amyloid Load", Abstract 147, Poster Session 2 - Thursday, January 12, Human Amyloid Imaging Conference, Miami, Florida, January 11-13, 2017.
3. C. Li, R. Duara, D. Loewenstein, M. Cabrerizo, W. Barker, and M. Adjouadi, "Associations Between Regional Amyloid Load, Cortical Thickness, APOE genotype and Cognition in ADNIGO/ADNI2 Participants", Abstract 147, Poster Session 3 - Friday, January 13, Human Amyloid Imaging Conference, Miami, Florida, January 11-13, 2017.
4. M. Goryawala*, M. Adjouadi, D. Loewenstein, W. Barker, and R. Duara, "Is there a binary relationship of mean brain amyloid concentrations to cognitive, functional, metabolic and volumetric MRI variables in the ADNI cohort?" (Poster P02). Presented at the 8th Human Amyloid Imaging (HAI) Meeting, January 16, 2014, Miami Beach, FL. *Winner of the Travel Award-Best paper.*
5. Q. Zhou, M. Goryawala, D. Loewenstein, W. Barker, R. Duara, Adjouadi M. Utility of Regional [18F]-Florbetapir PET imaging SUVRs in discriminating Alzheimer's disease and its prodromal stages. (Poster P08). Presented at the 8th Human Amyloid Imaging Meeting, January 16, 2014, Miami Beach, FL
6. M. Goryawala, D. Loewenstein, W. Barker, and R. Duara, and M. Adjouadi "Relationship of Regional Cerebral Volumes to Mean Brain Amyloid Concentration, APOE Genotype and Disease Stage in the ADNI 2/ ADNI-GO cohort?", (Poster P60). Presented at the 8th Human Amyloid Imaging (HAI) Meeting, January 16, 2014, Miami Beach, FL
7. S. Gulec, R. Bhatt, A.J. McGoron and M. Adjouadi, "A low-interaction automatic 3D liver segmentation method using computed tomography for selective internal radiation therapy", **Journal of Mathematics** (Dec 23, 2014): 99.
8. A. Salah Eddin, S. Sargolzaei, J. Wang, W.D. Gaillard, and M. Adjouadi, "Small-world Connectivity in fMRI-based Functional Language Networks using ICA in Pediatric Epilepsy", p. 76, 19th annual meeting of the Organization for Human Brain Mapping, OHBM Seattle 2013, Washington State Convention and Trade Center, June 16-20, 2013.
9. F.R. Ortega, A. Barreto, N. Rishe, M. Adjouadi, F. Abyarjoo, "Real-time gesture detection for multi-touch devices", 2013 IEEE Symposium on 3D User Interfaces (3DUI), DOI:10.1109/3DUI.2013.6550231, pp: 167 – 168, 2013.
10. Ruchir Bhatt, Mohammed Goryawala, Tushar Barot, Rekha Suthar, Malek Adjouadi, Anthony McGoron, Seza Gulec, "New algorithm for functional volume estimation after partial volume correction: A phantom study", **J Nucl Med.** 2010; 51 (Supplement 2):1290
11. X. You, M. Adjouadi, M. R. Guillen, B. Bernal, M. Ayala, A. Barreto, N. Rishe and W. D. Gaillard, "Automatic Decision Making Process For Classification of fMRI Patterns Integrating the Principal

Component Analysis and the Laterality Index in Pediatric Epilepsy”, Poster Session III, 30th Annual Meeting of the Society for Medical Decision Making-SMDM, Philadelphia, Pennsylvania, p. 154, Oct.19-22, 2008.

12. M. Ayala, M. Adjouadi, M. Cabrerizo, A. Zong, A. Barreto, “A Neural Network-Based Decision Making Process to Classify Leukemia Blood Samples”, Poster Session V, 30th Annual Meeting of the Society for Medical Decision Making - SMDM, Philadelphia, Pennsylvania, p. 210, Oct.19-22, 2008.
13. M. R Guillen, M. Adjouadi, W. Gaillard, X. You, N. Rishe, and A. Barreto “Brain Activation Map Analysis in Multisite Data repository for Pediatric Epilepsy”, Enterprise Development Corp. of South Florida (EDC) Biotech Conference, Abstract and Poster Presentation, FIU Graham Center, Miami, Florida, April 24, 2008.
14. X. You, M. Adjouadi, M. R. Guillen, W. D. Gaillard, N. Rishe, and A. Barreto, “Application of the Principal Component Analysis to Brain Activation Maps in Pediatric Epilepsy”, Enterprise Development Corp. of South Florida (EDC) Biotech Conference, Abstract and Poster Presentation, FIU Graham Center, Miami, Florida, April 24, 2008.
15. M. Tito, M. Adjouadi, M. Cabrerizo, M. Ayala, P. Jayakar, W. D. Gaillard, “An Inter-Patient Analysis for Seizure Detection”, Enterprise Development Corp. of South Florida (EDC) Biotech Conference, Abstract and Poster Presentation, FIU Graham Center, Miami, Florida, April 24, 2008.
16. Melvin Ayala and Malek Adjouadi, “NeuralStudio: An Artificial Neural Networks Simulator for Research and Education”, 13-15, Proceedings of the 2nd Annual CAHSI Workshop, Miami, Florida, December 15-18, 2007.
17. J. Delgado and M. Adjouadi, “A Novel Grid-based Data Storage Paradigm”, pp. 27-28, Proceedings of the 2nd Annual CAHSI Workshop, Miami, Florida, December 15-18, 2007.
18. M. R. Guillen and Malek Adjouadi, “A Web-Based Repository Site of fMRI Medical Images and Clinical Data for Childhood Epilepsy”, pp. 38-40, Proceedings of the 2nd Annual CAHSI Workshop, Miami, Florida, December 15-18, 2007.
19. A. Guzman and M. Adjouadi, “Inline Spectrometer For Photon Counting Detectors”, pp. 41-43, Proceedings of the 2nd Annual CAHSI Workshop, Miami, Florida, December 15-18, 2007.
20. M. Lahlou and M. Adjouadi, “Human-Computer Interface Design for Cognitive Workload Detection Using Pupillary Response”, pp. 46-48, Proceedings of the 2nd Annual CAHSI Workshop, Miami, Florida, December 15-18, 2007.
21. A. Sestin and M. Adjouadi, “Human-Computer Interface for Person with Severe Motor Disability”, pp. 72-74, Proceedings of the 2nd Annual CAHSI Workshop, Miami, Florida, December 15-18, 2007.
22. M. Mourad and M. Adjouadi “3-D Integration of Optical Topographic Maps to Anatomical Magnetic Resonance Imaging”, Published Abstract, Published Abstract and Poster Presentation, Biotech 2004, Graham Center, FIU, Miami, Florida March 2004.
23. A. Zong and M. Adjouadi “Integrating SVM-based Machines to Neural Networks for Optimized Classification of Flow Cytometry Data”, Published Abstract and Poster Presentation, Biotech 2004, Graham Center, FIU Miami, Florida March 2004.
24. I. Yaylali, M. Adjouadi, and P. Jayakar, J. Ragheb, G. Morrison, J. Lafitte, and R. David, “Intraoperative Real-Time High-resolution Infrared Imaging”, Published Abstract and Poster Presentation, BMES Annual Fall Meeting, Biomedical Eng. Society, Philadelphia, PA, Oct. 13-16, 2004. http://www.biomed.drexel.edu/new04/Content/News_Events/bmes2004/ShortProgram.pdf
25. M. Mourad, M. Adjouadi, and I. Yaylali, “Integration of Optical Topography and MRI for 3-D Functional Brain Mapping”, BMES 2004 Annual Fall Meeting, Biomedical Eng. Society, Philadelphia, PA, Oct.13-16, 2004. http://www.biomed.drexel.edu/new04/Content/News_Events/bmes2004/ShortProgram.pdf

INVITED TALKS, WORKSHOPS AND PANELS

1. Date: March 3-4th, 2020
Place: FAMU College of Science & Technology, 1601 S Martin Luther King Jr Blvd, Tallahassee, FL
Seminar and meeting with department chairs and faculty at FMU:

Seminar Title: Multimodal Neuroimaging and Machine Learning in Alzheimer's Disease
Speaker: Malek Adjouadi

2. Date: February 4th, 2019
Place: Hyatt Regency Crystal City, Washington D.C.
NSF MSI CISE conference panel discussion
Moving Forward with the Lessons of the Minority Institution Infrastructure Program
Panelists: Rita Rodriguez and Malek Adjouadi
<https://www.asee.org/documents/publications/reports/2020-MSI-CISE-Report.pdf>
3. Date: March 17th, 2016, Place: 560 Crandon Blvd, the Key Biscayne Council Chambers
Title of the talk: Alzheimer's Disease: Neuroimaging and Transcranial Magnetic Stimulation
Alzheimer's Expert Panel: Malek Adjouadi, Tony Friguls and Gabriel Gabaldon
Publicized on local TV and the Islander(newspaper), ACTIVE SENIORS ON THE KEY CLUB, Key Biscayne Community Center, 10 Village Green Way, Key Biscayne, FL 33149
4. Date: March 31st, 2016
Place: College of Science, Engineering and Technology, Jackson State University
Title of the talk: Neuroimaging: Diagnosis to Curative Protocols for Neurological Disorders
Speaker: Malek Adjouadi
5. Date: May 25th, 2016
Place: 560 Crandon Blvd, the Key Biscayne Council Chambers
Title of the talk: Alzheimer's Disease
Alzheimer's Expert Panel: Malek Adjouadi, Ranjan Duara and David Loewenstein
Available on local TV and the Islander(newspaper), ACTIVE SENIORS ON THE KEY CLUB, Key Biscayne Community Center, 10 Village Green Way, Key Biscayne, FL 33149
6. M. Adjouadi, Workshop on Fellowships at the Annual BPC-CAHSI meeting, Caribe Hotel in San Juan Puerto Rico. Session 1: Fellowships; Audience: Undergraduate students/1st year Master's, March 2011.
7. Workshop on Fellowships at the 4th Annual BPC-CAHSI meeting in Microsoft Headquarters April 6, 2010-
- Creating a Research Plan, Presenter: Malek Adjouadi, Florida International University.
1. M. Adjouadi, R. Alo, M. Beheshti, J. Fernandez, D. Novick and N. Santiago, Panel Session - The Computing Alliance of Hispanic-Serving Institutions: Interventions To Increase Hispanic Participation In Computing, Frontiers in Education, San-Diego, California, Oct. 28-31, 2006.
2. M. Adjouadi, Moderator "Undergraduate Research", Broadening Participation in Computing Information Meeting, Baltimore, MD. , April 2005.
3. M. Adjouadi, Moderator with Dr. Bryant York "Commonalty of Problems Inhibiting Persons with Disability in Computing", NSF BPC Workshop for Persons with Disabilities, Tampa, Florida, April 2005.
4. M. Adjouadi, Committee member, Hispanic Serving Institutions Subcommittee, "Broadening Participation in Computing Research & Education", CRA Workshop, Sponsored by the National Science Foundation and the Computing Research Association, Washington D.C. , Oct. 20-21, 2004.
5. M. Adjouadi and A. Barreto, "Annual Progress Report of the NSF-CATE Center", PI Presentation and Speaker, Proceedings of the NSF Institutional Infrastructure Workshop and PI Meetings, pp. 50-55, Snowbird, Salt lake City, Utah, July 9-11, 2004.
6. M. Adjouadi, and A. Armando "Development of an Institutional Infrastructure with Special Focus on Human-Computer Interfaces and Information Processing", PI Presentation and Speaker, Proc. of the NSF Institutional Infrastructure Workshop and PI Meeting, pp. 50-55, Snowbird, Utah, July 7-9, 2000.
7. M. Adjouadi and A. Barreto, "Annual Progress Report of the CATE Center", PI Presentation and Speaker, Proceedings of the NSF Institutional Infrastructure Workshop and PI Meetings, pp. 47-52, University of New Mexico, Las Cruces, New Mexico, August 7-9, 1999.

8. M. Adjouadi, “Multidimensional and Multispectral Information Processing and Computational Aspects”, PI Presentation and Speaker, Proceedings of the NSF Institutional Infrastructure Workshop and PI Meeting, pp. 49-53, University of Kentucky, Lexington, Kentucky, May 11-12, 1997.
9. M. Adjouadi, “Increasing the Number of Minority Computer Scientists and Engineers”, Panel Member, NSF Institutional Infrastructure Workshop and PI Meeting, Snowbird, Utah, July 1994.
10. M. Adjouadi, “A Novel Computer Vision Approach to Help the Blind”, Invited Speaker as part of a US delegation, Technology to Help the Blind and the Visually Impaired, Taipei, Taipei, Taiwan, June 1987.
11. M. Adjouadi, “Importance of Fellowships for undergraduates and graduates to pursue research in critical technology areas”, Keynote speaker for the Achievement Rewards for College Scientists (ARCS), Honolulu, Hawaii, September 1987.

REPORTS OF INTEREST

1. **SUS Digital Media Group**, Final Report, State University System of Florida: Curriculum & Articulation Subcommittee). www.fldcu.org/asa/DigitalMediaEdGroup/DMECGFinalReport.pdf, January 2001
2. **FIU-Industry Partnership** (Subcommittee Chair) on Industry/Business Partnership with the Florida and Local Economic Development, 2002. <http://www.fiu.edu/~pie/docs/crossfcn/reports/econ.doc>.

BOOK REVIEW

- Fundamentals of Computer Engineering: Logic Design and Microprocessors by Herman Lam and John O’Malley, John Wiley and Sons, New York, 1985.

PROFESSIONAL HONORS, PRIZES, FELLOWSHIPS

SPECIAL HONOR

- Testimony to the **US Senate** committee of Veterans Affairs of the State of Hawaii: Oversight Hearing on Veterans’ Health Care in Hawaii, date of hearing: April 14, 1987.

HONORS AND AWARDS

- Distinguished University Professor, 2021-present
- Ware Foundation Professor, March 2017-Present
- Top researcher, College of Engineering and Computing, 2015-2016
- Finalist, Healthcare Hero, Bio-Medical, Greater Miami Chamber of Commerce, May 22, 2013
- Finalist, Healthcare Hero, Bio-Medical, Greater Miami Chamber of Commerce May 20, 2014
- National Academy of Inventors’ Charter Fellow
- Doctoral Dissertation Status with ECE, BME and SCIS
- Faculty Scholarship Recognition Reception honoring achievements and outstanding efforts as one of FIU’s top scholars, April 2, 2008
- Recognition by President Maidique: Cientificos Hispanos de FIU sobresalen a nivel nacional, El Nuevo Herald, February 2005-This on the subject of our students obtaining fellowships with the National Science Foundation
- Featured in the FIU Magazine Winter 2005 .
- Award for Selfless Dedication as Advisor to HKN Honor Society, 2004.
- Certificate of Appreciation in recognition of outstanding service and contributions to the trends in Emerging Technologies and Education Workshop, November 2004.
- Certificate of Appreciation from the Division of Student Affairs, April 2002.
- Herbert Wertheim Excellence in Teaching Award 2001-2002.
- Appreciation and Dedicated Service Award, as faculty Advisor, Eta Kappa Nu, 2001-2002.
- Appointed SUS Member for the State University System of Florida Digital Media Education, January 2001.
- Appreciation and Dedicated Service Award, as faculty Advisor, Eta Kappa Nu, 2000-2001.
- Featured in the 2000-2001 Annual Report from Sponsored Research Magazine

- Cited as Top 20 Principal Investigators for 1999-2000 by FIU MAGAZINE
- Featured in the FIU MAGAZINE Fall 2000
- Exemplary Service Award as faculty Advisor, Eta Kappa Nu, 1998-1999.
- Featured in the 1998-1999 Annual Report from Sponsored Research Magazine
- Certificate of Recognition from the Honors Council, November 1998.
- Certificate of Appreciation from the Florida-Georgia Alliance for Minority Participation, 1998.
- Appreciation Award, as faculty Advisor, Eta Kappa Nu, 1997-1998
- FIU Excellence in Teaching Award, September 1997.
- Teaching Incentive Award, a State University System award, June 1997.
- Certificate in Recognition of Outstanding Participation, National Engineers Week, 1997
- Herbert Wertheim Excellence in Teaching Award 1996-1997.
- Award for Outstanding Performance Enhancing the Research Capabilities of FIU, October 1996.
- Who's who Among America's Teachers, March 1996.
- FIU Representative for the SUS Board of Regents meeting, July 1996.
- FIU Excellence in Research Award, July 1995.
- Certificate in Recognition and Appreciation of Valued Services and Contributions as Section Chairman, Florida Council, FCIEEE 1995.
- Teaching Incentive Award, a State University System award, April 1994.
- Certificate of Appreciation for Serving as IEEE Chair for the Miami Section 1993-1994.
- Certificate of Appreciation from the Society of Women Engineers, April 1992.
- Certificate of Appreciation from the Society of Women Engineers, 1992.
- Certificate of Appreciation for Serving as IEEE vice Chair for the Miami Section 1991-1993.

Also, as Faculty Advisor of Eta Kappa Nu Electrical Engineering Honor Society, Dec. 91- Present

- Eta Kappa Nu-Kappa Delta Chapter at FIU received the OUTSTANDING CHAPTER AWARD for its excellent program: 2004-2005
- Certificate of Merit , 1999

EDITORIAL BOARDS:

- Associate Editor, Journal of Alzheimer's Disease 01/01/ 2018-12/31/2021;
<https://www.j-alz.com/board/directory/a>
- Associate Editor, Innovative Computing Information and Control (ICIC) Express Letters,
<http://www.icicel.org/ell/editors.html>

PATENTS

Note: all names appearing as first inventor are Ph.D. advisees of Malek Adjouadi

- Patent number **6778910**: **Statistical probability distribution-preserving accumulation of log transformed data**
- Patent number **7502763**: **Artificial neural network design and evaluation tool**
- Patent number **10137308**: **Electrocardiography triggered transcranial magnetic stimulation systems and methods of using the same**
- Patent number **10137308**: **Hardware/software integrated design for a 3D tremor detector using TMS in Parkinson's disease and related disorders**
- Patent number **10137308**: **Low intensity magnetic field device for cosmetic skin treatment**

Details follow:

1. Statistical probability distribution-preserving accumulation of log transformed data

Patent number: 6778910

Type: Grant
Filed: February 26, 2003
Date of Patent: August 17, 2004
Assignee: Coulter International Corp.
Inventors: Patricio Vidal, John S. Riley, Malek Adjouadi

Abstract: A signal processing operator successfully expands the dynamic range of a histogram of digital data, such as that representative of biological cell populations, including human blood cells subjected to flow cytometry processing, without introducing binning artifacts into the transformed data. The inventive data mapping scheme effectively preserves statistical probability distribution characteristics of the original data, that would otherwise be removed or lost in the course of expanding the dynamic range of a quantized histogram data set through the use of a conventional log transformation. Filtering is unnecessary, as the binning effect is countered early in the process, to preserve statistical properties of the cell populations under study.

2. Artificial neural network design and evaluation tool

Patent number: 7502763
Type: Grant
Filed: August 12, 2005
Date of Patent: March 10, 2009
Assignee: The Florida International University Board of Trustees
Inventors: Melvin Ayala, Malek Adjouadi

Abstract: Disclosed herein is a programming tool stored on a computer-readable medium and adapted for implementation by a computer for designing an artificial neural network. The programming tool includes a network configuration module to provide a first display interface to support configuration of the artificial neural network, and a pattern data module to provide a second display interface to support establishment and modification of first and second pattern data sets for training and testing the artificial neural network, respectively.

3. Electrocardiography triggered transcranial magnetic stimulation systems and methods of using the same

Patent number: 10137308
Type: Grant
Filed: March 17, 2014
Date of Patent: November 27, 2018
Assignee: The Florida International University Board of Trustees
Inventors: Malek Adjouadi, Mercedes Cabrerizo, Niovi Rojas, Juan Omar Perez, Jesus de la Rua, Anastasio A. Cabrera

Abstract: Embodiments of the subject invention provide hardware-software assimilated systems that align, in time and space, electrocardiography (ECG) with the neuro-navigated Transcranial Magnetic Stimulation (TMS) (e.g., a TMS machine), as well as methods of manufacturing such systems and methods of performing ECG and TMS using such systems. A system of the present invention can be integrated and non-invasive and can include a hardware component that can automatically activate pedals of the TMS machine to, for example, perform different operational functions, including increasing intensity of the magnetic pulse, decreasing intensity of the magnetic pulse, providing a magnetic pulse with a predefined intensity, and aborting the stimulation if any undue effect on the cardiac rhythm is detected. The system can also include a software component, stored on one or more computer-readable media (e.g., non-transitory media), that can serve a dual purpose of: reading an ECG signal and synchronizing the trigger of the TMS machine via the hardware component, a synchronization which can be made in relation to any of the deflections of the recorded ECG (e.g., in order to maintain a normal heartbeat during stimulation); and serving as a graphical user interface (GUI) for a user of the system.

4. Hardware/software integrated design for a 3D tremor detector using TMS in Parkinson's disease and related disorders

Patent number: 10188869

Type: Grant

Filed: July 20, 2015

Date of Patent: January 29, 2019

Assignee: The Florida International University Board of Trustees

Inventors: Mercedes Cabrerizo, Malek Adjouadi, Niovi Rojas, Juan Omar Perez, Anastasio A. Cabrera, Jesus De La Rua

Abstract: The subject invention provides hardware-software assimilated systems to evaluate the efficacy of the repetitive Transcranial Magnetic Stimulation (rTMS) on patients with Parkinson's Disease (PD) and related disorders before, during, and/or after the stimulation-based treatment. Embodiments of the subject invention provide integrated Tremor Sensor TMS systems that can control magnetic stimulation of the brain according to selected moments in the tremor cycle, as well as methods of manufacturing such systems and methods for performing tremor detection and TMS using such systems. If the magnetic stimulus from a TMS is not adequately adjusted to the patient-specific tremor frequency, there is the potential that the expected outcome may not be completely achieved, but the same stimulus can reduce or suppress the tremor if the magnetic stimulation is adequately adjusted. Systems of the subject invention can ensure the latter result.

5. Low intensity magnetic field device for cosmetic skin treatment

Patent number: 10195456

Type: Grant

Filed: March 3, 2016

Date of Patent: February 5, 2019

Assignee: The Florida International University Board of Trustees

Inventors: Mercedes Cabrerizo, Malek Adjouadi, Niovi Rojas, Juan Perez

Abstract: The subject invention provides novel and advantageous devices and methods for cosmetic skin treatment using a magnetic field, as well as methods of fabricating and using such devices. A device can include one or more coils (e.g., micro-coils) for generating a magnetic field, such as a low intensity magnetic field. The device can be a hand-held and/or portable device and can include a stimulation head having the one or more coils. The device can be used to apply a magnetic field to a patient (e.g., a human patient) for cosmetic skin treatment. In an embodiment, a handheld device for skin treatment can include a case, a stimulation head coupled with the case and comprising at least one coil of conductive wire for generating a magnetic field, and an electronic circuit, housed in the case, for driving the at least one coil to generate the magnetic field. The electronic circuit can be configured to drive the at least one coil to generate a main pulse of the magnetic field at a main frequency, and the main pulse can include a plurality of sub-pulses at a sub-frequency that is greater than the main frequency.

OFFICES HELD IN PROFESSIONAL SOCIETIES

- International Program Committee Member , The 4th International Conference on Cybernetics and Information Technologies, Systems and Applications: CITSA 2007
- International Program Committee Member, the 9th IASTED International Conference on Computer Graphics and Imaging, CGIM 2007.
- International Program Committee, the IASTED International Conference on Graphics and Visualization In Engineering, GVE-2007
- Scientific Committee, World Scientific and Engineering Academy and Society, 2006.
- Organizing Committee, Florida Conference on Recent Advances in Robotics, 2006.
- Program Committee, the 3rd International Conference on Cybernetics and Information Technologies, Systems and Applications: CITSA, 2006.

- Organized the Computing Research Infrastructure CRI workshop with the National Science Foundation Division of Computer and Network Systems CISE, involving 42 Universities Nationwide, June 2006.
- International Program Committee, Wireless Networks & Emerging Tech. WNET-2004
- International Program Committee Member, the 7th IASTED International Conference on Computer Graphics and Imaging, CGIM 2004.
- International Program Committee Member, the 6th IASTED International Conference on Computer Graphics and Imaging, CGIM 2003.
- Technical Committee, Florida Conference on Recent Advances in Robotics, 1997.
- IEEE Chairman, Miami Section, July 1993 - August 1995
- Faculty Advisor of the Kappa Delta Chapter of HKN at FIU, Dec. 1991- Present.
- IEEE Vice Chairman, Miami Section, 1991-1993.

OTHER PROFESSIONAL ACTIVITIES AND PUBLIC SERVICE

FIU-WIDE

- Eminent and Preeminent Programs, Committee Chair, 2016 to present.
- FIU Next Horizon 2025 strategic plan steering Committee Member, and Co-Chair (Dr. Andres Gil, Chair) on the Committee to cultivate novel and interdisciplinary research, scholarship and Creative Activities; Support and Continue to grow preeminent programs, 2020.
- FIUNext Horizon2025 - Workgroup 2A Committee Chair- Preeminence Committee Chair, focusing on leveraging preeminent program identification and assistance, October-December, 2018.
- Served as Committee Chair for the Diversity Mentor Professor Search 2019-2020 and 2020-2021
- Preeminent Programs Identification and Support Processes, Committee Co-Chair with Eric Wagner as Chair, 2016.
- CEC Dean Search, Committee Member, 2016
- MRI Steering Committee, Committee Member, July 2016-July 2019
- FIU Faculty Senator, August 2012 through end of Fall 2019.
- Limited Proposal Submissions Review Committee, 2006-2009 (3-year term)
- Academic Graduate Grievance Committee, 2005
- Subcommittee Chair on Industry/Business Partnership, Florida and Local Economic Development, 2002.
- Member of the Search and Screen Committee for Vice President for Research- This was the search that named Thomas Breslin as first VP for Research and Graduate Studies, 1998.
- FIU Representative for the SUS research meeting exposing research at FIU 1996. (see **STATE** section).

DEPARTMENT

- ECE curriculum Representative at the College level, August 2012-2018
- Search and Screen Committee for ECE Chair
- Served as Acting Chair for the ECE department for 3and ½ years, August 97- February 2001.
- Finalized the ABET comprehensive report that successfully extended ABET (Accreditation Board for Engineering and Technology) accreditation from January 31st 2000 to September 30th 2003.
- Lead with the ECE Chair efforts in putting together the Computer Engineering ABET file for accreditation in 2003.
- Serves as Faculty Advisor for the Eta Kappa Nu Honor Society since its inception from 1992 to Present.

COLLEGE

- College Engineering Building Space Allocation Committee, Spring 2020-Present
- College Strategic Planning, Committee Member, April 1, 2020 -Present
- College Restructuring, Committee Chair, appointed by the Provost, Fall 2018-Present
- Curriculum Committee: August 2013-August 2016
- Research Advisory Committee, Jan 2010-Jan 2011
- Undergraduate Enrollment Task Force, 2006
- Dean's Award Committee, 2005
- Chair of the Search Screen Committee for two faculty lines with Biomedical Engineering Dept., 2003.
- COE Strategic Planning Committee, 2003

- ABET Preparation Committee, 2002

NOTE:

- o The CATE Center is involved in giving demos practically with almost all industry visits that we have with the College of Engineering and Computing and is always involved with the yearly Engineering fair where hundreds of high school kids come and visit the Center for demos as means to recruit them.
- o We were also honored to receive Dr. John Paul Holdren, the Science Advisor of former President Barak Obama

STATE

- Appointed SUS Member, and Graduate Curriculum and Research Subcommittee, State University System of Florida, Digital Media Education Coordination Group, Report to the Florida Legislature, January 1, 2001.
- FIU Representative of the Research at the CATE Center to the Board of Regents meeting, July 11-12, 1996.

OTHER

- ABET Advisory board member, Department Computer Science at UTEP for the last three years
- Panelist, Frontiers in Education, October 2006
- Member, Institute of Electrical and Electronics Engineers (IEEE) since 1985
- Member Eta Kappa Nu (HKN) Electrical Engineering Honor Society since 1992
- Member of Tau Beta Pi Engineering Honor Society, since 1997.
- Member of the Southeastern Center for Electrical Engineering Education SCEE- 1998-2000
- Member of the New York Academy of Sciences, 1998-1999
- Session Chair and Moderator for Frontiers in Education Conference FIE 2006.
- Member of the Consortium of CISE-MII Funded Institutions for Initial Recommendations on Broadening Participation of Hispanics, 2005.
- Member, Broadening Participation in Computing Research and Education NSF-Workshop, Oct 2004.
- Session Chair, Signal Processing, IEEE Southeast conference, 1994.
- Session Chair, Robot Sensing, 6th Annual Conference on Recent Advances in Robotics, 1993
- Organizer/ Session Chair, Digital Imaging, IEEE Southcon 1992.

REVIEWER for:

FEDERAL AGENCIES

NATIONAL SCIENCE FOUNDATION: - *Committee of Visitors*

- **National Science Foundation:** Committee of Visitors Meeting, CNS-CISE, Computer and Information Science Directorate, Computer and Network Systems Division. The committee was charged with performing two forms of evaluations: 1. Assessment of the Division's operation for quality and integrity, and 2. Outputs and strategic outcome goals. See attached letter from Assistant Director, Dr. Peter Freeman. June 2006.
- **National Science Foundation:** Committee of Visitors Meeting, CNS-CISE-1998. The committee of visitors was charged with evaluating the effectiveness of the CNS-CISE Division consisting of four clusters: Computer Systems, Network Systems, Research Infrastructure, and Education and Workforce. The committee was charged with performing two forms of evaluations. The first was an evaluation of the process and procedures relating to the solicitation, review and administration of awards in this program. The second was an evaluation of the program in terms of the new National Science Foundation Government Performance and Results Act (GPRA) goals. See attached letter Program Director, Dr. Rita Rodriguez, May 1999.

NATIONAL SCIENCE FOUNDATION: *Panel Participation*

Please note that although these are listed chronologically with the most recent last; however on the advice of NSF, the year served is not shown intentionally: (earliest to recent)

- NSF-PFI:BIC Program
- NSF-I/UCRC
- Science and Technology Centers (STC)
- Science and Technology Centers (STC) site visitor, Michigan State University-BEACON, funded 2010.
- Major Research Instrumentation (MRI) Program
- Instrumentation Grants for Research in NSF/CISE/IIS.
- Professional Opportunities for Women in Research and Education (POWRE)
- Coordinating committee for the Integrative Graduate Education and Research Training (IGERT) program.
- Pre-proposal panel review for the IGERT program at NSF in Arlington, VA.
- Coordinating committee for the Integrative Graduate Education and Research Training (IGERT) program.
- Final Proposal panel review for the IGERT program.
- NSF-EHR-LT Experimental Program to Stimulate Competitive Research (EPSCoR) program.
- Reviewer for the National Science Foundation Office of Cross Disciplinary Activities, CISE/CDA
- Panel review committee for the ADVANCE program.
- SBIR program, NSF, Arlington, VA.
- Major Research Instrumentation Program Instrumentation Grants for Research in NSF/MRI.
- Universal Access Program.
- Office of Cross Disciplinary Activities, CISE/CDA.
- Division of Computer & Network Systems (CNS)
- Cross Disciplinary Activities, CISE/CDA.
- SBIR program (2nd time), NSF.
- Ad hoc review SBIR program (3rd time), NSF.
- IUCRC Planning Grants, NSF, Arlington, VA.
- Universal Access Program NSF/UA.
- SBIR Second Phase.
- Office of Integrative Activities, Major Research Instrumentation
- Brain Initiative
- CNS-CISE Education and Workforce- Ad hoc review 02/04
- CNS-CISE Education and Workforce Ad-hoc Review 07/16
- Office of Integrative Activities, Major Research Instrumentation

DEPARTMENT OF HOMELAND SECURITY: *Panel Participation*

- This was to serve on a panel that evaluates Graduate Fellowships, **Homeland Security Program:** Panel review committee, Crystal City, Washington D.C

JOURNALS

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> - Human Brain Mapping - IEEE Transactions on Automation Science and Engineering - IEEE Transactions on Biomedical Engineering - IEEE Transactions on Image Processing - IEEE Transactions on Pattern Analysis and Machine Intelligence - IEEE Transactions on Industrial Electronics - IEEE Communications Magazine - IEEE Engineering in Medicine and Biology Magazine - Image Science Journal - International Journal of Biometrics - International Journal of Image and Graphics - International Journal of Neural Systems | <ul style="list-style-type: none"> - Journal of Clinical Neurophysiology - Journal of Neuro-Engineering and Rehabilitation - Journal of Optical Engineering - Journal of Rehabilitation Research and Development - Journal of Biomedical Optics - Journal of Neural Engineering - Journal of Network and Computer Applications - Neural Computing & Applications journal - Optics and Lasers in Engineering - Pattern Recognition - Pattern Recognition Letters - Science and Justice - Sensors |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

CONFERENCES

- Intl. Conf. on Signal Processing, Pattern Recognition, and Applications-SPPRA 2007.
- International Conference on Graphics and Visualization in Engineering –GVE 2007
- CITSA International Conf. on Cybernetics and Information Tech., Systems and Applications, 2005
- International Conference on Computing, Communications and Control Technologies -CCCT 2004.
- Computer Graphics and Imaging-CGIM-2004
- CITSA International Conf. on Cybernetics and Information Tech., Systems and Applications, 2004
- Computer Graphics and Imaging-CGIM-2003
- International Conf. on Internet and Multimedia Systems and Applications-IMSA-2003
- Computer and Science Technology-CST-2003
- Signal and Image Processing – SIP-2003
- Artificial Intelligence and Applications –AIA-2003
- Artificial and Computational Intelligence, ACI-2002

INFRASTRUCTURE DEVELOPMENT

These labs are ongoing

1. Center for Advanced Technology and Education (CATE) - *Funded by NSF*
2. Transcranial Magnetic Stimulation, Baptist Hospital

*** These labs have been upgraded and are currently serving a different purpose**

3. Interactive Design Lab. for Undergraduates (ECE)- *Funded by NSF and Matching funds from DSRT**
4. The Computer Training Laboratory for Undergraduate Recruitment –Housed in Graham Center with the Office of Multicultural Services *
5. The Web-Design and Development Laboratory, Housed within EIC, *Funded jointly by ONR and NSF**

POST-DOCTORAL SUPPORT

1. The late Gualberto Cremades, Ph.D., Associate Professor at Barry University
2. Mercedes Cabrerizo, Ph.D., Associate Professor at FIU
3. Lu Wang, Ph.D., Former Director of MS Big Data Analytics Program, Associate Professor of Computer Science; Now Director of International Relations Asia Pacific, American Higher Education Alliance, LA Associate Professor, St Thomas University
4. Magno R. Guillen, Ph.D., Neuro Data Imaging Analyst at Miami Children Hospital
5. Anaelis Sesin, Project Leader, Florida Power and Light
6. Melvin Ayala, Ph.D., Senior Engineer, Beckman Coulter
7. Maria Tito, Ph.D., Gables Engineering, Miami

Post-Doctoral Scientists- Supported 2019-2021

8. Mohammad Eslami, CATE center, went on to Harvard Spring 2021
9. Mehdi Mafi, CATE center

RESEARCH SCIENTISTS AND ENGINEERS SUPPORT

1. Ilker Yaylali, MD, Ph.D., Research Scientist, Now Associate Professor of Neurology, Oregon Health & Science University, Portland, Oregon
2. Jin Wang, Ph.D., Engineer with the CATE Center
3. Niovi Rojas, MS, Engineer with the CATE Center, Now Lab Manager and NSF-INCLUDES program coordinator
4. Juan Omar Perez, retired engineer
5. Jun Huang, MS, Engineer with the CATE Center, current position unknown
6. Jianan Wang, Engineer with the CATE Center, current position unknown

CONSULTANTS SUPPORTED through NSF Grants:

1. Prasanna Jayakar, MD, Ph.D., Nicklaus Children's Hospital, Miami, FL
2. William D. Gaillard, M.D., Children's National Medical Center, Washington D.C.
3. Ilker Yaylali, MD, Ph.D., Oregon Health and Science University, Portland OR
4. Ranjan Duara, MD. Wien Center for Alzheimer's Disease & Memory Disorders, Mount Sinai Medical Ctr.

5. David Loewenstein, Center on Aging, University of Miami
6. Alberto Pinzon Ardila, MD, Epilepsy Program, Baptist Hospital
7. David Vaillancourt, University of Florida

STUDENT SUPERVISION AS MAJOR ADVISOR

PH.D. GRADUATES (16 FEMALES AND 25 MALES)

1. Patricio Vidal Ph.D. Dissertation Title: **A Mathematical Resolution to Log Transformations and the Binning Effect in Applied Processing of Data in Flow Cytometry**, Department of Electrical and Computer Engineering, FIU. Outstanding Ph.D. graduate award, Spring 2003, College of Engineering
2. John Riley Ph.D. Dissertation Title: **Statistical Analysis and Optimal Classification of Blood Cell Populations Using Gaussian Distributions**, Department of Electrical and Computer Engineering, FIU, Spring 2003.
3. Cai Weiting Ph.D. Dissertation Title: **Shift Decomposition Method in Wavelet Domain Motion Estimation and Compensation for Video Compression**, Department of Electrical and Computer Engineering, FIU, Fall 2003.
4. Monica Dezulueta Ph.D. Dissertation Title: **Security Issues and Risk Modeling when Architecting a Healthcare System**, Department of Electrical and Computer Engineering, FIU. Fall 2004 Outstanding Ph.D. graduate award, Fall 2004, College of Engineering
5. Danmary Sanchez: Ph.D. Dissertation Title: **“Three-Dimensional Brain Fiber Tracking Modeling in Diffusion Tensor Imaging”**, Department of Electrical and Computer Engineering, FIU Graduated Spring 2006. Outstanding Ph.D. graduate award, Spring 2006, College of Engineering and Computing
6. Mercedes Cabrerizo Ph.D. Dissertation Title: **“Subdural EEG Analysis for Extracting Discriminating Measures in Epileptogenic Data”**, Department of Electrical and Computer Engineering, FIU, Summer 2006.
7. Ann Zong Ph.D. Dissertation Title: **“Multidimensional Pattern Recognition and Classification of White Blood Cells Using Support Vector Machine”**, Dept. of Electrical and Computer Engineering, FIU, Summer 2006.
8. Mourad Michel Ph.D. Dissertation Title: **“An Integrated Functional Mapping and Source Localization Platform for Brain Research”**, Department of Electrical and Computer Engineering, FIU, Spring 2007.
9. Anaelis Sesin Ph.D. Dissertation Title: **“A Multimodal and Adaptive Real-Time Human-Computer Interface for Persons with Severe Motor Disability”**, Department of Electrical and Computer Engineering, FIU, Spring 2007.
10. Lu Wang Ph.D. Dissertation Title: **“An Automated Book Reader Design as an Assistive Technology Tool for Persons with Blindness**, Department of Electrical and Computer Engineering, FIU, Fall 2007.
11. Maria Tito Ph.D. Dissertation Title: **“Seizure Detection in Subdural Recordings Using Nonlinear Decision Functions”**, Department of Electrical and Computer Engineering, FIU, Spring 2008.

12. Magno R. Guillen Ph.D. Dissertation Title: **Design and Implementation of a Multisite Data Repository for Pediatric Epilepsy**. Department of Electrical and Computer Engineering, FIU, Fall 2008.
13. Feng Gui Ph.D. Dissertation Title: “**Development Of A New Client-Server Architecture For Context Aware Mobile Computing**”, Department of Electrical and Computer Engineering, FIU, Spring 2009.
14. Melvin Ayala Ph.D. Dissertation Title: “**A Research Platform for Artificial Neural Networks with Applications in Pediatric Epilepsy**”, Department of Electrical and Computer Engineering, FIU. Outstanding Ph.D. graduate award, Fall 2009, College of Engineering and Computing
15. Xiaozhen You Ph.D. Dissertation Title: “**Principal Component Analysis and Assessment of Language Network Activation Patterns in Pediatric Epilepsy**”, Department of Biomedical Engineering, FIU. Outstanding Ph.D. graduate award, Spring 2010, College of Engineering and Computing
16. Yu Chen Ph.D. Dissertation Title: “**A Highly Efficient Biometrics Approach for Unconstrained Iris Segmentation and Recognition**”, Department of Electrical and Computer Engineering, FIU, Fall 2010.
17. Jin Wang Ph.D. Dissertation Title: “**An Incremental Multilinear System for Human Face Learning and Recognition**”, Department of Electrical and Computer Engineering, FIU , Fall 2010.
18. Mark Rossman Ph.D. Dissertation Title: “**Automated Detection of Hematological Abnormalities through Classification of Flow Cytometric Data Patterns**”, Department of Electrical and Computer Engineering, Spring 2011, FIU.
19. Mouncef Lahlou Ph.D. Dissertation Title: “**Color-Based Surface Reflectance Separation for Scene Illumination Estimation and Rendering**”, Department of Electrical and Computer Engineering, Spring 2011, FIU.
20. Changan Han Ph.D. Dissertation Title: “**Neural Network Based Off-line Handwritten Text Recognition System**”, Department of Electrical and Computer Engineering, Spring 2011, FIU.
- 21 Ana Guzman Ph.D. Dissertation Title: “**Thermal Imaging as a Biometrics Approach to Facial Signature Authentication**”, Department of Electrical and Computer Engineering, FIU, Fall 2011.
- 22 Mohammed Goryawala Ph.D. Dissertation Title: “**A Novel 3-D Segmentation Algorithm for Anatomic Liver and Tumor Volume Calculations for Cancer Treatment Planning**”, Department of Biomedical Engineering, Outstanding Ph.D. graduate award, Spring 2012, College of Engineering and Computing.
- 23 Javier Delgado Ph.D. Dissertation Title: “**Scheduling Medical Application Workloads on Virtualized Computing Systems**”, Department of Electrical and Computer Engineering, ECE department, FIU, Spring 2012.
24. Anas Salah Eddin Ph.D. Dissertation Title: “**Network Construction and Graph Theoretical Analysis of Functional Language Networks in Pediatric Epilepsy**”, Department of Electrical and Computer Engineering, ECE department, FIU, Fall 2013.

25. Paul McCall Ph.D. Dissertation Title: “Modeling, Simulation, and Characterization of Space Debris in Low-Earth Orbit”, Department of Electrical and Computer Engineering, ECE department, FIU. **Worlds Ahead Graduate, Acknowledged at FIU graduation Ceremony in Fall 2013.**
26. Krishna Vedala Ph.D. Dissertation Title: “A Novel Signal Processing Method for Intraoperative Neurophysiological Monitoring in Spinal Surgeries”, Department of Electrical and Computer Engineering, ECE department, FIU, **Worlds Ahead Graduate, Acknowledged at FIU graduation Ceremony in Spring 2014.**
27. Saman Sargolzaei Ph.D. Dissertation Title: “Intracranial Volume Estimation and Graph Theoretical Analysis of Brain Functional Connectivity Networks”, Department of Electrical and Computer Engineering, ECE department, FIU, Spring 2015. **Worlds Ahead Graduate, Acknowledged at FIU graduation Ceremony in Spring 2015.**
28. Qi Zhou Ph.D. Dissertation Title: “An Integrated Neuroimaging Approach for the Prediction and Analysis of Alzheimer’s Disease and Its Prodromal Stages”, Department of Electrical and Computer Engineering, ECE department, FIU, Summer 2015.
29. Zhenzhong Wang Ph.D. Dissertation Title : “System Design and Implementation of a Fast and Accurate Bio-Inspired Spiking Neural Network”, Department of Electrical and Computer Engineering, ECE department, FIU, Summer 2015.
30. Amin Motahari Ph.D. Dissertation Title : “A Novel Optical Design Configuration for Wireless Data Transmission”, Department of Electrical and Computer Engineering, ECE department, FIU, Spring 2016.
31. Lilin Guo Ph.D. Dissertation Title : “A Biologically Plausible Supervised Learning Method for Spiking Neurons with Real-world Applications”, Department of Electrical and Computer Engineering, ECE department, FIU, Fall 2016.
32. Luis Galarza Ph.D. Dissertation Title : “A Book Reader Design for Persons with Visual Impairment and Blindness”, Department of Electrical and Computer Engineering, ECE department, FIU, Fall 2017.
33. Xue Wang Ph.D. Dissertation Title : “An Integrated Multimodal Registration Technique for Medical Imaging”, Department of Electrical and Computer Engineering, ECE department, FIU, Fall 2017.
34. Chunfei Li Ph.D. Dissertation Title : “Multimodal Imaging for Enhanced Diagnosis and for Assessing Progression of Alzheimer’s Disease”, Department of Electrical and Computer Engineering, ECE department, FIU, Spring 2018. **Worlds Ahead Graduate, Acknowledged at FIU Graduation Ceremony in Spring 2018.**
35. Gabriel Lizarraga Ph.D. Dissertation Title : “A Neuroimaging Web Interface for Data Acquisition, Processing and Visualization of Multimodal Brain Images”, Department of Electrical and Computer Engineering, ECE department, FIU, Fall 2018.
36. Mehdi Mafi Ph.D. Dissertation Title : “Machine Learning and Image Processing for Noise Removal and Robust Edge Detection in the Presence of Mixed Noise”, Department of Electrical and Computer Engineering, ECE department, FIU, Fall 2019.
37. Chen Fang Ph.D. Dissertation Title : “Development of Gaussian Learning Algorithms for Early Detection of Alzheimer’s Disease”, Department of Electrical and Computer Engineering, ECE department, FIU, Spring 2020.

38. Parisa Forouzaneshad Ph.D. Dissertation Title : “A Multimodal Neuroimaging Approach for Classification and Prediction of Alzheimer’s Disease Using Machine Learning”, Department of Electrical and Computer Engineering, ECE department, FIU, Fall 2020.
39. Harold Martin Ph.D. Dissertation Title : “Development of a Realtime Single-Lead Single-Beat Frequency-Independent Myocardial Infarction Detector”, Department of Electrical and Computer Engineering, ECE department, FIU, Spring 2021.
40. Solale Tabarestany Ph.D. Dissertation Title : “Machine Learning for Enhanced Multiclass Classification and Prediction in Longitudinal and Cross-Sectional Studies of Alzheimer's Disease”, Department of Electrical and Computer Engineering, ECE department, FIU, Fall 2021.
41. Mary Aghily Ph.D. Dissertation Title : “Deep Learning for Multiclass Classification, Predictive Modeling and Segmentation of Disease Prone Regions in Alzheimer’s Disease”, School of Computing and Information Sciences, SCIS, FIU, Fall 2021.

Ph.D. Graduates (41) with Malek Adjouadi as Major Professor-- where are they?

1. Patricio Vidal*, Spring 2003, Sr. Staff Software Development Engineer, Beckman-Coulter.
2. John Riley, Spring 2003, Senior Manager, Beckman-Coulter, Miami FL.
3. Cai Weiting, Fall 2003, Engineer, Guangdong Nortel, China.
4. Monica Dezulueta* Fall 2004, Data Platform Architect, Microsoft, Miami/Fort Lauderdale area.
5. Danmary Sanchez*, Spring 2006, Asst. Prof, Miami-Dade College.
6. Mercedes Cabrerizo, Summer 2006, Ware Foundation, Assistant Professor, ECE Department, FIU)
7. Ann Zong, Summer 2006, Motorola, Chicago
8. Mourad Michel, Spring 2007 , Software Engineer II, Microsoft, Seattle Washington
9. Anaelis Sesin, Spring 2007, Project Manager, Florida Power and Light, Miami FL
10. Lu Wang, Fall 2007, Associate Professor in Computer Science, Director of MS in Big Data Analytics Program, School of Science, Technology & Engineering Management, St. Thomas University
11. Maria Tito, Spring 2008, Gables Engineering, Miami.
12. Magno R. Guillen Fall 2008, Radiology department, Miami Children’s Hospital, Miami, FL.
13. Feng Gui, Spring 2009, Senior Engineer at Lehman Center for Transportation Research.
14. Melvin Ayala*, Summer 2009, Senior Engineer at Beckman Coulter, Miami FL
15. Xiaozhen You*, Spring 2010, Assistant Professor, computational neuroscientist, Children's National Health System, Washington DC. Affiliated as Research Associate, Dept. of Psychology, Georgetown University
16. Jin Wang Fall 2010, now Engineer with a firm in China .
17. Yu Chen, Fall 2011, R&D Director, Perception and Cognition Division, Singapore.
18. Changan Han, Spring 2011, Senior Software Engineer at Amazon Web Services, Seattle Washington
19. Mouncef Lahlou, Spring 2011; Xsourcing, Pointe-Claire, QC Canada.
20. Mark Rossman, Spring 2011, Senior Engineer at Beckman Coulter.
21. Ana Guzman, Fall 2011, Associate Professor, Miami Dade College, Wolfson Campus.
22. Mohammed Goryawala*, Spring 2012, Research Assistant Professor, University of Miami, Miller School of Medicine, Coral Gables, FL.
23. Javier Delgado, Spring 2012, Senior Research Associate, NOAA’s Atlantic Oceanographic and Meteorological Lab, Miami, FL
24. Anas Salah Eddin, Fall 2013, Assistant Professor, California State Polytechnic University, Pomona, CA.
25. Paul McCall^v, Fall 2013, Engineer for the US Department of Defense in Reston, Virginia.

26. Krishna Vedala [‡], Spring 2014, Co-Founder & Chief Science Officer, Care Predict Inc., Davie, Florida
27. Saman Sargolzaei [‡], Spring 2015, Postdoctoral Scientist, UCLA Brain Injury Research Center, LA, CA
28. Qi Zhou, Summer 2015, Software Engineer at Uber, Sunnyvale, California.
29. Zhenzhong Wang, Summer 2015, Google, San Francisco, California
30. Amin Motahari, Spring 2016, Asst. research Scientist, Carver College of Medicine, University of Iowa
31. Lilin Guo, Fall 2016, Sr. Software Engineer at TransUnion, Boca Raton, FL
32. Luis Galarza, Fall 2017, Interim Dept. Associate Chair / Assistant Teaching Professor, ECE department, FIU.
33. Xue Wang, Fall 2017, Engineering Professional Intern at Walt Disney World
34. Chunfei Li [‡], Spring 2018 Research Scientist, Facebook, New York, New York
35. Gabriel Lizarraga, Fall 2018, Senior Data Architect, Loxia Technologies, Miramar, FL
36. Mehdi Mafi, Fall 2019, Postdoc at FIU
37. Chen Fang, Spring 2020, Postdoctoral Scientist with the Institute for System Biology (ISB), Seattle, Washington
38. Parisa Forouzaneshad, Fall 2020, University of Washington
39. Harold Martin ^{‡*}, Spring 2021, Northrup Grumman, Future Technical Leaders (FTLs) program
40. Mary Aghili, Fall 2021, Microsoft, San Francisco Bay Area, California, since Spring 2020.
41. Solale Tabarestani ^{‡*}, Amazon, Seattle, WA, Fall 2021

Ph.D. Graduates (2) with Dr. Mercedes Cabrerizo as Major Professor-- where are they?

1. Panuwat Janwattanapong, Ph.D. Fall 2018, Major Professor Mercedes Cabrerizo, Research Scientist at Facebook, Seattle, Washington
2. Hoda Rajaei, Ph.D. Fall 2018, Gabrieli Lab – Neuroscience Research Laboratory, MIT, Cambridge Massachusetts.

*** Outstanding Ph.D. Graduate Award (one per entire College of Engineering and Computing)**

‡ FIU World’s Ahead Graduate presented at the Graduation Ceremony

‡* Real Triumphs award, formerly known as FIU World’s Ahead presented at the Graduation Ceremony

Academia	Federal and Industry
California State Polytechnic University, Pomona	Amazon, Seattle Washington
Florida International University	Beckman-Coulter
Georgetown University	US Department of Defense
Miami-Dade College	Disney World, Engineering, Orlando, Florida
St. Thomas University	Florida Power and Light, Miami Fl
University of Iowa	Facebook, New York
University of Miami	Google, San Francisco, CA
Massachusetts Institute of Technology-MIT	Microsoft, San Francisco Bay Area, California
University of Washington	Motorola
University of Tennessee at Martin	National Oceanic and Atmospheric Administration
University of California, Los Angeles- UCLA	Nicklaus Children Hospital, Miami, Florida
	Guangdong Nortel, China
	TransUnion
	Yahoo
	Uber

	Loxia Technologies, Florida
	Perception and Cognition Division, Singapore
	Institute for System Biology (ISB), Seattle, Washington
	Northrup Grumman, Homestead, Florida

Ph.D. STUDENTS –CURRENTLY SUPPORTED BY THE CATE CENTER

- | | |
|----------------------------------------------|----------------------------------------------------------------|
| 1. Mary Aghili, Ph.D. Candidate, SCIS | 10. Elaheh Zarafsan, Ph.D. Student, ECE |
| 2. Parisa Forouzaneshad, Graduated Fall 2020 | 11. Micheal Adeyosoye, Ph.D. student, ECE, McKnight fellowship |
| 3. Harold Martin, Graduated Spring 2021 | 12. Ahmed Hossam M.A. Mohammed |
| 4. Christian Freytes, Ph.D. Student, ECE | 13. Luana Okino Sawada, SCIS |
| 5. Ulyana Williams, Ph.D. Student, ECE | 14. Mahmoud Sharafa (new recruit-Fall 2020) |
| 6. Robin Mayrand, Ph.D. Student, ECE | 15. Josue Rodriguez-Nieves, ECE Bridge to Doctorate |
| 7. Mehdi Shojaie, ECE | 16. Marcos Bosquez-Perez, ECE Bridge to Doctorate |
| 8. Walter Izquierdo, Ph.D. Candidate ECE | 17. Thony Yan, new recruit, SCIS |
| 9. Solale Tabarestani, Ph.D. Candidate, ECE | |

SCIS: SCHOOL OF COMPUTING AND INFORMATION SCIENCES;
ECE: ELECTRICAL AND COMPUTER ENGINEERING

OTHER PH.D STUDENTS PARTIALLY SUPPORTED BY THE CATE CENTER

- Habibie Sumargo, Major Professor Jean Andrian
- Irma Becerra-Fernandez, our first female Ph.D. graduate, former Provost at St. Thomas University, Miami Gardens, Florida. Major Professor: Dr. Wunnava Subbarao, ECE department. Now president of Marymount University in Arlington, Virginia.
- Irene Polycarpou, Now Head of the School of Sciences and Associate Professor, UCLan Cyprus. Major Professor: Ana Pasztor, SCIS. Now Professor of Technology and Innovation in Education and Head, School of Sciences, University of Central Lancashire, The British University of Cyprus, Cyprus.

DISSERTATION COMMITTEE MEMBER

From the ECE department (23)

- | | | | |
|----------------------|--------------|-------------------------------|-----------------|
| 1. Fuat Uler | - Ph.D. 1994 | 14. Hoda Rajaei | - Ph.D. 2018 |
| 2. Navarun Gupta | - Ph.D. 2003 | 15. Sudarat Tangnimitchok | - Ph.D. 2019 |
| 3. Jing Zhai | - Ph.D. 2006 | 16. Aditya Sundararajan | - Ph.D. 2019 |
| 4. Chao Li | - Ph.D. 2006 | 17. Longfei Wei | - Ph.D. 2018 |
| 5. Craig Chin | - Ph.D. 2006 | 18. Nonnarit O-Larnnithipong | - Ph.D. 2018 |
| 6. Miguel Alonso | - Ph.D. 2007 | 19. Panuwat Janwattanapong | - Ph.D. 2018 |
| 7. Huang Huang | - Ph.D. 2012 | 20. Neeranut Ratchatanantakit | - Ph.D. 2019 |
| 8. Lichen Weng | - Ph.D. 2012 | 21. Khalid Asadullah | - Ph.D. 2022 |
| 9. Jian Huang | - Ph.D. 2013 | 22. Sweta Gupta | - Ph.D. student |
| 10. Jonathan Cofino | - Ph.D. 2014 | 23. Srikanth Namuduri | - Ph.D. student |
| 11. Fatemeh Abyarjoo | - Ph.D. 2015 | | |
| 12. Xiaokun Yang | - Ph.D. 2016 | | |
| 13. Zhe Geng | - Ph.D. 2018 | | |

From the School of Computing and Information Sciences (22)

- | | | | |
|-----------------------|--------------|-----------------------|--------------|
| 1. Scott C. Graham | - Ph.D. 2004 | 7. Weixiang Sun | - Ph.D. 2008 |
| 2. Li Yang | - Ph.D. 2005 | 8. Irene Polycarpou | - Ph.D. 2008 |
| 3. Mario Sanchez | - Ph.D. 2005 | 9. Lily Chang | - Ph.D. 2011 |
| 4. Andriy Selivonenko | - Ph.D. 2005 | 10. Zhengguo Sun | - Ph.D. 2011 |
| 5. Shu Gao | - Ph.D. 2005 | 11. Arial Cary | - Ph.D. 2011 |
| 6. Onyeka Ezenwoye | - Ph.D. 2007 | 12. Jaime Ballesteros | - Ph.D. 2013 |

- | | | | |
|--------------------------|-------------------|-----------------------|--------------------|
| 13. Juan Carlos Martinez | - Ph.D. 2013 | 18. Juan Wang | - Ph.D. Candidate |
| 14. Jian Huang | - Ph.D. 2013 | 19. Victor Potapenko | - Ph. D. Candidate |
| 15. Mershack Okoe | - Ph.D. 2016 | 21. Srikanth Namuduri | - Ph.D. Candidate |
| 16. Liangdong Deng | - Ph. D. 2020 | 22. Farzana Yusuf | - Ph.D. Candidate |
| 17. Yun Lu | - Ph.D. Candidate | | |

From the BME department (11)

- | | | | |
|------------------|--------------|------------------------|-------------------|
| 1. Jiajia Ge | - Ph.D. 2008 | 7. Senait Debebe | - Ph.D. 2017 |
| 2. Ruchir Bhatt | - Ph.D. 2012 | 8. Chue-Sang Joseph J. | - Ph.D. 2019 |
| 3. Nitin Yadav | - Ph.D. 2012 | 9. Xiang Kong | - Ph.D. student |
| 4. Peng Ren | - Ph.D. 2013 | 10. Susan Stoff | - Ph.D. Candidate |
| 5. Jaimit Parikh | - Ph.D. 2015 | 11. Asad Mirza | - Ph.D. student |
| 6. Yinchen Song | - Ph.D. 2015 | | |

From the College of Art, Sciences, and Education (CASE), Department of Earth and Environment (1)

1. Boya Zhang, Ph.D. Candidate

MS THESIS SUPERVISION (51 WITH 18 FEMALES AND 33 MALES))

1. Habibie Sumargo MS Thesis: **Orthogonal Transformations and Their Application to Image Features Understanding**. Department of Electrical and Computer Engineering, FIU, September 1994.
2. Frank Candocia MS Thesis: **A New Stereo Matching Paradigm for the Recovery of the Third Dimension in Two-Dimensional Images**". Department of Electrical and Computer Engineering, FIU, September 1994.
3. John Riley MS Thesis: **Multi-resolution Analysis and Its Application to Enhanced Image Understanding**. Department of Electrical and Computer Engineering, FIU, September 1994.
4. Carlos Reyes MS Thesis: **Directional Clustering Techniques for Random Data Classification**. Department of Electrical and Computer Engineering, FIU, September 1995.
5. Patricio Vidal MS Thesis: **Estimation of 3-D Structure of Scenes Using Optical Flow and Stereo Vision**. Supervision at Simon Bolivar University, Venezuela by Prof. German Gonzalez (Major Professor). Supervision at FIU Department of Electrical and Computer Engineering, by Malek Adjouadi. January 1996.
6. Noemi Fernandez MS Thesis: **Statistical Information Processing for Data Classification** Department of Electrical and Computer Engineering, FIU, September 1996.
7. Sonia Duranza MS Thesis: **Three-Dimensional Image Analysis using Confocal Microscopy**, Department of Electrical and Computer Engineering, FIU, May 1998.
8. Ana Maria Rodriguez MS Thesis: **Modular Design for Test Reuse Strategy for Automotive Micro-controllers Integrating Hardware and Software Designs**, Department of Electrical and Computer Engineering, FIU, April 1999.
9. Christophe Godefroy MS Thesis: **Hardware-Software Integration for Particle Light Scatter Imaging**, Department of Electrical and Computer Engineering, FIU, June 1999.
10. Julio Blandon MS Thesis: **A Novel Lossless Compression Technique for Text Data**, Department of Electrical and Computer Engineering, FIU, November 1999.
11. Alison Valdivieso MS Thesis: **Statistical Analysis of Parametric Signatures for Data Classification in Flow Cytometry**, Department of Electrical and Computer Engineering, FIU, September 1999.

12. Danmary Sanchez MS Thesis: **EEG Analysis Using the ESI-256 Machine Focusing on the Detection of Interictal Spikes**, Department of Electrical and Computer Engineering, FIU, May 1998.
13. Erika Suarez MS Project: **An Approach to Understanding EEG Activities Using Visual Stimuli With The ESI-256 Machine**, Department of Electrical and Computer Engineering, FIU, April 1999.
14. Daniela Viegas MS Thesis: **Electronic Pulse Design for Neural Stimulation**. Department of Electrical and Computer Engineering, FIU, June 1999.
15. Wei Yao MS Thesis: **Dynamic Studies in Hematology for 2-dimensional and 3-dimensional Data Analysis**, Department of Electrical and Computer Engineering, FIU, December 2001.
16. Mark Rossman MS Thesis: **Using Single Photon Emission Computed Tomography Brain Images to Localize epileptic foci**, Department of Electrical and Computer Engineering, FIU, October 2002.
17. Manuel Docurro MS Thesis: **Three-Dimensional Autostereoscopic Imaging by Computer Based Holography Techniques**. Department of Electrical and Computer Engineering, FIU, March 2003.
18. Mercedes Cabrerizo MS Thesis: **A Topographic Methodology to Interpret Activity Changes In The Human Brain as a Function of an Auditory- Comprehension Process**. Department of Electrical and Computer Engineering, FIU, July 2003.
19. Natasha Mirkovic MS Thesis: **3-D Source Localization of Epileptic Foci Integrating EEG and MRI Modalities**. Department of Electrical and Computer Engineering, FIU, February 2003.
20. Nuannuan Zong MS Thesis: **Multidimensional Pattern Recognition and Classification of White Blood Cells Using Support Vector Machines**. Department of Electrical and Computer Engineering, FIU, July 2003.
21. Craig Mackay MS Project: **Real-Time Motion Tracking of Objects in a Human-Computer Interface**. Department of Electrical and Computer Engineering, FIU, August 2003.
22. Kirenia Nunez MS Thesis: **Analysis of EEG Signals in Time Domain for the Understanding of Auditory and Comprehension Activities**. Department of Electrical and Computer Engineering, FIU, July 2003.
23. Maria Tito MS Project: **Parametric Analysis for Key Observations in Seizure Prediction**, Department of Electrical and Computer Engineering, FIU, May 2004.
24. Anaelis Sesin MS Project: **Jitter Reduction in Eye-Gaze Tracking System and Conception of Metric for Performance Evaluation**. Department of Electrical and Computer Engineering, FIU, May 2004.
25. Michel Mourad MS Project: **3-D Integration of Optical Topographic Maps to Anatomical Magnetic Resonance Imaging**. Dept. of Electrical and Computer Engineering, FIU, Spring 2004.
25. David Corrales MS Project: **The ANNimals: An Artificial Neural Networks Creature**. Department of Electrical and Computer Engineering, FIU, Spring 2004
27. Dalila Landestoy MS Project: **A Voice-Controlled Human-Computer Interface to Help People with Motor Disability**. Department of Electrical and Computer Engineering, FIU. Spring 2005.
28. Sriman Lingala MS Project: **A Morphological Approach for Medical Image Segmentation with Prior Knowledge based Watersheds**. Department of Electrical and Computer Engineering, FIU. Spring 2005.
29. Andres Herrera MS Thesis: **An Integrated Design for a Myoelectrically-Based Writing Module For a Controlled Prosthesis**. Department of Electrical and Computer Engineering, FIU. Spring 2005.

30. Ana Guzman MS Project: **An Integrated Hardware Design for 3-D Holography**. Department of Electrical and Computer Engineering, FIU, Spring 2006.
31. Celso Duran MS Project: **High Definition Video Display Calibration System Using FPGA**, Department of Electrical and Computer Engineering, FIU, Spring 2006.
32. Mouncef Lahlou MS Project: **MEDIAR: An Online Web-Based Repository site of fMRI Medical Images and clinical data for Childhood Epilepsy**. Department of Electrical and Computer Engineering, FIU, Spring 2006.
33. Alejandro Simon MS Project: **A .NET Solution for Distributed Computing Applications**. Department of Electrical and Computer Engineering, FIU, Summer 2006.
34. Eddy Ruiz MS Project: **A Neural Network Approach for Text Recognition in Automated Book Reader Design**. Department of Electrical and Computer Engineering, FIU, Fall 2006.
35. Javier Delgado MS Thesis: **A Grid Computing Platform for Enhanced Data management and Visualization**. Department of Electrical and Computer Engineering, FIU, Spring 2007.
36. Mathew Whittington MS Thesis: **Design of a Portable Eye Tracking System as an Assistive Technology Tool for Persons with Motor Disabilities**. Department of Biomedical Engineering, FIU, Spring 2007.
37. Daniel Sanchez MS Project: **A Web-Based Application for Data Mining Experimentation On Neurological Datasets**”, Department of Electrical and Computer Engineering, FIU, Spring 2007.
38. Zhicong Huang MS Thesis: **Design and Development of a Testing Mechanism for Quality Assurance in Cyberknife Beam Geometry**. Department of Biomedical Engineering, FIU, Fall 2007.
39. Adrian J. Marrero MS Project: **Implementation and Revitalization of a Data Mining Utility in medical Applications**”, Department of Electrical and Computer Engineering, FIU, Fall 2007.
40. Rahat Khan MS Project: **Converting RS232 to Control Area Network for modern automotive industries, along with its applications and advantages for error-free diagnosis**”, Department of Electrical and Computer Engineering, FIU. Fall 2007.
41. Nydia Ruiz MS Project: **Wavelet Applications in EEG-based Brain Data**, Department of Electrical and Computer Engineering, FIU, Fall 2007.
42. Raj Prakash MS Project: “Image Processing application in a Boeing Project”, Department of Electrical and Computer Engineering, FIU, Fall 2008.
43. Anas Salah Eddin MS Thesis: “**Text Entry Using Language Modeling With Eye Tracking as an Assistive Tool for Persons with Motor Disability**”, Department of Biomedical Engineering, FIU, Spring 2009. **Outstanding MS graduate award, Spring 2009, College of Engineering and Computing**
44. Paul McCall MS Project: “Automated Seizure Detection Using High-Frequency Spectral Power Analysis and Wavelets”, Department of Electrical and Computer Engineering, FIU, Spring 2010.
45. Angel Martir MS Project: “**A Hybrid Filtering Approach to Balancing a Multi-Rotor Aerial Vehicle**”, Department of Electrical and Computer Engineering, FIU, Spring 2011.
46. Kristian Diaz. MS Project: “**Chord Recognition from Audio using Chroma Features and Hidden Markov Models**”, Department of Electrical and Computer Engineering, FIU, Spring 2011.
47. Emil R. Cobarrubia MS Project: “**Developing Electronic Medical Records Software in C# for Microsoft Windows 8 and Windows RT**”, Department of Electrical and Computer Engineering, FIU, Fall 2013.
48. Ke Wu MS Project: “**Feature-based Face Detection**”, Department of Electrical and Computer Engineering, FIU, Spring 2014.

49. Apurva Vedak MS Project: “**Abnormal Structural Connectivity in Early and Late Mild Cognitive Impairment and Alzheimer’s Disease**”, Department of Biomedical Engineering, FIU, Spring 2014.
50. Jiao Qianqian MS Project: “**Study and Implementation of Scene Text Recognition System**”, Department of Electrical and Computer Engineering, FIU, Spring 2014.
51. Jorge Carballo Nonthesis option, Department of Electrical and Computer Engineering, FIU, Spring 2016.

OTHER MS STUDENTS PARTIALLY SUPPORTED FINANCIALLY BY THE CATE CENTER

- | | | | |
|---------------------|----------------|---------------------|----------------|
| 1. Carol Levey | - MS Graduated | 6. Margaret Dabdoub | - MS Graduated |
| 2. Anthony Figueras | - MS Graduated | 7. Annette Taberner | - MS Graduated |
| 3. Andrian Delboca | - MS Graduated | 8. Linda Curtin | - MS Graduated |
| 4. Joisil Bertheau | - MS Graduated | 9. Elise Jakubzick | - MS Graduated |
| 5. Miguel Rosario | - MS Graduated | 10. Marcos Zini | - MS Graduated |

(A) THESIS COMMITTEE ECE department

- | | | | |
|------------------------|----------------|----------------------|----------------|
| 1. Fernando Gonzalez | - MS Graduated | 9. Chritz Duncan | - MS Graduated |
| 2. Kent Wreder | - MS Graduated | 10. Maroof Choudhury | - MS Graduated |
| 3. Anthony L. Figueras | - MS Graduated | 11. Ovidio Alfanso | - MS Graduated |
| 4. Issam J. Dagher | - MS Graduated | 12. PeterJohn Hugh | - MS Graduated |
| 5. David Lopez | - MS Graduated | 13. Euton Lyons | - MS Graduated |
| 6. Nicholas Chin | - MS Graduated | 14. Miguel Alonzo | - MS Graduated |
| 7. Miguel Rosario | - MS Graduated | 15. Colin Sullivan | - MS Graduated |
| 8. Christopher Edmonds | - MS Graduated | 16. Frederic Angus | - MS Graduated |

(C) THESIS COMMITTEE BME department

- | | | | |
|--------------------|----------------|-------------------------|----------------|
| 1. Shane Smoleny | - MS Graduated | 7. Niravkumar Patel | - MS Graduated |
| 2. Ruta Kankar | - MS Graduated | 8. Bhavani Jayachandran | - MS Graduated |
| 3. Niraj Verma | - MS Graduated | 9. Jiali Wang | - MS Graduated |
| 4. Wayne Benjamin | - MS Graduated | 10. Mohammed Goryawala | - MS Graduated |
| 5. Sulohita Vadadi | - MS Graduated | 11. Alejandro Fernandez | - MS Graduated |
| 6. Human Arjomandi | - MS Graduated | | |

UNDERGRADUATE STUDENTS SUPPORT

The CATE Center has provided the following undergraduate student support that is made possible through:

- NSF-MII PROGRAM: National Science Foundation- Infrastructure Program
- NSF-REU PROGRAM: National Science Foundation – Research Experience for Undergraduates
- ONR-EDUCATIONAL PROGRAM: Office of Naval Research- Educational Program
- NSF-ARRA Grant

Female Students (41)

- | | | |
|-------------------------|----------------------|------------------------|
| 1. Noemi Fernandez | 9. Linda Curtin | 17. Danmary Sanchez |
| 2. Yudit Fernandez | 10. Annette Taberner | 18. Tarla Toomer |
| 3. Marijke Hallo DeWolf | 11. Paula Guthrie | 19. Christine Bedia |
| 4. Meika Webster | 12. Elise Jakubzick | 20. Claudia Rodriguez |
| 5. Maybelline Rivas | 13. Geydi Lorenzo | 21. Luz Camacho |
| 6. Luu Phuong | 14. Susan Danner | 22. Kirinia Nunez |
| 7. Erika Suarez | 15. Nydia Ruiz | 23. Lisa Demetrius |
| 8. Sonia Duranza | 16. Maria Estrada | 24. Mercedes Cabrerizo |

- | | | |
|-----------------------|-----------------------|-----------------------|
| 25. Anaelis Sesin | 31. Karen Santiago | 37. Juliana Smith |
| 26. Erika Carmenteros | 32. Yania Arencibia | 38. Laura Perea |
| 27. Dalila Landestoy | 33. Cintia Celi | 39. Krystine Pimental |
| 28. Grettel Frias | 34. Melissa Fernandez | 40. Luz Camparan |
| 29. Maria Tito | 35. Aisha Moheidin | 41. Alexis Jefferson |
| 30. Suzie Diaz | 36. Li Jiewen | |

Male Students (53)

- | | | |
|------------------------|--------------------------|------------------------|
| 1. Orifrio Sanchez | 19. Helton Lopez | 37. Charles Suero |
| 2. Alejandro Simon | 20. Michel Martinez | 38. Andres Herrera |
| 3. Marco Midon | 21. Eduardo Caballero | 39. Elpidio Dominguez |
| 4. Richard Lopez | 22. Luis Arencibia | 40. Juan Agudelo |
| 5. Franklin Adams | 23. Yusmaykel Valdes | 41. Daniel Sanchez |
| 6. Timon Williams | 24. Walter Tisher | 42. Jean Flores |
| 7. Jorge Castellano | 25. Joseph Elmer | 43. Alejandro Reyes |
| 8. Dorian Hernandez | 26. Gary Charles | 44. Jean Cherry |
| 9. Marlin Brinson | 27. Daniel Rodriguez | 45. Roger Laurence III |
| 10. Philip Brown | 28. Leonardo Letourneaut | 46. Juan Medina |
| 11. Jesus Lebena | 29. Christian Cousinet | 47. Jonathan Reyes |
| 12. Ralph Buigas | 30. Pedro Pena | 48. Alejandro Loreta |
| 13. Kerlin Quintyn | 31. David Salinas | 49. Jaime Badui |
| 14. Celso Duran | 32. Johan Sosa | 50. Clifford Mathelier |
| 15. Robert Hazbun | 33. Bryan Daniel | 51. Junior Pampin |
| 16. Alexis Bussiere | 34. Gabriel Novo | 52. Carlos Diaz |
| 17. Michael Maximilien | 35. Alberto De la Serna | 53. Diaron Acosta |
| 18. Herbert Reddick | 36. Ricardo Valdes | |

New Undergraduates recruited this year supervised by Dr. Cabrerizo:

54. Diana Pineda, PID: 6223224, Computer Engineer (senior student, spring 2021)
 55. Daniel Condly, PID: 6227478, Computer Science, (senior student)

For a total of 96 Undergraduates

TEACHING

a. Curriculum Development Activities

Courses Established

EEL 5820: Digital Image Processing
 EEL 6821: Computer Vision

EEL 6816: Electronic Neural Systems
 EEL 6836: Computer Visualization of Brain
 Electrical Activities

Course Enhancement

EEL 4746: Microcomputer I – enhanced from the 8085 (16-bit Microprocessor) to the 80386-DX and 80486 32-bit Microprocessor with a complete new set of laboratory experiments

b. Courses taught at FIU

EEL 2880: Engr. Software Techniques
 EEL 3712: Logic Design

EEL 4502: Introduction to Digital Signal
 Processing

EEL 4709: Computer Design
EEL 4746: Microcomputer I
EEL 5719: Digital Filters
EEL 5820: Digital Image Processing
EEL 6816: Electronic Neural Systems
EEL 6821: Computer Vision

EEL 6993: Neural Systems
EEL 6994: Hardware/Software Integration in
Engineering Design
EEL 6836: Computer Visualization of Brain
electrical Activities

OTHER SUPERVISORY COURSES

EEL 4011: Senior Design II
BME 4931: Special Topics/Project
EEL 6905: Individual Work
BME 6905: Independent studies
BME 6910: Supervised Research
EEL 6916: Graduate Project
BME 6970: Master's Thesis

EEL 6971: Master's Thesis
EEL 6996: Industry Internship (Summer
Program Only)
EEL 7910: Advanced Research
EEL 7980: Ph.D. Dissertation

RESEARCH COLLABORATIONS ESTABLISHED

The following are strong, longstanding and ongoing Research Collaborations that have been established. All IRB protocols and memorandum of understandings have been approved.

1. Mount Sinai Medical Center, Wien Center for Alzheimer's Disease and Memory Disorders.

Our long-standing collaboration with the Wien Center for Alzheimer's Disease and Memory Disorders at the Mount Sinai Medical Center (MSMC) continues to thrive through major joint publications and proposals. Our work is of broad scope but with a clear mission of integrating neuroimaging (PET and MRI scans), cognitive tests, and standardized uptake value ratio (SUVR) as means to quantify the Amyloid Beta (ABETA) burden, all to define the disease state and severity. We are currently collaborating on developing new machine learning algorithms and visualization mechanisms that help with diagnosis and prognosis in both cross-sectional and longitudinal studies.

2. Baptist Hospital

In our collaboration with Baptist Hospital, we continue to help perform 3D source localization of epileptic seizures in adults. We currently focused on repetitive transcranial magnetic stimulation (rTMS) for brain stimulation on patients with epilepsy. IRB protocols have been approved for this research work with the intent to reduce the frequency of occurrence of seizures in patients with recurrent epileptic seizures. We have also started a new collaboration with the new leadership at the Miami Neuroscience Institute to work on mental health including depression and Obsessive compulsive disorder (OCD).

3. University of Florida, The 1Florida Alzheimer's Disease Research Center

Our collaboration with the University of Florida is through our partnership with the 1Florida Alzheimer's Disease Research Center (1Florida-ADRC), a premier research center on Alzheimer's disease. Together with Mount Sinai Medical Center, a strong partner to the 1Florida ADRC, the CATE center has been involved in developing a web interface for data entry, data processing and data mining shared across all institutions that are part of this major research center. We are currently looking into new machine learning algorithms for prediction and classification of AD. We are so fortunate this past year to have received a \$15M NIH grant that was awarded to our consortium of academic and medical institutions that include (UF as lead, Mount Sinai Medical Center, FIU, UM, and FAU) as the National Institutes of Health's National Institute on Aging: NIH P30 AWD00000010303 --The 1Florida Alzheimer's Disease Research Center.

4. University of Miami, Center for Cognitive Neuroscience and Aging

Our collaboration focuses on integrating new Neuropsychological testing with neuroimaging (PET, MRI, Tau and DTI) for the detection of the earliest stage of Alzheimer's disease (AD). We are attempting to identify the most effective biomarkers to study the progression of Alzheimer's disease in conjunction with the cognitive test scores. This work is conducted with the help of the Wien Center for Alzheimer's Disease and Memory Disorders at Mount Sinai Medical Center (MSMC) and the 1Florida Alzheimer's Disease Research Center (ADRC) led by the University of Florida (UF) in partnership with MSMC.

5. Nicklaus Children's Hospital, Brain Institute

Our collaboration with Nicklaus Children's Hospital continues to involve the development of more precise algorithms for 3D source localization of seizure onsets. The focus is now placed on brain connectivity networks using electroencephalography (EEG), magnetic resonance imaging (MRI) and functional MRI, all in context of the computed 3D source. This is an added approach to the EEG-triggered fMRI approach for validating the 3D source. Three of our Ph.D. students are currently serving as research interns with the Brain Institute at NCH.

6. Oregon Health Sciences University, Portland Oregon

OHSU and FIU continue to collaborate on strengthening our understanding of signals generated by the nervous system in response to sensory stimuli, as a critical step for intra-operative monitoring during spine surgery that place parts of the somatosensory pathways at risk. Our work enhances the clinical application and the process of diagnosis in intra-operative neurophysiological monitoring (IONM). In the last two years we have focused on new 3D source localization methods using high definition EEG and MRI and stereo EEG (SEEG).

7. Children's National Medical Center, Washington D.C.

Our collaboration with Children's National Medical Center (CNMC) in Washington D.C. continues to focus on consolidating multicenter collaborative studies for enabling the systematic examination of large numbers of patients in pediatric epilepsy. The efforts extend to integrating electroencephalography (EEG) with functional MRI (fMRI) and brain connectivity studies. This collaboration also includes brain connectivity studies to assess the effects of the 3D source of an epilepsy on the connection links and strength between the different electrodes in relation to their positioning with respect to the 3D source.

8. Computing Alliance of Hispanic Serving Institutions (CAHSI)

The Computing Alliance of Hispanic Serving Institutions (CAHSI) is formed by founding members like UTEP, FIU, UPRM, NMSU, UHD, Texas A&M Corpus Christy, and California State University, Dominguez Hills. Since then several other institutions have joined the Alliance. This Alliance seeks educational initiatives and strategies to enhance recruitment and advancement of Hispanics through graduate school and onto the professorate. Dr. Adjouadi is a founding Member of the Alliance and continues to help with funded grants like the NSF-Broadening Participation in Computing (BPC) program and the NSF- Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (INCLUDES).

9. Herbert Wertheim College of Medicine, Department of Psychiatry & Behavioral Health

In collaboration with the Department of Psychiatry & Behavioral Health (Dr. Daniel Castellanos), we are in the process of getting back to our approved IRB to perform rTMS (repetitive Transcranial Magnetic Stimulation) on patients with depression. The Covid-19 situation prevented us from getting a lot of work done last year, but we are ready to move on with this important work.