Cherif Aissi, D.Sc.

US Citizen

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EDUCATION:

D.Sc. Electrical Engineering	George Washington University, Washington, D.C. 1988. **Major:** Systems, Control and Networks (GPA 3.82) **Minor:** Computer Science
M.S. Electrical Engineering	George Washington University, Washington, D.C. 1983. **Major:** Systems, Control and Networks (GPA 3.92) **Minor:** Computer Science
DES (B.S.) Electronics	University of Science & Technology, Algiers, Algeria, 1980. **Major:** Electronics **Minor:** Physics

PROFESSIONAL EXPERIENCE:

Academic Experience:

2006-Present Professor (Tenured), College of Engineering, Department of Industrial Technology, Coordinator of the Electronics Program, University of Louisiana at Lafayette, Lafayette, Louisiana.
Teaching courses in the areas of electronics, electronics laboratory, digital systems, microprocessors, introduction to technology, and computer networking. Supervising graduate students. Current research interest is in VLSI, analysis of nonlinear systems and design of chaotic circuits and their applications. Other responsibilities include administrative tasks such as curriculum development, student's recruitment and advising, and service to the university and community.

1999-2006 Slemco Endowed Professor in Engineering College of Engineering, Department of Industrial Technology, University of Louisiana at Lafayette, Lafayette, Louisiana.

1996-2005 Associate Professor (Tenured), College of Engineering, Department of Industrial Technology, University of Louisiana at Lafayette, Lafayette, Louisiana.

1988-1995 Assistant Professor, Department of Electrical Engineering, Howard University, Washington, DC.
Lectured undergraduate and graduate courses in the following areas of digital systems, computer engineering hardware design, digital electronics, digital signal processing, microelectronic engineering, electronics laboratory and introduction to VLSI. Developed a course and a laboratory in the area of

VLSI. Supervised graduate students. Conducted research in the areas of VLSI design and testing, and neural networks applications. Other responsibilities include students advising recruitment, and mentoring.

1983-1988 Graduate Teaching/Research Assistant, Department of Electrical Engineering, George Washington University, Washington, DC.
Lectured undergraduate and graduate courses in linear network analysis, signal and systems, network synthesis, control systems and advanced network analysis. Contributed to the development of a laboratory in the area of control systems. Conducted research in the area of testability measures for VLSI circuits, fault detection and diagnosis.

Industrial Experience:

1996-2008 Research Scientist Consultant, Applied Chaos Technology, Arlington, Virginia. Responsibilities include research and development of chaotic circuits and their applications.

1991-1994 Research Scientist, Comserc, Washington, D.C., Conducted a study to compare the performance of several neural network paradigms.

1987-1988 Personal Computer Engineer, Levintech, Washington, D.C.
Responsible for design and development of computer software training modules and set up computer network systems for several clients.

FUNDED RESEARCH PROPOSALS:

Authored several successful proposals as PI, Co-PI and investigator to obtain equipment from corporations for the development of new laboratories and to conduct research and support graduate students.

- Principal Investigator, "Enhancement of the Integrated Systems Technology Laboratory," STEP grant, May 2017- May 2018, $33,649. The main objective of this proposal is to enhance the integrated system Laboratory for teaching and research.

- Principal Investigator, "Enhancement of the Integrated Systems Technology Laboratory," STEP grant, May 2013- May2014, $12,957. The main objective of this proposal is to enhance the integrated system Laboratory for teaching and research

- Principal Investigator, "Enhancement of the Microprocessor control system Technology laboratory," STEP grant June 2011-June 2012, $14,306. The main objective of this proposal is to enhance the microprocessor control system Laboratory for teaching and research.

- Principal Investigator, "An Interdisciplinary Instrumentation and Measurement Laboratory for Undergraduate Instruction and Research," Board of Regents Support Fund (BORSF)

Enhancement Program, June 2006 –June 2009, $86,045. The main objective of this proposal is to develop a new Instrumentation and Measurement Laboratory for teaching and research.

- Co-Principal Investigator, "Development of a shock sub with controllable damping to reduce bit failure in oil and gas drilling," Board of Regents Support Fund (BORSF) R&D, Industrial Ties Subprogram Program, June 2004 –June 2008, $180,000. The main objective is to design a special type of a shock absorber controller to limit vibrations to reduce bit failure during drilling.

- Principal Investigator, "An Online Advanced Electronics Course "ITEC 320," Office of research and faculty development, UL Lafayette Summer Research Award, $5,100, summer 2003. This research involves the development of an online advanced electronics course.

- Principal Investigator, "Secure Communication Using Impulsive Synchronization of Chaotic Circuits," Board of Regents Support Fund (BORSF) R&D, Research Competitiveness Subprogram Program, June 1999 –June 2002, $55,176. The main objective of this proposal is to study the use of chaotic circuits to encrypt and decrypt the information signal using impulsive synchronization.

- Principal Investigator, "A local Area Network Design Lab for Research and Instruction," Board of Regents Support Fund (BORSF) Enhancement Program, June 2000 –June 2001, $18,000. The main objective of this proposal is to enhance the computer networking lab.

- Principal Investigator, "Microprocessor-based Control applications Laboratory for Industrial Technology Research and Instruction," Louisiana Education Quality Support Fund (LEQSF) Enhancement Program, June 1998 –June 1999, $35,332. The main objective of this proposal is to enhance the microprocessor lab in industrial technology and develop a new course in the area of fuzzy logic applications.

- Principal Investigator, "Fault Diagnosis in Digital Systems Using Neural Networks," Louisiana Space Consortium (LaSPACE), June 1998-June 1999, $10,982. The primary objective of this research is to investigate the use of the back-propagation neural network paradigm to detect and locate physical faults in digital systems.

- Principal Investigator, "Application of Linear Reset Chaotic Systems in Secure Communications," Office of research and faculty development, UL Lafayette Summer Research Award, $4,200, summer 1998. This research involves the development of a chaotic transmitter and a synchronized receiver as a means to improve security in communication.

- Principal Investigator, "Microsoft Instructional Lab Grant," Microsoft Inc., June 1997-May 1998, $34,900. This grant was renewed for another year to continue the work we started previously.

- Principal Investigator, "Microsoft Instructional Lab Grant," Microsoft Inc., June 1996-May 1997, $34,900. The main objective of this grant is to continue use Microsoft Excel to solve scientific problems and the area of analysis and design of electronic circuits.

- Principal Investigator, "Design Methodology for Systems with Chaotic Behavior," Office of research and faculty development, UL Lafayette Summer Research Award, $4,200, summer 1997. In this research, new chaotic systems were designed. Their application in the area of secure communication is under investigation.

- Principal Investigator, "Eastern Communication Forum", International Engineering Consortium (IEC), 1990-2001. The purpose of this grant of to attend each year this conference and develop industrial ties. All expenses are covered by the industry. The registration cost is estimated at $995 for each year.

- Investigator, "Neural Network Systems Performance Evaluations," OTS, 1991-1993, $320,000. The primary objective of this grant is to study the performance of several neural network paradigms and develop criteria to evaluate them. This work was done at Comserc, Howard University.

- Co- Principal Investigator, "Learning Control Algorithm Based on Signal Classification with Application to Robot Manipulator," Office of research administration, Howard University, $23,968, June 1991-June 1992. In this research an algorithm to control a robot manipulator was developed. The algorithm has several features such as learning from previous experience and using this information whenever it is needed.

- Principal Investigator, "ASTA Conference in Jordan," ASTA, $2,500, June 1992. This grant is to cover all expenses to attend the first ASTA conference and give a presentation on the applications of neural networks.

- Co-Investigator, "Development of VLSI modules," AT&T Foundation, $25,000, 1992. The primary objective of this grant is to write several modules related to VLSI design and testing.

- Co-Principal Investigator, "Digital System Laboratory Computer Equipment," Hewlett Packard Co., May 1990-June 1991, $100,000. This grant is to provide several HP Workstation, Plotters, printers and software to support the digital system lab in the department of electrical engineering at Howard University.

PUBLICATIONS:

PEER-REVIEW PUBLICATIONS:

- Zubair, M., and Aissi. C., "A Labview Project: Design of an Automated Water Heating System," ASEE/GSW annual conference proceeding, 2013.

- Aissi. C., and Zubair, M., "Introducing Chaotic Circuits in Analog Systems Course." ASEE/GSW annual conference proceeding, 2013.

- Manepalli, U., Elsayed, M., and Aissi, C., "Stepper Motor Control Using Labview in a Computer Numerically Controlled Desktop Mill," ASEE/GSW annual conference proceeding, 2010.

- Elsayed, M., and Aissi, C., "Analysis of the Frequency Response Function and Stability in Drillstrings using active circuit model," *The Journal of Applied Science & Engineering Technology*, Issue 3, 2009, pp. 29-38.

- Elsayed, M., Yalamanchili, A., Aissi, C., "Visualization of Surface Topology in Unstable Drilling with PDC Bits" Proceedings of the 54th. International Instrumentation Symposium, Pensacola, Florida, May 2008.

- Elsayed, M., Aissi, C., and Yalamanchili, A., "Analysis of Mode Interaction in Drillstrings Using Active Circuits," Proceedings of the Society of Experimental Mechanics (SEM) Conference, Orlando, Florida, June 2008.

- M. Elsayed, C.Aissi, and A. Yalamanchili, "Using Active Circuits to Model Drillstrings and Analyze the Effect of Phase Shift on Stability Analysis, " Proceedings of the 26th International Conference on Offshore Mechanics and Artics Engineering, 2007.

- C. Aissi and D. Kazakos, "A review of chaotic circuits, simulation and implementation," proceedings of the 10th WSEAS International Conference on Circuits, July 10-12, 2006, Crete Island, Greece.

- C. Kancharla, M.A. Elsayed and C. Aissi, "analysis of drillstring vibrations using active circuits," ASEE/GSW annual conference proceeding, 2006.

- S.T. Steven, C. Aissi and M.A. Elsayed, "A computer-aided instructional tool to improve research in undergraduate and graduate programs," ASEE/GSW annual conference proceeding, 2006.

- C. Aissi and D. Kazakos, "A method to design chaotic conditionally reset linear systems," *WSEAS Transactions on Circuits and Systems* Issue 2, Volume 3, April 2004, pp. 266-272.

- C. Aissi and D. Kazakos, "An improved realization of the chua's circuit using RC-op amps," *WSEAS Transactions on Circuits and Systems* Issue 2, Volume 3, April 2004, pp. 273-276.

- C. Aissi and D. Kazakos, "An autonoumous chaotic CNN hysteresis circuit," *WSEAS Transactions on Systems*, Issue 1, Volume 3, January 2004, pp. 216-220.

- C. Aissi and D. Kazakos, "modeling turbulence using a nonautonomous system," *WSEAS Transactions on Systems,* Issue 1, Volume 3, January 2004, pp. 227-232.

- C. Aissi and D. Kazakos, "A model for a turbulence system generator," *IMCCAS conference proceeding*, 2002.

- C. Aissi and D. Kazakos, "Design of a hysteresis chaotic circuit," *IMCCAS conference proceeding*, 2002.

- C. Aissi, "Introducing chaotic circuits in an undergraduate electronics course," ASEE/GSW annual conference proceeding, 2002.

- Mahesh Mulukutla and C. Aissi, "Implementation of the Chua's circuit and its applications, " ASEE/GSW annual conference proceeding, 2002.

- Chandra M. Kota and C. Aissi, "Implementation of the RSA algorithm and its cryptanalysis," ASEE/GSW annual conference proceeding, 2002.

- C. Aissi and F. Fadul, "A Fault-tolerant system based multiple overcurent relays," ASEE/GSW annual conference proceeding, March 2000.

- C. Aissi, "A CNN implementation of a hysteresis chaos generator," *International Symposium on Circuits and Systems*, Vol.1, no.1, June 1999.

- S.T. Castille and C. Aissi, "Application of a CATS model in manufacturing," *International Journal in Agile Manufacturing*, Vol. 2, No.2, pp. 69-75, 1998.

- C. Aissi and D. Gobovic, "Equivalent circuit transformations for complex MOS structures used in switch-level simulators," *Microelectronics Journal*, Vol.29, No.7, pp. 431-439, 1998.

- S.T. Castille and C. Aissi, "Application of a CATS model in manufacturing," *International Journal in Agile Manufacturing*, Vol. 2, No.2, pp. 69-75, 1998.

- C.Aissi and F. Fadul, "Chaos in conditionally reset linear systems," *Journal of Circuits, Systems and Computers*, Vol. 7, No. 3, pp. 177-189, 1997.

- C. Aissi and J. Olaniyan "Design and implementation of a fully testable CMOS D-latch," *5th. International Symposium on the physical and failure analysis of integrated circuits proceeding*, Singapore, 1995, Vol. 1, pp. 94-98.

- C. Aissi, D. Gobovic and J. Olaniyan, "A Method for reducing complex MOS structures in switch level simulators," *5th. International Symposium on the physical and failure analysis of integrated circuits proceeding*, Singapore, 1995, Vol. 1, pp.81-86.

- C. Aissi and M.F. Chouikha, "An iterative learning method for partially known dynamical systems," *IEEE, 35th Midwest Symposium on Circuits and Systems proceeding*, August 1992, Vol.2, pp.1001-1004.

- C. Aissi and M.F. Chouikha, "A new adaptive control algorithm based on signal characterization,", *IEEE, International Joint Conference on Neural Network proceeding*, June 1990, Vol.3, pp.435-446.

- M.F. Chouikha and C. Aissi, "Design and implementation of an intelligent controller using neural networks," *IEEE, 32nd Midwest Symposium on Circuits and Systems proceeding*, August 1989, Vol.2, pp.756-759.

- C.Aissi and M.E. Zaghloul, "Test generation for physical failures in MOS VLSI combinational circuits," *IEEE, 31st Midwest Symposium on Circuits and Systems proceeding*, August 1988, Vol.1, pp 24-27.

- C.Aissi and M.E. Zaghloul, "Test generation for physical failures in MOS VLSI combinational circuits," Invited paper, *The first International Conference on Microelectronics*, November 1988, Algiers, Algeria.

- C.Aissi and M.E. Zaghloul, "Bounds on the number of test patterns needed to detect physical faults for VLSI MOS gate circuits," *IEEE ,29th Midwest Symposium on Circuits and Systems proceeding*, August 1986, Vol.1, pp.352-355.

Presentations:

- Elsayed, M., Aissi, C., and Yalamanchili, A., "Analysis of Mode Interaction in Drillstrings Using Active Circuits," Proceedings of the Society of Experimental Mechanics (SEM) Conference, Orlando, Florida, June 2008.

- S.T. Steven, C. Aissi and M.A. Elsayed, "A computer-aided instructional tool to improve research in undergraduate and graduate programs," ASEE/GSW annual conference proceeding, 2006.

- C. Aissi, "Introducing chaotic circuits in an undergraduate electronics course," ASEE/GSW annual conference proceeding, 2002.

- C. Aissi and F. Fadul, "A Fault-tolerant system based multiple overcurent relays," ASEE/GSW annual conference proceeding, March 2000.

- C. Aissi and F. Fadul, "A microcontroller-based programmable universal industrial meter and controller," ASEE/GSW annual conference proceeding, March 1999.

- C. Aissi, "A practical course and a laboratory in computer networking," ASEE/GSW annual conference proceeding, March 1999.

- S.T. Castille and C. Aissi, "A real time fault diagnosis system," ASEE/GSW annual conference proceeding, March 1999.

- C. Aissi and F. Chowdhury, "An iterative identification and control algorithm for discrete systems with unknown dynamics," 31st Southeastern Symposium on System Theory proceeding, March 1999.

- S.T. Castille and C. Aissi, "An intelligent computer-aided troubleshooting system," ASEE/GSW annual conference proceeding, pp. 164-168, 1998.

- G. Massiha, W. Muller and C. Aissi, "Facilitating industrial technology course design," NAIT conference proceeding, 1998.

- S.T. Castille, D. Stroderd and C. Aissi, "A computer-aided troubleshooting system model," ASEE/GSW annual conference proceeding, pp. 37-42, 1997.

- S.T. Castille, C. Aissi, "Integrating a CATS model for improved agility in manufacturing," ICAM international conference proceeding, 1997.

- S.T. Castille, D. Stroderd and C. Aissi, "An Application in computer-aided troubleshooting," Presented to ICON, Lafayette, 1997.

- C. Aissi and J. Olaniyan, "Coded input neural network," Third SIAM conference on signal systems and control, August 1993.

- C. Aissi and M.F. Chouikha, "An iterative learning method for partially known dynamical systems," IEEE, 35th Midwest Symposium on Circuits and Systems proceeding, August 1992, Vol.2, pp.1001-1004.

- E. Ghanem, M.F. Chouikha, and C. Aissi "Noise filtering using backpropagation neural networks," International Conference on Modeling, Simulation and Identification , May 1992.

- R.H.T. Jongwe, C. Aissi, and M.F. Chouikha, "Performance comparison of counterpropagation and backpropagation neural networks," International Conference on Modeling and Identification, May 1992.

- C. Aissi and M.F. Chouikha, "A new adaptive control algorithm based on signal characterization,", IEEE, International Joint Conference on Neural Network proceeding, June 1990, Vol.3, pp.435-446.

- M.F. Chouikha and C. Aissi, "Design and implementation of an intelligent controller using neural networks," IEEE, 32nd Midwest Symposium on Circuits and Systems proceeding, August 1989, Vol.2, pp.756-759.

Other publications:

- C. Aissi, "68HC11 microcontroller manual," lab manual, University of Louisiana at Lafayette, Department of Industrial Technology.

- C. Aissi, "Computer networking manual," lab manual, University of Louisiana at Lafayette, Department of Industrial Technology.

- C. Aissi, "Advanced electronics design project manual," Lab manual, Howard University, Department of Electrical Engineering.

- C. Aissi, "Testing of physical failures in NMOS and CMOS VLSI combinational and sequential circuits," Doctoral Dissertation.

PROFESSIONAL ACTIVITIES AND AWARDS:

- Advising Award, UL Lafayette.
- Session Chairman, ASEE/GSW annual conference.
- Session Chairman, ICAM international conference.
- Best teacher award.
- Certificate of successfully completing the GPIB University Teacher Workshop- California State University, Sacramento.
- Certificate of Appreciation and Commitment to Excellence, HU.
- Certificate of Achievement, The Engineering Student Council, HU.
- Session Chairman, Midwest Symposium on Circuits & System.
- Certificate of successfully completing the VLSI University Teacher Workshop- North Carolina A&T State University Greensboro, North Carolina.
- Tuition award, George Washington University.
- Research fellowship, George Washington University.

PROFESSIONAL MEMBERSHIPS:

- Member, IEEE, ASEE
- Member, IEEE Circuit and System Society.
- Member, IEEE Industry applications Society.

INDUSTRY CONSULTING:

- MePOL, Lafayette, Louisiana. Consultant in the areas of microcontrollers and robotics,
- Applied Chaos Technology (ACT), Arlington, Virginia. Consultant in the area of design of chaotic circuits and applications. .
- Comserc, Washington, D.C., Consultant in the area of neural network paradigms,
- Levintech, Washington, D.C., Consultant in the design and development of computer software training modules.

COMMITTEE SERVICES AT UL Lafayette AND HU:

1. University of Louisiana at Lafayette, Department of Industrial Technology:
    - College graduate school committee (2006-present)
    - Faculty senate (member 1998-present).
    - LaSpace consortium university coordinator (1998-2004).
    - Faculty search committee (Chair, 2000-present).

- Laboratory equipment committee (chairman, 1996-present).
- Undergraduate curriculum committee (chairman, 1999-present).
- College tenure committee (member 2000-present).
- Graduate school committee (member 1996-2001).
- M.S Thesis committee (1996-present).
- NAIT accreditation committee (member 1999-present).

2. Howard University (HU), Department of Electrical Engineering:
   - Undergraduate curriculum committee (member 1993-1995).
   - Graduate curriculum committee (member 1991-1995).
   - Laboratory committee (chairman, 1990-1994).
   - EE day project demonstration committee (co-chairman 1990-1994).
   - Graduate school committee (member, 1989-1995).
   - Computer learning and design committee (member, 1988-1995).
   - MS and Ph.D. Thesis committee (member and chairman 1988-1995).
   - ABET accreditation committee (member, 1990-1995).