

CURRICULUM VITAE



Abdelkrim BOUKABOU, MIEEE

Address: Department of Electronics, University MSB Jijel.

BP 98 Ouled Aissa, Jijel 18000, Algeria

Mobile: (213)661330784 Fax: (213)34501189

Email: aboukabou@univ-jijel.dz

Education

- HDR (Habilitation à Diriger les Recherches) - dissertation title " *Synthèse des travaux de recherche,*" Department of Electronics, University of Mentouri Constantine, Algeria, 2008.
- Docteur en Sciences - dissertation title " *Méthodes de contrôle des systèmes chaotiques d'ordre élevé et leur application pour la synchronisation: Contribution à l'élaboration de nouvelles approches,*" Department of Electronics, University of Mentouri Constantine, Algeria, 2006.
- Magister - dissertation title " *Analyse des systèmes dynamiques non linéaires à comportement chaotique et leur contrôle par la méthode Ott-Grebogi-Yorke,*" Department of Electronics, University of Mentouri Constantine, Algeria, 2002.

Professional Experience

- 2013 – Professor, Department of Electronics, University MSB Jijel
- 2008 – 2013 Associate Professor -A, Department of Electronics, University MSB Jijel
- 2006 – 2008 Associate Professor -B, Department of Electronics, University MSB Jijel
- 2003 – 2006 Assistant Professor, Department of Electronics, University MSB Jijel
- 2002 – 2003 Research Assistant, Department of Electronics, University MSB Jijel
- 2001 – 2002 Teaching Assistant, Department of Electronics, University MSB Jijel

Research Interests

Intelligent Control, Chaos Theory, Control of Robotic Systems, Industrial Automation, Mathematical Modeling, Stability, Powerline Communication.

Academic Activities

- Responsible of the post-graduation program "Contrôle des systèmes" Department of Electronics, University MSB Jijel, 2009-2011.
- Responsible of the 3rd cycle doctorate program "Electronique et analyse des systèmes" Department of Electronics, University MSB Jijel, 2014-2016.
- Responsible of the academic License "Electronique" Department of Electronics, University MSB Jijel, 2011-2017.
- Responsible of the "Cellule Assurance Qualité" University MSB Jijel, since 2016.

Technical and Professional Activities

- IEEE Member 2014.
- Associate Editor of *Complex Adaptive System Journal* (Springer).
- Reviewer of *Journal of Franklin Institute* (Elsevier); *ISA Transaction* (Elsevier); *Circuits Systems & Signal Processing* (Springer); *IEEE Trans Circuits and Systems II*; and many others.
- TPC Member for many International Conferences.

Research Projects Funded by National Agencies

- CNEPRU project “Contrôle et synchronisation des systèmes chaotiques” (Grant no. D01720060037), 2007-2009. Principal investigator: Prof. Noura Mansouri.
- CNEPRU project “Analyse et stabilisation des orbites périodiques instables des systèmes chaotiques complexes d’ordre élevé et d’ordre fractionnaire” (Grant no. D01720100037), 2011-2014. As principal investigator.
- PNR project “Conception et réalisation d’un système de mesure, de communication et de contrôle par courant porteur,” (Grant no. 13u184368), 2011-2013. As principal investigator.
- CNEPRU project “Modélisation et caractérisation du bruit et du comportement chaotique dans les circuits électroniques” (Grant no. D01720100037), 2014-2017. As principal investigator.

Books

- Abdelkrim Boukabou « نظرية وتطبيقات تحويل لابلاس » Office des Publications Universitaires (OPU), Algeria, 2013 (351 pages). ISBN 978-9-9610171-8-0.

Book Chapters

- Y. Himeur, A. Boukabou, Performance Enhancement of Indoor Powerline Communication Using Improved Error Correction Codes. E-Business and Telecommunications, 11th International Joint Conference, ICETE 2014, Revised Selected Papers, Springer edited by Mohammad S. Obaidat, Andreas Holzinger, Joaquim Filipe, 12/2015: chapter 554: pages 457-472; Springer., ISBN: 978-3-319-25914-7.

Technical Publications (Refereed Journals)

- [J1]. B. Lekouaghet, A. Boukabou, N. Lourci, K. Bedrine, Control of PV grid connected systems using MPC technique and different inverter configuration models. *Electric Power Systems Research* 154, 287-298, 2018.
- [J2]. H. Merdjana, A. Boukabou, M. Grimes, A high accuracy ultrasonic measurement system using the prism technique. *Measurement* 114, 195-202, 2018.
- [J3]. A. Senouci, H. Bouhedjeur, K. Tourche, A. Boukabou, FPGA based hardware and device-independent implementation of chaotic generators. *AEU - International Journal of Electronics and Communications* 82, 211-220, 2017.
- [J4]. Y. Himeur, A. Boukabou, A robust and secure key-frames based video watermarking system using chaotic encryption. *Multimedia Tools and Applications* 1-25, 2017.

- [J5]. Y. Himeur, A. Boukabou, An efficient impulsive noise cancellation scheme for power-line communication systems using ANFIS and chaotic interleaver. *Digital Signal Processing* 66, 42-55, 2017.
- [J6]. M. Boukens, A. Boukabou, M. Chadli, Robust adaptive neural network-based trajectory tracking control approach for nonholonomic electrically driven mobile robots *Robotics and Autonomous Systems* 92, 30-40, 2017.
- [J7]. M. Boukens, A. Boukabou, Design of an intelligent optimal neural network-based tracking controller for nonholonomic mobile robot systems, *Neurocomputing* 226, 46-57, 2017.
- [J8]. M. Arbid, A. Boukabou, Controlling unstable periodic orbits in complex dynamical networks with chaotic nodes, *Optik-International Journal for Light and Electron Optics* 128, 148-155, 2017.
- [J9]. Y. Himeur, A. Boukabou, Robust image transmission over powerline channel with impulse noise, *Multimedia Tools and Applications* 76 (2), 2813-2835, 2017.
- [J10]. I. Benchabane, A. Boukabou, Predictive synchronization of chaotic and hyperchaotic energy resource systems, *Optik-International Journal for Light and Electron Optics* 127 (20), 9532-9537, 2016.
- [J11]. F. Boukerroum, A. Boukabou, A practical evaluation method of microwave noise parameters using wide-band frequency-variation measurements, *Optik-International Journal for Light and Electron Optics* 127 (20), 9488-9495, 2016.
- [J12]. Y. Himeur, A. Boukabou, A. Senouci, Performance of turbo-coded chaotic interleaving and frequency-domain equalization scheme for high speed OFDM-based PLC systems *Journal of the Franklin Institute* 353 (15), 3799-3817, 2016.
- [J13]. M.A. Khelifa, A. Boukabou, Design of an intelligent prediction-based neural network controller for multi-scroll chaotic systems, *Applied Intelligence* 45 (3), 793-807, 2016.
- [J14]. A. Soukkou, A. Boukabou, S. Leulmi, Prediction-based feedback control and synchronization algorithm of fractional-order chaotic systems, *Nonlinear Dynamics* 85 (4), 2183-2206, 2016.
- [J15]. A. Senouci, A. Boukabou, Fuzzy modeling, stabilization and synchronization of multi-scroll chaotic systems, *Optik-International Journal for Light and Electron Optics* 127 (13), 5351-5358, 2016.
- [J16]. Y. Himeur, A. Boukabou, OFDM-based power-line communication enhancement using a turbo coded adaptive impulsive noise compensator, *Telecommunication systems* 62 (3), 481-494, 2016.
- [J17]. A. Soukkou, A. Boukabou, S. Leulmi, Design and optimization of generalized prediction-based control scheme to stabilize and synchronize fractional-order hyperchaotic systems, *Optik-International Journal for Light and Electron Optics* 127 (12), 5070-5077, 2016.
- [J18]. Y. Himeur, A. Boukabou, An adaptive recursive noise compensator for impulsive noise mitigation over OFDM power line communication, *AEU-International Journal of Electronics and Communications* 70 (1), 105-112, 2016.
- [J19]. Y. Himeur, A. Boukabou, Adaptive noise clipping-based hybrid progressive median filter for image transmission over top-down powerline communication, *International Journal of Communication Networks and Distributed Systems* 16 (2), 176-195, 2016.

- [J20]. A. Senouci, A. Boukabou, K. Busawon, A. Bouridane, A. Ouslimani, Robust chaotic communication based on indirect coupling synchronization, *Circuits Systems and Signal Processing* 34, 393-418, 2015.
- [J21]. D. Sadaoui, A. Boukabou, S. Hadeif, Predictive feedback control and synchronization of hyperchaotic systems, *Applied Mathematics and Computation* 247, 235-243, 2014
- [J22]. A. Senouci, A. Boukabou, Predictive control and synchronization of chaotic and hyperchaotic systems based on a T-S fuzzy model, *Mathematics and Computers in Simulation* 105, 62-78, 2014.
- [J23]. S. Hadeif, A. Boukabou, Control of multi-scroll Chen system, *Journal of the Franklin Institute* 351, 2728-2741, 2014.
- [J24]. A. Boukabou, N. Mekircha, Generalized chaos control and synchronization by nonlinear high-order approach, *Mathematics and Computers in Simulation* 82, 2268-2281, 2012.
- [J25]. N. Mekircha, A. Boukabou, N. Mansouri, Fuzzy control of original UPOs of unknown discrete chaotic systems, *Applied Mathematical Modelling* 36, 5135-5142, 2012.
- [J26]. A. Boukabou, N. Mansouri, T-S fuzzy control of uncertain chaotic vibration, *Journal of Shock and Vibration* 19, 379-389, 2012.
- [J27]. D. Sadaoui, A. Boukabou, N. Merabtine, M. Benslama, Predictive synchronization of chaotic satellites systems, *Expert Systems with Applications* 38, 9041-9045, 2011.
- [J28]. A. Boukabou, B. Sayoud, H. Boumaiza, N. Mansouri, Control of n-scroll Chua's circuit, *International Journal of Bifurcation and Chaos* 19(11), 3813-3822, 2009.
- [J29]. A. Boukabou, On nonlinear control and synchronization design for autonomous chaotic systems, *Nonlinear Dynamics and System Theory* 8(2) 151-168, 2008.
- [J30]. A. Boukabou, A. Chebbah, N. Mansouri, Predictive control of continuous chaotic systems, *International Journal of Bifurcation and Chaos* 18(2) 587-592, 2008.
- [J31]. A. Boukabou, A. Chebbah, A. Belmahboul, Stabilizing unstable periodic orbits of the multi-scroll Chua's attractor, *Nonlinear Analysis Modelling and Control* 12(4) 469-477, 2007.
- [J32]. A. Boukabou, N. Mansouri, Fuzzy predictive controller for unknown chaotic systems, *International Journal of Bifurcation and Chaos* 17(6) 4019-4025, 2007.
- [J33]. A. Boukabou, N. Mansouri, Predictive control of higher dimensional chaos, *Nonlinear Phenomen in Complex Systems* 8(3) 258-265, 2005.
- [J34]. A. Boukabou, N. Mansouri, Neural predictive control of unknown chaotic systems, *Nonlinear Analysis Modelling and Control* 10(2) 1-12, 2005.
- [J35]. A. Boukabou, N. Mansouri, Controlling chaos in higher-order dynamical systems, *International Journal of Bifurcation and Chaos* 14(11) 4019-4025, 2004.

International Conferences with Proceedings

- [C1]. B. Lekouaghet, Y. Himeur, A. Boukabou, A. Senouci, A novel clipping based μ -law companding scheme for PAPR reduction over powerline communication, *Seminar on Detection Systems Architectures and Technologies (DAT- IEEE)*, pp. 1-5, February 20 – 22, 2017, Algiers, Algeria.
- [C2]. M. Boukens, A. Boukabou, M. Belkheiri, Robust adaptive neural network based controller for nonholonomic mobile robot systems subject to unknown perturbations, 8th

International Conference on Modelling, Identification and Control (ICMIC- IEEE), pp. 774-779, November 15-17, 2016, Algiers, Algeria.

- [C3]. Y. Himeur, A. Boukabou, A. Senouci, Powerline communication performance using FFT/DWT/WPT-based OFDM systems and chaotic interleaving. Proceedings of the International Conference on Intelligent Information Processing, Security and Advanced Communication (IPACS-ACM), November 23 – 25, 2015, Batna, Algeria.
- [C4]. M. Boukens, A. Boukabou, Robust adaptive neural network-based control of robot manipulators subject to external disturbances, International Conference on Industrial Instrumentation and Control (ICIC-IEEE), May 28 - 30 2015, pp. 934-939, 2015, Pune, India.
- [C5]. M.A. Khelifa, A. Boukabou, Control of UPOs of unknown chaotic systems via ANN. The 24th International Conference on Artificial Neural Networks (ICANN-Springer), September 15–19, 2014, Hamburg, Germany.
- [C6]. Y. Himeur, A. Boukabou, Noise mitigation over powerline communication using LDPC convolutional code and fusion of mean and median filters. The 11th International Conference on Signal Processing and Multimedia Applications (SIGMAP-IEEE), August 28-30, 2014, Vienna, Austria. (Best paper award)
- [C7]. M. Boukens, A. Boukabou, PD with fuzzy compensator control of robot manipulators: experimental study, 3rd International Conference on Systems and Control (CSC-IEEE), October 29-31, 2013, Algiers, Algeria.
- [C8]. M. Boukens, A. Boukabou, Neuro-optimal controller for robot manipulators, 23rd International Conference on Artificial Neural Networks (ICANN-Springer), September 10-13, 2013, Sofia, Bulgaria.
- [C9]. M.A. Khelifa, A. Boukabou, Secure data transmission of Holy Quran using controlled chaotic dynamics, Taibah University International Conference on Advances in Information Technology for the Holy Quran and its Sciences (NOORIC-IEEE), December 22-25, 2013, Madinah, Saudi Arabia.
- [C10]. M.A. Khelifa, A. Boukabou, N. Hammami, Data transmission based on chaotic synchronization system, International Conference on Computer Applications Technology (ICCAT-IEEE), January 20-22, 2013, Sousse, Tunisia.
- [C11]. A. Senouci, A. Boukabou, Chaotic cryptography using external key, 7th International Workshop on Systems, Signal Processing and Their Applications (WOSSPA-IEEE), May 09-11, 2011, Tipaza, Algeria.
- [C12]. A. Boukabou, A. Belmahboul, Anticontrol of nonlinear dynamical systems, 3rd International Conference on Information and Communication Technologies: from Theory to Applications (ICTTA-IEEE), April 07-11, 2008, Damascus, Syria.
- [C13]. A. Boukabou, N. Mansouri, Control of chaotic behavior in high order dynamical systems, Physics and Control (PhysCon-IEEE), August 20-22, 2003, St. Petersburg, Russia.

International Conferences

- A. Senouci, A. Boukabou, Predictive stability of chaotic systems represented by T-S fuzzy models, International Conference on Advances in Applied Mathematics, December 22-25, 2014, Hammamet, Tunisia.

- A. Boukabou, Applications of chaos control and synchronization, The first International Workshop on Advanced Control, November 3-4, 2014, Guelma, Algeria. (Invited paper).
- A. Boukabou, Chaotic modulation and demodulation approach for secure communication, 6th International Conference on Chaotic Modeling and Simulation, June 11-14, 2013, Istanbul, Turkey.
- M. Boukens, A. Boukabou, Commande PD avec compensation neuronale d'un bras manipulateur : Étude expérimentale en temps réel, International Conference on Systems and Information Processing (ICSIP'13), May 12-14, 2013, Guelma, Algeria.
- A. Boukabou, Controlling chaotic behavior in Belousov-Zhabotinsky chemical reaction, 4th International Chemistry Conference (ICC), November 19-21, 2011, Riyadh, Saudi Arabia.
- A. Boukabou, N. Mansouri, Control of high-speed chaos in an optoelectronic device, The International Conference for NanoTechnology Industries (ICNI), April 5-7, 2009, Riyadh, Saudi Arabia.
- A. Boukabou, N. Mansouri, Fuzzy prediction-based feedback control of unknown chaotic systems, Information Processing and Management of Uncertainty in Knowledge-based Systems (IPMU), July 2-7, 2006, Paris, France.
- A. Boukabou, N. Mansouri, Controlling multiple unstable periodic orbits of the n-scroll Chua's circuit, ENOC, August 07-12, 2005, Eindhoven, Netherlands.
- A. Boukabou, N. Mansouri, Design of robust fuzzy prediction-based controller for unknown discrete chaotic systems, 3rd International Conference on Systems, Signals and Devices (SSD), March 21-24, 2005, Sousse, Tunisia,.
- A. Boukabou, N. Mansouri, Contrôle de l'attracteur d'Ikeda par la méthode OGY, Conférence Tunisienne de Génie Electrique (CTGE), February 19-21, 2004, Tunis, Tunisia.
- A. Boukabou, N. Mansouri, Contrôle prédictif des systèmes discrets à comportement chaotique, Conférence Internationale sur les Systèmes de Télécommunications, d'Electronique Médicale et d'Automatique (CISTEMA), September 27-29, 2003, Tlemcen, Algérie.

National Conferences

- A. Senouci, A. Boukabou, Secure advanced discrete chaotic image encryption, 5^{ème} Séminaire sur les Systèmes de Détection: Architecture et Technologies (DAT'2011), Février 21-23, 2011, Alger, Algérie.
- A. Senouci, A. Boukabou, Cryptosystème chaotique adapté au cryptage des images, 7^{ème} Conférence sur le Génie Electrique (CGE'07), Avril 12-13, 2011, Alger, Algérie.
- A. Boukabou, N. Mansouri, Controlling chaotic behavior in higher-order dynamical systems, 3^{ème} Conférence sur le Génie Electrique (CGE'03), Ecole Militaire Polytechnique, Février 15-16, 2004, Alger, Algérie.
- A. Boukabou, N. Mansouri, Contrôle des systèmes à comportement chaotique par la méthode OGY: cas des systèmes discrets, 2^{ème} Conférence sur le Génie Electrique (CGE'02), Ecole Militaire Polytechnique, Décembre 17-18, 2002, Alger, Algérie.