Univ.-Prof. Dr. habil. Olfa Khélia Boubaker

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Tunisian, born in Tunis.

Resume

Olfa Boubaker is a Full Professor at the National Institute of Applied Sciences and Technology (INSAT) at University of Carthage and Head of the research laboratory “Energy, Robotics, Control and Optimization (ERCO)”. She was President of the Ad-Hoc Habilitation commission in Control and Systems Engineering in 2017 and 2018. Her research works focuses on complex and nonlinear systems and the ability to control their uncertain and unpredictable dynamics using the principles of control theory and chaos theory. She has developed a number of applications in several areas of sustainable development including the fields of secure communication, robotics and artificial intelligence, environmental and ecologic sustainability and water resources management. Prof. Boubaker is the author of more than 120 research works co-authored with prestigious researchers around the world including 35 journal papers, 22 book chapters and 57 conference papers. She has published 6 books, 4 by Elsevier, and edited 4 special issues. Prof. Boubaker has supervised 7 Phd theses and 18 Master theses dissertations and mentored 53 engineer graduated projects in industry. She was a President of Jury of more than 100 dissertation defenses including Habilitation degrees, Phd theses and engineering graduated projects. Prof. Boubaker is also associated with Elsevier as Regional Editor of a book series and with several impacted journals as Associate Editor and Referee. She participated in multilateral contracted research projects dedicated to the preservation of water resources and the environment. She is a member of the UNESCO Unit "The Organization for Women in Science for the Developing World (OWSD)".

Current Situation

Head of the research laboratory “Energy, Robotics, control and Optimization (ERCO),” and Full Professor at National Institute of Applied Sciences and Technology (INSAT) of Tunis, University of Carthage.

Position work

Since 2015	Professor (Full), National Institute of Applied Sciences and Technology (INSAT), Tunis, University of Carthage.
2008 - 2015	Associate Professor, National Institute of Applied Sciences and Technology (INSAT), Tunis, University of Carthage.
2000 – 2008	Assistant Professor, National Institute of Applied Sciences and Technology (INSAT), Tunis, University of Carthage.
1997– 2004	Visiting Researcher, Laboratory for Analysis and Architecture of Systems (LAAS-CNRS), Toulouse.
1996 – 2000	Researcher, Laboratory Analysis & Control of Systems (LACS), ENIT, Tunis, University of Tunis El Manar.
1992 - 2000	Teacher and Educational Consultant with the Ministry of Education, Tunis.

Academic Qualifications

04/2007	Habilitaion Universitaire in Electrical Engineering, National Engineering School of Sfax (ENIS), Sfax, University of Sfax.
02/2000	PhD in Electrical Engineering, National Engineering School of Tunis (ENIT), Tunis, University of Tunis El Manar.
09/1995	Master of Science in Control Engineering, Normal School of Sciences and Technology (ENSET), Tunis, University of Tunis.
06/1991	Bachelor in Electrical Engineering & Certificate in Pedagogy & Methodology for Technology-Enhanced Teaching, Normal School of Sciences and Technology (ENSET), Tunis, University of Tunis.
06/1987	Baccalaureate in Maths and Sciences, Bardo & Khaznadar Secondary School, Bardo.

Specialized trainings

Robotics - Multivariable Systems & Modern Control - Nonlinear Systems - Robust Control - Digital Computer Control - Linear Systems & Automatic control - Discrete Event Systems and Automation. Bioprocess: Modeling and Optimization - Computer Aided Design: LabVIEW Certification.

Research and development areas

The objectives of developed research works are concentrated in applications of control theory and artificial intelligence for improving quality of human life & guaranteeing sustainability. The proposed results contribute to the following areas:

- Information masking, secure communication and chaotization.
- Robotics and artificial intelligence in medicine and social communication.
- Environmental and sustainability assessment via ecological modeling and prediction.
- Water resources conservation and management.

Technical skils

control theory – chaos theory – bifurcation - observer design - robotics and artificial intelligence - humanoid robots – medical and rehabilitation robots - wastewater processes, fermentation and aromatic processes - prey-predator systems - ecosystem modeling and control – pedagogy.

Supervised thesis dissertations

- 7 Phd Theses dissertations
- 18 Master dissertations

Scientific committee / Advisory board / Organizing Committee

Since 2017	Regional Editor (Elsevier): Book Series - Emerging Methodologies and Applications in Modeling, Identification and Control.
Since 2017	Associate Editor (Sage): International Journal of Advanced Robotic Systems.
Since 2017	Editorial Member (Inderscience): International Journal of Nonlinear Dynamics and Control.
2017-2018	Lead Guest Editor (Wiley): Special Issue: Advanced Topics in Modeling, Bifurcation Analysis, and Control Theory, Complexity.
2018-2019	Lead Guest Editor (Sage): Special Collection on Advanced Control for Robotics and Autonomous Systems, International Journal of Advanced Robotic Systems.
2017-2018	Lead Guest Editor (Hindawi): Special Issue on Advanced Observer-Based Control for Benchmark Control Problems: From Mathematical Modeling to Control Design.
2016-2017	Lead Guest Editor (Hindawi): Special Issue: Time-Delay Systems: Modeling, Analysis, Estimation, Control, and Synchronization, Mathematical Problems in Engineering.

Since 2005 Referee: Nonlinear Dynamics, Physica D: Nonlinear Phenomena, Journal of the Franklin Institute, IET Control Theory & Applications, Control Engineering Practice, Journal of Process Control, ISA Transactions, Robotics and Autonomous Systems, International Journal of Advanced Robotic Systems, Applied Mathematical Modelling, Applied Mathematics and Computation…

2019 Special and Invited Session Chair: International Conference on Modelling, Identification and Control (ICMIC'2019) Tianjin, China.

2018 Track Chair & Special Session Chair: IEEE International Multi-Conference on Systems, Signals and Devices (SSD'2018), Hammamet, Tunisia.

2009-2016 International Advisory Board Member: IEEE international conference on Sciences and Techniques of Automatic control and computer engineering (STA'2009-2016), Tunisia.

2016 Technical Committee Member: IEEE ICIT'2016, Hammamet, Tunisia.

2003 Organizing Committee Member, Doctoral Days, National Institute of Applied Science and Technology (INSAT), Tunisia.

2003 Organizing Committee Member, Days of Robust Control and Applications (JCRA'2003), Hammamet, Tunisia.

University services

2017-2018 President of the Ad-Hoc Habilitation commission in Control and Systems Engineering at the University of Carthage.

Since 2009 Member of the PhD committee in Control and Systems Engineering at National Institute of Applied Science and Technology (INSAT).

2013 Member of of the Ad-Hoc Habilitation commission in Control and Systems Engineering at the University of Carthage.

2009-2010 Member of the curriculum and academic planning committees in Control Engineering, design of course syllabus and documentation of undergraduate and postgraduate engineering studies at National Institute of Applied Science and Technology (INSAT).

2010-2013 & 2016 Chair of the examinations board in Control and Systems Engineering Curriculum at National Institute of Applied Science and Technology (INSAT).

2006-2017 Session Chair for more than 80 Final-Year Project defenses at National Institute of Applied Science and Technology (INSAT).

1994-1996 Member of the national curriculum planning committees in technology at Ministry of Education, Tunisia.

Publications

Total Number of Publications (Peer reviewed)	**120**
Total Number of Publications in Scopus / Scopus & Science Direct	**68 /83**
Total Number of Publications in Web of Science	**51**
Scopus h-index / Total Citation	**12 / 491**
Google Scolar Hirsch-Index/ i10-index	**15 / 25**
Total Number of Citations in Google Scolar	**757**
Reasearchgate RG-Score	**30.69**

Books

[1] Olfa Boubaker, Quanmin Zhu, Magdi S. Mahmoud, José Ragot, Hamid Reza Karimi, Jorge Dávila, New Trends in Observer-Based Control: A Practical Guide to Process and Engineering Applications, Vol.2, Elsevier Academic Press, July 2019.

[2] Olfa Boubaker, Quanmin Zhu, Magdi S. Mahmoud, José Ragot, Hamid Reza Karimi, Jorge Dávila, New Trends in Observer-Based Control: An Introduction to Design Approaches and Engineering Applications, Vol.1, Elsevier Academic Press, March 2019.

[3] Olfa Boubaker, Sajad Jafari, Recent Advances in Chaotic Systems and Synchronization: From Theory to Real World Applications, Elsevier Academic Press, October 2018.

[4] Olfa Boubaker, Rafael Iriarte, The Inverted Pendulum: From Theory to New Innovations in Control and Robotics, The Institution of Engineering and Technology (IET), October 2017.

[5] Olfa Boubaker, Systèmes Robotiques Poly-articulés, Centre de Publication Universitaire, December 2015.

[6] Olfa Boubaker, Systèmes Multivariables, Centre de Publication Universitaire, December 2013.

Journal papers (Selected)

[1] Saeed Amirkhani, Saleh Mobayen, Nahal Iliaee, Olfa Boubaker, S. Hassan Hosseinnia, “Fast Terminal Sliding Mode Tracking Control of Nonlinear Uncertain Mass–Spring System with Experimental Verifications,” International Journal of Advanced Robotic Systems, Vol. 16, N°1, 2019. (IF:0.952)

[2] Olfa Boubaker, Mihai Lungu, Binoy K. Roy, and Luis J. Yebra, “Advanced Observer-Based Control for Benchmark Control Problems: From Mathematical Modeling to Control Design,” Mathematical Problems in Engineering, Vol. 2018, 2018. (IF:1.145)

[3] Seifeddine Ben Warrad, Olfa Boubaker, Mihai Lungu, and Saleh Mobayen, "Full and Reduced-Order Unknown Input Observer Design for Linear Time-Delay Systems with Multiple Delays," Mathematical Problems in Engineering 2018, 2018. (IF:1.145)

[4] Afef Ben Saad, Olfa Boubaker, "Bifurcations, Chaos and Synchronization of a Predator–Prey System with Allee Effect and Seasonally Forcing in Prey's Growth Rate," The European Physical Journal Special Topics, Vol. 227, No. 7-9, pp.971-981, 2018. (IF: 1.947)

[5] Olfa Boubaker, Sajad Jafari, Christos Volos, Zeraoulia Elhadj, Viet-Thanh Pham, and Jinde Cao "Advanced Topics in Modeling, Bifurcation Analysis, and Control Theory of Complex Systems," Complexity, Vol. 2018, 2018. (IF:1.829)

[6] A. Lassoued, O. Boubaker, "Dynamic Analysis and Circuit Design of a Novel Hyperchaotic System with Fractional-Order Terms," Complexity, Vol. 2017, 2017. (IF:1.829)

[7] Olfa Boubaker, Valentina Emilia Balas, Abdellah Benzaouia, Mohamed Chaabane, Magdi S. Mahmoud, Quanmin Zhu, "Time-Delay Systems: Modeling, Analysis, Estimation, Control, and Synchronization," Mathematical Problems in Engineering, Vol. 2017, 2017. (IF:1.145)

[8] Wajdi Belhaj and Olfa Boubaker, "MIMO PI Controllers for LTI Systems with Multiple Time Delays Based on ILMIs and Sensitivity Functions," Mathematical Problems in Engineering, Vol. 2017, 2017. (IF:1.145)

[9] Hanene Mkaouar, Olfa Boubaker, "Robust Control of a Class of Chaotic and Hyperchaotic Driven Systems," Pramana – Journal of Physics, Vol. 88, N°9, 2017. (IF: 0.699)

[10] Abir Lassoued, Olfa Boubaker, "On New Chaotic and Hyperchaotic Systems: A Literature Survey," Nonlinear Analysis: Modelling and Control," Vol. 21, N° 6, pp. 770–789, 2016. (IF:0.896)

[11] Haifa Mehdi, Olfa Boubaker, "PSO-Lyapunov Motion/Force Control of Robot Arms with Model Uncertainties," Robotica, Vol 34, N°3, pp. 634 – 651, 2016.(1.177)

[12] Haifa Mehdi, Olfa Boubaker, "Robust Impedance Control based Lyapunov-Hamiltonian Approach for Constrained Robots," International Journal of Advanced Robotic Systems, Vol.12: 190, 2015. (IF:0.952)

[13] Olfa Boubaker, "The Inverted Pendulum Benchmark in Nonlinear Control Theory: A survey," International Journal of Advanced Robotic Systems, Vol. 10, pp.233-242, 2013. (IF:0.952)

[14] Haifa Mehdi, Olfa Boubaker, “Stiffness and Impedance Control using Lyapunov Theory for Robot-aided Rehabilitation,” International Journal of Social Robotics, Vol. 4, n°1, pp. 107-119, 2012. (IF:2.009)

[15] Hanéne Mkaouar, olfa Boubaker, “Chaos Synchronization for Master Slave Piecewise Linear Systems: Application to Chua’s Circuit,” Communications in Nonlinear Science and Numerical Simulation, vol. 17, N°3, pp. 1292-1302, 2012. (IF: 3.181)

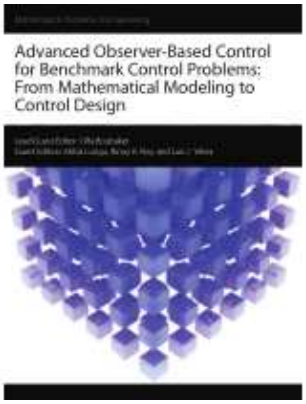
[16] Haifa Mehdi, Olfa Boubaker, “Impedance Controller Tuned by Particle Swarm Optimization for Robotic Arms,” International Journal of Advanced Robotic Systems, Vol.8, N°5, pp.93-103, 2011. (IF:0.952)

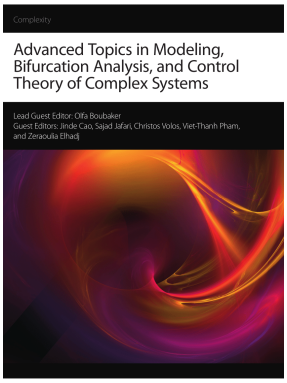
[17] Najla Akacha N., Olfa Boubaker, Mohamed Gargouri, “Production of Hexenol in a Two-Enzyme System: Kinetic Study and Modelling,” Biotechnology Letters, Vol. 27, N°23-24, pp.1875-1878, 2005.(IF: 1.846)

[18] Olfa Boubaker, Jean Pierre Babary, “On SISO and MIMO Variable Structure Control of Nonlinear distributed parameter systems: Application to fixed bed reactors,” Journal of Process Control, Vol. 13, N° 8, pp. 729-737, 2003. (IF. 2.787)

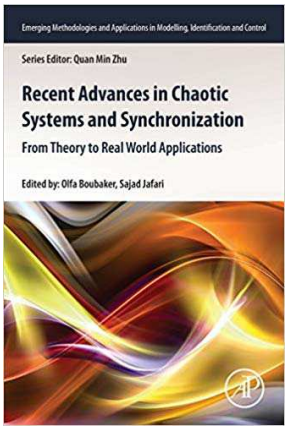
[19] Olfa Boubaker, Jean Pierre Babary, Mekki Ksouri, “MIMO Sliding Mode Control of a Distributed Parameter Denitrifying Biofilter,” Applied Mathematical Modelling, Vol.25, N°8, pp. 671-682, 2001.(IF:2.617)

Edited Special Issues (Selected)





Edited /Authored Books



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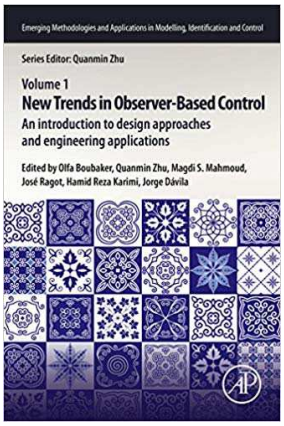

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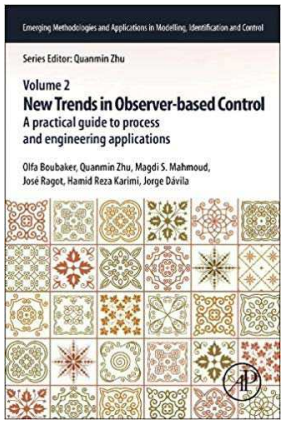

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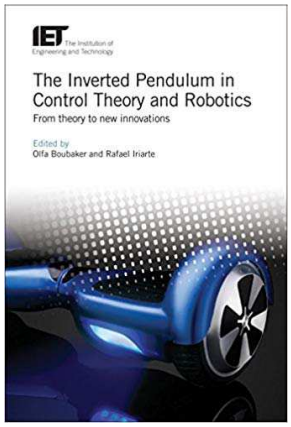

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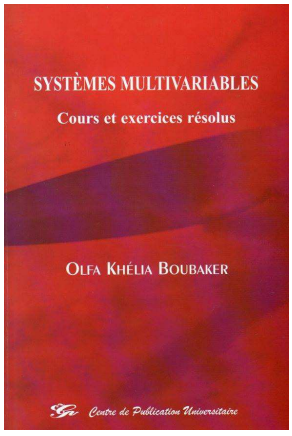

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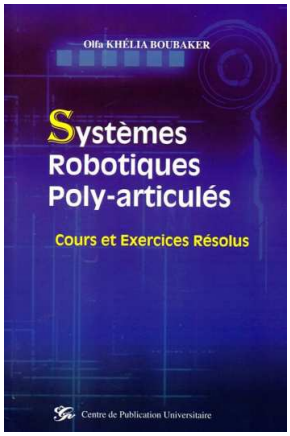

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