


## PERSONAL INFORMATION

## Mohamed CHAAABNE



 24 Cheikh Sallemi Street, 3011 Sfax (Tunisia)

 +21698230650

 chaabane.ucpi@gmail.com

Sex Male | Date of birth 26/08/1961 | Nationality Tunisian

## WORK EXPERIENCE

- 1988–1989 **Search Allocator of Education and Research,**  
Department (EEA) of Electrical engineering Electronics and Automatic Faculty of science,  
Nancy (France)
- 1989–1990 **Search Allocator of Education and Research**  
Institut Universitaire de Technologies de Montet, Nancy (France)
- 1990–1991 **Search Allocator of Education and Research**  
Ecole Supérieure des Sciences et Technologies de l'Ingénieur de Nancy, University of  
Nancy, Nancy (France)
- 1991–1992 **Search Allocator of Education and Research**  
Ecole Supérieure des Sciences et Technologies de l'Ingénieur de Nice, Sophia Antipolis,  
Nice (France)
- 1992–1997 **Associate Professor**  
Higher Institute of Technological Studies of Nabeul, ISET, Nabeul (Tunisia)
- 1997–2007 **Maître Assistant (Associate Professor)**  
Preparatory Institute for Engineering Studies of Sfax, Sfax (Tunisia)
- 2007–2011 **Maître de Conférence (Professor)**  
National School of Engineers of Sfax, Sfax (Tunisia)
- 2011–Present **Professeur (Full Professor)**  
National School of Engineers of Sfax, Sfax (Tunisia)

## EDUCATION AND TRAINING

- 2005 **Habilitation to the direction of search (HDR)**  
University of Sfax, Sfax (Tunisia)
- 1988–1991 **Thesis, Contribution to the analysis and synthesis of singular  
systems. Application to a fed-batch process in Biotechnology**  
University of Nancy, Nancy (France)

- 1987–1988 DEA in Electrical engineering, Electronics and Automatic, specialty Automatic (DEA: Diploma for Comprehensive Study : Diplôme d'Etudes Approfondies), University of Nancy, Bibliographical report: Losses mechanisms in photovoltaic modules; Practice Report: Development of a modeling assistance software written in Turbo Prolog and coupled with Turbo C  
University of Nancy, Nancy (France)
- 1981–1987 Master (Maîtrise) in Electrical engineering, Electronics and Automatic  
University of Reims, Reims (France)

## PERSONAL SKILLS

- Mother tongue(s) Arabic
- Foreign language(s) French, English

## ADDITIONAL INFORMATION

## Projects

**Participation in Research Projects**

In order to strengthen relations with our international cooperation projects both partners have been established with the first-LIAS-ENSIP, CRISTAL, CReSTIC and MIS in France. The second project with the University of Valladolid in Spain. Also projects with LAEPT University of Marrakech in Morocco, University of Applied Sciences Berlin (HTW), etc.

■ **Project 1: CMCU:**

Project Scientific and Technical Research CMCU type "Comité Mixte pour la Coopération Universitaire", Ref. 09G-114, and, as part of a scientific and technical cooperation between Tunisia and France.

**Title of the project (2009-2012):** Rational Application of solar energy to automatic control of agricultural and industrial systems.

Head of Tunisian project: Pr. Mohamed CHAABANE (UCPI Sfax).

Head of France project: Pr. Driss MEHDI (LAI of Poitiers)

■ **Project 2: PCI - MEDITERRANEAN:**

Inter-University Cooperation Project and scientific research between Tunisia and the type of PCI Spain. This project has been renewed three times Ref. A / 9428/07 and A / 023792/09, and, as part of a scientific and technical cooperation between Tunisia and Spain.

**Project Title 1 (2007-2009):** Advanced control of industrial processes, agricultural, electrical

**Project Title 2 (2009-2010):** Rational Application of solar energy for advanced control of agricultural systems

Head of Tunisian project: Prof. Mohamed CHAABANE (UCPI Sfax)..

Project Manager Spanish: Pr Fernando TADEO (University of Valladolid Spain).

**Project Title 3 (2011-2012):** Renewable Energy Technologies in Agriculture control systems for Learning & research

Head of Tunisian project: Pr. Mohamed CHAABANE (LabSTA Sfax)..

Project Manager Spanish: Pr. Teresa Alvarez (University of Valladolid Spain).

■ **Project 3: Mobility ICM ERASMUS+KA107 - 2016/2017-2017/2018-2018/2019**

Head of Tunisian project: Pr. Mohamed CHAABANE (University of Sfax)

Project Manager Spanish: Pr Fernando TADEO (University of Valladolid Spain)

■ **Project 4: Mobility ICM ERASMUS+KA107 USfax\_2019-2022\_191,**

**2019/2020-2020/2021-2021/2022**

Head of Tunisian project: Pr. Mohamed CHAABANE (University of Sfax)

Project Manager Spanish: Pr Fernando TADEO (University of Valladolid Spain)

**■ Project 5 EAC/03/2016, Wind Engineering Skills in Egypt and Tunisia/WESET 2017/2018-2018/2019-2019/2020-extended to 2021.**

Head of Tunisian project: Pr. Mohamed CHAABANE (University of Sfax)

Project Manager Spanish: Pr Fernando TADEO (University of Valladolid Spain)

**Conferences** International activities and memberships

Since 2008, General Chairs of international conference on Sciences and Techniques of Automatic control and computer engineering – STA.

Since 2007, Editors in Chief of International Journal on Sciences and Techniques of Automatic control & computer engineering – IJ-STA.

Since 2013, Member of steering committees of the International Conference on Systems and Control, ICSC. (October 14-16, 2020 Coen-France, October 23-25, 2019, Marrakech-Marocco ; October 24-26, 2018, Valencia-spain, etc.)

Member in the organizing committees of scientific meetings of young researchers in Electrical Engineering and Computer Science, GEI: 2004, 2005, 2006, 2007 et 2008

Member of the organizing committee and co-chair of the Communication Session Information Technology & Computer Engineering <sup>2</sup>CIT<sup>2</sup> of internationale Signals, Systems, Decision (SSD'03)

Member of the organizing committee of the first international conference Signals, Circuits and Systems (SCS'04)

Chairman of the Organising Committee for Scientific and Technological Days on Automatic Driving Agricultural Systems (CASA'2004)

Member of the organizing committee of international conference on Sciences and Techniques of Automatic control and computer engineering STA, from 2002 to 2007.

General Chairs of The fourth edition of the International Conference on Systems and Control will be held on 2015, ICSC'2015.

About the opening round about, I was the treasurer of the Tunisian Association of Digital Techniques and Automation (ATTNA), 2007-2019. Currently I am President of the ATTNA association. Which is a non-profit organization, it aims to promote technical and Digital Automatic encouraging links between universities, researchers and industry. ATTNA The main objective of participating in the dissemination and development of digital technology, auto and their applications.

**Publications** Publications

**More than a hundred articles** publications in international journals, **170** publications in international conference proceedings, **20** publications in national conference proceedings, 5 book chapters.

Around **twenty-five** Thesis director (**25**) thesis in Electrical Engineering

Recent publications (last five years)

I Iben Ammar, H Gassara, A El Hajjaji, F Tadeo, **M Chaabane**, Observer-based controller for positive polynomial systems with time delay, Optimal Control Applications and Methods 41 (1), 278-291, 2020.

MA Regaieg, J Bosche, M Kchaou, AE Hajjaji, **M Chaabane**, U-Admissibility with static output feedback for uncertain descriptor T–S systems, International Journal of Systems Science 50 (10), 2030-2041, 2019

MA Regaieg, M Kchaou, J Bosche, A El-Hajjaji, **M Chaabane**, Robust dissipative observer-based control design for discrete-time switched systems with time-varying delay, IET Control Theory & Applications, 2019.

M Allouche, S Abderrahim, HB Zina, **M Chaabane**, Power Optimization of PMSG wind energy conversion system using TS Fuzzy approach, International Journal of Smart Grid-ijSmartGrid 3 (3), 120-127, 2019.

M Elloumi, M Ghamgui, D Mehdi, F Tadeo, **M Chaabane**, Stability and Stabilization of 2D Singular Systems: A Strict LMI Approach, Circuits, Systems, and Signal Processing 38 (7), 3041-3057, 2019.

HB Zina, M Bouattour, **M Chaabane**, (1609-3173) Robust Takagi-Sugeno sensor fault tolerant control strategy for nonlinear system, Iranian Journal of Fuzzy Systems, 2019.

- S Makni, M Bouattour, A El Hajjaji, **M Chaabane**, Robust observer based Fault Tolerant Tracking Control for T–S uncertain systems subject to sensor and actuator faults, *ISA transactions* 88, 1-11, 2019.
- MA Regaieg, M Kchaou, A El Hajjaji, **M Chaabane**, Robust  $H^\infty$  guaranteed cost control for discrete-time switched singular systems with time-varying delay, *Optimal Control Applications and Methods* 40 (1), 119-140, 2019.
- I Haj Brahim, D Mehdi, **M Chaabane**, Sensor fault and state estimation for uncertain fuzzy descriptor systems: An LMI approach, *Transactions of the Institute of Measurement and Control* 41 (1), 135-144, 2019.
- M Ghamgui, D Mehdi, O Bachelier, **M Chaabane**, On the robust state-feedback stabilisation of nD hybrid Roesser models with implicit LFR uncertainty, *International Journal of Control* 91 (12), 2705-2713, 2018.
- M Allouche, K Dahech, **M Chaabane**, D Mehdi, Fuzzy observer-based control for maximum power-point tracking of a photovoltaic system, *International Journal of Systems Science* 49 (5), 1061-1073, 2019.
- S Boubzizi, H Abid, **M Chaabane**, Comparative study of three types of controllers for DFIG in wind energy conversion system, *Protection and Control of Modern Power Systems* 3 (1), 21, 2018.
- N. Harrabi, M. Souissi, A. Aitouche, M. Chaabane**, Control Strategies Grid Side Converter in Wind Generation System Based on Fuzzy approach, *International Journal of Applied Mathematics and Computer Science (AMCS)*, In press, 2018.
- N. Harrabi, M. Souissi, A. Aitouche, M. Chaabane**, Modeling and control of photovoltaic and fuel cell based alternative power systems, *International Journal of Hydrogen Energy*, Volume 43, Issue 25, 21 June 2018, Pages 11442-11451.
- N. Harrabi, M. Souissi, A. Aitouche, M. Chaabane**, Intelligent control of grid-connected AC–DC–AC converters for a WECS based on T–S fuzzy interconnected systems modelling, *IET Power Electronics*, Volume: 11, Issue: 9, 1507 – 1518, 2018.
- A. Ferjani, I. Zaidi, and **M. Chaabane**, Robust Observer-Based  $H^\infty$  Controller Design for Motorcycle Lateral Dynamics, *Mathematical Problems in Engineering*, Volume 2018, Article ID 2158129, 11 pages, <https://doi.org/10.1155/2018/2158129>
- H. Ben Zina, M. Allouche, M. Souissi, **M. Chaabane**, Larbi Chrifi-Aloui and Maha Bouattour. A Takagi-Sugeno fuzzy control of induction motor drive: experimental results. *International journal of Automation and Control*, Vol. 12, No. 1, pp:44-61, 2018.
- Elloumi, W., D. Mehdi, **M. Chaabane**, Robust Controlled Positive Delayed Systems with Interval Parameter Uncertainties: A Delay Uniform Decomposition Approach, *Int. J. Appl. Math. Comput. Sci.*, 2018, Vol. 28, No. 3, 441–450 DOI: 10.2478/amcs-2018-0033.
- H. Gassara, A. El Hajjaji, M. Krid, **M. Chaabane**, Stability analysis and memory control design of polynomial fuzzy systems with time delay via polynomial Lyapunov-Krasovskii functional, *International Journal of Control, Automation, and Systems*, Vol.16, No.4, pages 2011-2020, 2018.
- D. Kharrat, H. Gassara, A. El Hajjaji, **M. Chaabane**, Adaptive Observer and Fault Tolerant Control for Takagi-Sugeno Descriptor Nonlinear Systems with sensor and actuator faults, *International Journal of Control, Automation, and Systems*, Vol.16, No.3, pages 972-982, 2018.
- I. Iben Ammar, H. Gassara, A. El Hajjaji, **M. Chaabane**, New Polynomial Lyapunov Functional Approach to Observer-Based Control for Polynomial Fuzzy Systems With Time Delay, *International Journal of Fuzzy Systems*, Vol 20, No 4, pages: 1057–1068, 2018.
- D. Kharrat, H. Gassara, A. El Hajjaji, **M. Chaabane**, Adaptive Fuzzy Observer-Based Fault-Tolerant Control for Takagi–Sugeno Descriptor Nonlinear Systems with Time Delay, *Circuits, Systems, and Signal Processing*, Vol 37, No 4, pages: 1542-1561, 2018.
- M Allouche, K Dahech, **M Chaabane**, “Multiobjective maximum power tracking control of photovoltaic systems: TS fuzzy model-based approach”, *Soft Computing*, 22 (7), 2121-2132, 2018.
- Gassara, H., A. El Hajjaji and **M. Chaabane**, “Design of polynomial fuzzy observer–controller for nonlinear systems with state delay: sum of squares approach”, *International Journal of Systems Science* 48 (9), 1954-1965, 2017
- Gassara, H. F. Siala, A. ElHajjaji and **M. Chaabane**, “Local Stabilization of Polynomial Fuzzy Model with Time Delay: SOS Approach”, *International Journal of Control, Automation and Systems*, [dx.doi.org/10.1007/s12555-014-0575-5](https://doi.org/10.1007/s12555-014-0575-5), 15(1) 385-393, (2017).
- Ghamgui, M., D. Mehdi, O. Bachelier and **M. Chaabane**, “Stability of 2D Discrete Takagi–Sugeno Systems” *Circuits, Systems, and Signal Processing* 36 (6), 2256-2274, 2017.
- Brahim, I. H., **M. Chaabane** and D. Mehdi, “Fault-Tolerant Control for T–S Fuzzy Descriptor Systems

- with Sensor Faults: An LMI Approach”, International Journal of Fuzzy Systems 19 (2), 516-527, 2017.
- Bahloul, M., L. Chifi Alaoui, A. N. Vargas, **M. Chaabane**, and S. Drid, "Online robust estimation of flux and load torque in induction motors", International Journal of Advanced Manufacturing Technology, p.1-11, 2017.”
- Dhouha K., H. Gassara, A. El Hajjaji<sup>1</sup> and **M. Chaabane**, “Adaptive Fuzzy Observer-Based Fault-Tolerant Control for Takagi–Sugeno Descriptor Nonlinear Systems with Time Delay”, Circuits Syst Signal Process, DOI 10.1007/s00034-017-0624-42017.
- Zina, H. B, M. Allouche, M. Souissi, **M. Chaabane** and L. Chrifi-Alaoui, "Robust Sensor Fault-Tolerant Control of Induction Motor Drive", International Journal of Fuzzy Systems 19 (1), 155-166, 2017.
- Boubaker, O., VE Balas, A Benzaouia, **M. Chaabane**, MS Mahmoud, Q Zhu, "Time-delay systems: Modeling, analysis, estimation, control, and synchronization", Mathematical Problems in Engineering, <https://doi.org/10.1155/2017/1398904>, 2017.
- Ben Zina, H., M. Allouche, M. Souissi, **M. Chaabane**, L. Chrifi-Alaoui and M. Bouattour, “ Descriptor Observer Based Fault Tolerant Tracking Control for Induction Motor Drive”, Automatika, Journal for Control, Measurement, Electronics, Computing and Communications, Online ISSN 1848-3380, Print ISSN 0005-1144, ATKAFF 57(3), 703–713, (2016)
- Zaidi, I., A. Abid, F. Tadeo M. **Chaabane**, Robust  $\alpha$ -stabilization of uncertain positive Takagi-Sugeno systems with time-delay via memory state-feedback. Circuits, Systems and Signal Processing (CSSP), DOI: 10.1007/s00034-015-0075-8. Vol. 35, Issue 2, pp. 619-633, February 2016.
- Zaidi, I., **M. Chaabane** and F. Tadeo, “Static State Feedback Controller and Observer Design for Interval Positive Systems With Time Delay”, IEEE Transactions on Circuits and Systems-II (**Indexed Thomson**), 62-II(5): 506-510 (2015).
- Abid, H., Zaidi, I., Toumi, A., **Chaabane, M.**, T-S Fuzzy Algorithm for Photovoltaic Panel. International Journal of Fuzzy Systems. DOI: 10.1007/s40815-015-0025-4., March 2015.
- Elloumi, W., D. Mehdi, **M. Chaabane** and G. Hashim, "Exponential Stability Criteria for Positive Systems with Time-Varying Delay: A Delay Decomposition Technique", Circuits Systems and Signal Process (CSSP, **Indexed Thomson**), DOI 10.1007/s00034-015-0121-6, July 2015.
- Siala, F., H. Gassara, A. El Hajjaji and **M. Chaabane**, "Stability and Stabilization of Polynomial Fuzzy Systems with Time-Delay : New Approach", Circuits Systems and Signal Processing (CSSP, **Indexed Thomson**), DOI 10.1007/s00034-015-0209-z, pp. 1-30, Springer, December 2015.
- Abid, H., Toumi, A. and **M. Chaabane**, “MPPT Algorithm for Photovoltaic Panel Based on Augmented Takagi-Sugeno Fuzzy Model”, Renewable Energy (**Indexed Scopus**), Volume 2014, ArticleID253146, 10 pages, 2014.
- Allouche, M., **M. Chaabane**, M. Souissi, F. Tadeo and D. Mehdi, “Fuzzy sensor fault tolerant control of an induction motor”, Journal of Intelligent and Fuzzy Systems (IJFS, **Indexed Thomson**), 29(2): 713-723, 2015.
- Ben Zina, H., Allouch M., Souissi M. and **M. Chaabane** , “A trajectory Tracking sensor fault tolerant Controller design for Induction motor drive”, **Journal of electrical engineering** (JEE, **Indexed Scopus**), accepted, 2014.
- Napp, D., Tadeo F. and **M. Chaabane**, “State feedback positive stabilization of discrete descriptor systems”, International Journal of Innovative Computing Information and Control (IJICIC, **Indexed Scopus**), pp. 1853-1859, Vol. 10, N. 5, October 2014.
- Elloumi, W., A. Benzaouia and **M. Chaabane**, “Delay dependent Stabilization Conditions of Controlled Positive Continuous-time Systems”, International Journal of Automation and Computing (IJAC, **Indexed Scopus**), pp. 653-660, Vol.11, No.6, December 2014.
- Kchaou, M., Tadeo F. and **M. Chaabane**, A. Toumi, “Delay-dependent robust observer-based control for discrete-time uncertain singular systems with interval time-varying state delay”, International Journal of Control, Automation, and Systems (IJCAS, **Indexed Thomson**), Volume 12, **Issue 1**, pp. 12-22, February 2014.
- Gassara, H., El Hajjaji M. and **M. Chaabane**, “Adaptive fault tolerant control design for Takagi–Sugeno fuzzy systems with interval time-varying delay”, Optimal Control Application and Methods (**Indexed Thomson**), DOI:10.1002/oca.2091, 2014.
- Gassara, H., El Hajjajia A., Kchaoub M. and **M. Chaabane**, “Observer based (Q,V,R)- $\alpha$ -dissipative control for TS fuzzy descriptor systems with time delay”, Journal of the Franklin Institute (**Indexed Thomson**), pp. 187–206, Vol. 351, 2014.
- Gassara, H., Kchaoub M., El Hajjajia A. and **M. Chaabane**, “Control of Time Delay Fuzzy Descriptor Systems with Actuator Saturation”, Circuits System Signal Process (CSSP, **Indexed Thomson**), DOI 10.1007/s00034-014-9836-z, June 2014.

Ghorbel, H., ElHajjaji A., Souissi M. and **M. Chaabane**, “Robust Tracking Control for Takagi–Sugeno Fuzzy Systems With Unmeasurable Premise Variables: Application to Tank System”, *Journal of Dynamic Systems, Measurement, and Control* (ASME, **Indexed Thomson**), DOI:10.1115/1.4026467, Vol. 136/041011-1, July 2014.

Ghorbel, H., El Hajjaji M., Souissi M. and **M. Chaabane**, “Fault-Tolerant Trajectory Tracking Control for Takagi–Sugeno Systems with Unmeasurable Premise Variables: Descriptor Approach”, *Circuits System Signal Process* (CSSP, **Indexed Thomson**), DOI10.1007/s00034-013-9728-7, 2014.