Amor Messaoud

Associate Professor of Quantitative Methods
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Personal Information

Sex: male
Nationality: Tunisian
Marital status: married since 2012 with two children

Fields of interest

Industrial statistics, risk analysis, economic and simulation modeling and big data analytics.

Education

- 2013: Habilitation to conduct researches, Higher Institute of Management of Tunis (Institut Supérieur de Gestion de Tunis), Tunis University, Tunisia.

- 2002-2006: Ph.D. of Statistics at the Department of Statistics, Dortmund University of Technology, Germany.

- 1998-2001: Master of Sciences: Quantitative Methods in Management. Higher Institute of Management of Tunis (Institut Supérieur de Gestion de Tunis), Tunis University, Tunisia.

- 1994-1998: Bachelor: Management Sciences (finance). Institute of Advanced Business Studies of Carthage (Institut des Hautes Etudes Commerciales de Carthage), University of Carthage, Tunisia.

Consulting and projects

- From 2024 : Member of the LEGI-CIRED project PHC-UTIQUE24 "Développement d'outils d'aide à la décision publique pour une transition énergétique juste en Tunisie".

- 2023: Member of the LEGI-STEG-CIRED (IMAGINE) project on "Assessment of the impacts of the financing mechanisms of the energy transition in Tunisia with the hybrid computable general equilibrium model IMACLIM".

- January 2019 – March 2023: Senior data analyst. MoonStar Communications GmbH Kaiserswertherstr. Kaiserswertherstr. 215, 40474 Düsseldorf, Germany.
    - ✓ Working in the HiDALGO project (HPC and Big Data Technologies for Global Systems) https://hidalgo-project.eu/
    - ✓ High performance data analytics of Telecommunication data
    - ✓ Coupling Telecommunication data with the migration and social network simulations
    - ✓ Contributed to project deliverables D2.1, D2.2, D2.3, D4.1, D4.2, D4.3, D4.4, D6.4 and D6.6
    - ✓ Internal reviewer of project deliverables D2.4, D6.1 and D6.4.

- August 2018 – October 2018: Senior MEL Evaluation Advisor for the for the Libya Economic Stabilization Program (LESP)
    - ✓ Data collection methodologies for approved indicators by USAID.
    - ✓ Data analytics.

Career Stages

- 2023-Now: Associate Professor at the Tunisia Polytechnic School, University of Carthage, Tunisia.
- 2023: Professor of the "Market Analysis" course within the business courses "Marketing and Digital Technologies" at the Mediterranean Academy of Culture, Technology and Trade, Malta. https://www.mactt.eu/courses-list/marketing-and-digital-technologies/

- 2011-2023: Associate Professor at Tunis Business School, University of Tunis, Tunisia.
    - ✓ Coordinator of the scientific collaboration between the University of Tunis and the University of Cassino and Southern Lazio, Italy (2019-2024)
    - ✓ Responsible of the Erasmus+ program between the University of Tunis and the University of Cassino and Southern Lazio, Italy (2018-2022)
    - ✓ Member of the scientific council (2012-2020)
    - ✓ Coordinator of the Statistics and data analytics courses (2011-2016)
    - ✓ Responsible of the international collaboration (Erasmus program) with the University of Cassino and Southern Lazio, Italy

- 2021-2022: Member of the national recruiting committee of assistant professors in quantitative methods.

- 2021-Now: Visting professor at the Polytechnic school of Tunis, University of Carthage.

- 2021-2022: Visiting professor at the Université Tunis Carthage.

- July 2022: Visiting professor at the University of Cassino and Southern Lazio. Italy.

- 2021-Now: Co-organizer of a dual master degree between the University of Carthage and the University of Cassino and Southern Lazio, Italy.

- June 2019: Visiting professor at the University of Cassino and Southern Lazio. Italy.

- April 2018: Visting professor at the University of Cassino and Southern Lazio. Italy.

- 2013-2021: Visiting professor at the Mediterranean School of Business.

- 2008-2011: Assistant Professor of the Department of Quantitative Methods, Faculty of Juridical, Economic Sciences and Management. Jendouba University, Tunisia.

- 2006-2007: Employee at TU Dortmund, Germany.

- 2002-2006: PhD student at TU Dortmund, Germany.

- 2001-2002: Assistant in the Higher School of Economic and Commercial Sciences of Tunis(Ecole Supérieure des Sciences Economiques et Commerciales de Tunis), Tunis University, Tunisia.

- 2000-2001: Special contract allowing teaching at the Higher Institute of Management of Tunis (Institut Supérieur de Gestion de Tunis), Tunis University, Tunisia.

Research

1. Ph.D. subject: Monitoring strategies for chatter detection in a drilling process. Advisors Prof. Claus Weihs and Prof. Mohamed Limam.
http://hdl.handle.net/2003/23274

2. Master subject: Statistical control by monitoring and feedback adjustment. Advisor Prof. Mohamed Limam.

3. Bachelor project: Couverture du risque de change: Cas des options de change. Advisor Dr. Ryadh El Frektaji.

Publications

Refereed Journal Articles

1. Messaoud, A. & Porzio, G. C. (2023). On the robustness of the principle nested spheres. To be submitted.

2. Demni, H., Messaoud, A. & Porzio, G. C. (2021). Distance-based directional depth classifiers: a robustness study. Accepted for publication in the journal Communications in Statistics-Simulation and Computation.

3. Vencalek, O., Demni, H., Messaoud, A. & Porzio, G. C. (2020). On the optimality of the max-depth classifiers for spherical data. Applications of Mathematics, Volume 65, pp. 331-342. https://link.springer.com/article/10.21136/AM.2020.0331-19

4. Weihs, C., Messaoud, A. & Raabe, N. (2010). Control charts based on models derived from differential equations. Quality and Reliability Engineering International, Volume. 26, Issue 8, pp. 807-816.

5. Messaoud, A. & Weihs, C. (2009). Monitoring a drilling process by nonlinear time series modeling. Journal of Sound and Vibration, Volume 321, Issues 3-5, pp. 620-630.

6. Messaoud, A., Theis, W., Weihs, C. & Hering, F. (2009). Monitoring of the BTA deep hole drilling process using residual control charts. Quality Engineering, Volume 21, Issue 1, pp. 1-9.

7. Messaoud, A., Weihs, C. & Hering, F. (2008). Detection of chatter vibration in a drilling process using multivariate control charts. Computational Statistics and Data Analysis, Volume 52, Issue 6. pp. 3208-3219.

Proceedings of International Conferences

1. Demni H., Messaoud A. & Porzio G.C. (2019) The Cosine Depth Distribution Classifier for Directional Data. In: Bauer N., Ickstadt K., Lübke K., Szepannek G., Trautmann H., Vichi M. (eds) Applications in Statistical Computing. Studies in Classification, Data Analysis, and Knowledge Organization. Springer, Cham. Print ISBN: 978-3-030-25146-8. pp 49-60. https://doi.org/10.1007/978-3-030-25147-5_4

2. Messaoud, A., Porzio, G., Abidi, H. & Limam, M. (2011). A data depth based EWMA control charts, proceedings of the "43 ème Journées de Statistique" conference (JdS 2011), Tunis, Tunisia.

3. Weihs, C., Messaoud, A. & Raabe, N. (2009). Control charts based on models derived from differential equations. In: Conference-CD of the 9th Annual Meeting of the European Network for Business and Industrial Statistics (ENBIS), Göteborg, Sweden.

4. Messaoud, A. & Weihs, C. (2008). On the properties of the rank based multivariate exponentially weighted moving average control charts. In: H. Burkhardt, L. Schmidt-Thieme, R. Decker (Eds.), Data Analysis, Machine Learning and Applications, Series: Studies in Classification, Data Analysis, and Knowledge Organization, Springer- Verlag, Berlin, pp. 455-462.

5. Messaoud, A., Weihs, C. & Hering, F. (2006). Nonlinear time series modelling: monitoring a drilling process. In:M. Spiliopoulou, R. Kruse, A.Nürnberger, C.Borgelt,and W. Gaul (Eds.), From Data and Information Analysis to Knowledge Engineering, Series: Studies in Classification, Data Analysis, and Knowledge Organization, Springer- Verlag, Berlin, pp. 302-309.

6. Messaoud, A., Theis, W., Weihs, C. & Hering, F. (2005). Application and use of multivariate control charts in a BTA deep hole drilling process. In: C. Weihs, and W. Gaul (Eds.), Classification-The Ubiquitous Challenge, Series: Studies in Classification, Data Analysis, and Knowledge Organization, Springer-Verlag, Berlin. pp. 648-655.

7. Messaoud, A., Weihs, C. & Hering, F. (2005). Time series, control charts: an industrial application. In: J. Janssen, P. Lenca (Eds.), Proceedings of the XIthInternational Symposium on Applied Stochastic Models and Data Analysis, ASMDA 2005, pp. 1329-1337, Brest, France.

8. Messaoud, A., Theis, W., Weihs, C. & Hering, F. (2004). Improving the BTA deep hole drilling process using multivariate control charts. In: S. Ekinovic, S. Brdarevic, J. Vivancos, and F. Puerta (Eds.), Proceedings of the 8th International Research/Expert Conference "Trends in the Development of Machinery and Associated Technology", TMT 2004, pp. 67-70, Neum, Bosnia and Herzegovina.

Technical Reports and Other publications

1. Weihs, C. & Messaoud, A. (2005). Monitoring strategies for chatter detection in a drilling process. In: Graduate School of Production Engineering and Logistics Research Report, NRW Graduate School, pp. 50-53.

2. Messaoud, A., Theis, W., Weihs, C. & Hering, F. (2004). Application and use of multivariate control charts in a BTA deep hole drilling process. Technical report 30/2004 of SFB 475, Dortmund University of Technology.

3. Messaoud, A.,Theis, W.,Weihs, C. & Hering, F. (2004). Monitoring the BTA deep hole drilling process using residual control charts.Technical report 60/2004 of SFB 475, Dortmund University of Technology.

4. Messaoud, A.,Weihs, C. & Hering, F. (2004). A nonparametricmultivariate control chart based on data depth. Technical report 61/2004 of SFB 475, University of Dortmund.

Publications within the HiDALGO project
(D4.1, D4.4 and D6.6 are available on https://hidalgo-project.eu/index.php/reports)

Contributor to deliverables

1. "HiDALGO D2.1 Stakeholder Context and initial Exploitation assets"
2. "HiDALGO D2.2 Intermediate Report on Exploitation and Sustainability Strategy"
3. "HiDALGO D2.3 Legal Contract for HiDALGO"
4. "HiDALGO D4.1 Initial Status of the Pilot Applications (hidalgo-project.eu)".
5. "HiDALGO D4.2 Implementation Report of the Pilot Applications".
6. "HiDALGO D4.3 Implementation Report of the Pilot Applications Year 2".
7. "HIDALGO_D4.4 Final implementation report of the pilot and future applications_v1.0.pdf (hidalgo-project.eu)"
8. "D6.4 Initial Report on Requirements, Components and Workflow Integration"
9. "HiDALGO_D6.6 Final Report on Requirements, Components and Workflow Integration_v1.0.pdf (hidalgo-project.eu)"

Internal reviewer of

1. "D2.4 Final Report on Component Exploitation and Sustainability Strategy"
2. "D6.1 Requirements Process and Results Definition"
3. "D6.4 Initial Report on Requirements, Components and Workflow Integration".

Work in Progress

1. Monitoring directional data (with G. Porzio from the University of Cassino and Southern Lazio, Italy)
2. Graph embeddings applied on biological networks (with Mario Rosario Guarracino from the University of Cassino and Southern Lazio, Italy)

Conference Presentations

1. Guarraccino, M. R. Messaoud, A. Msakni, Y. & Porzio, G. C (2022). A Random Generator of Hypergraphs Ensembles. The 16th Learning and Intelligent Optimization Conference June 5-10, 2022 (Milos Island, Cyclades, Greece).

2. Demni, H. Messaoud, A. Porzio, G. C. (2019). Depth based classification of directional data. Nova Seninka, Czech Republic, November 23.

3. Messaoud, A. Demni, H., & Porzio, G. C. (2019). The Cosine Depth Distribution Classifier for Directional Data. AG DANK Herbsttagung 2019, Dortmund, Germany, 10-11 October.

1. Demni, H. Messaoud, A. Porzio, G. C. (2019). On the robustness of directional depth classifiers. CLADAG 2019, Classification and data analysis meeting, Cassino, Italy, 12 September.

2. Porzio, G. C., Demni, H. & Messaoud, A. (2019). Classification of directional data through data depth. Pescara, Italy, July 19.

3. Messaoud, A. & Porzio, G. C. (2019). A sequential EWMA control chart for circular data. The 6th Symposium of statistical process monitoring (ISSPM 2019), University of Carthage, Tunisia, July 8-12.

4. Demni, H. Messaoud, A. Porzio, G. C. (2018). Nonparametric classification of directional data through depth functions. Joint meeting SIS-SDS group and itENBIS on statistics and data science: new developments for business and industrial applications, Torino, Italy, 24-25 May.

5. Abdaoui, A. Messaoud, A. Porzio, G. C. (2018). A sequential EWMA control chart for circular data. Joint meeting SIS-SDS group and itENBIS on statistics and data science: new developments for business and industrial applications, Torino, Italy, 24-25 May.

6. Abdaoui, A. Demni, H. & Messaoud, A. (2016). A Control Chart For Monitoring Image Data and Providing Both Spatial and Temporal Diagnostic Information. The 2016 International Conference on Decision Aid Sciences and Applications (DASA'16), Hammamet, Tunisia, 18-20 July.

7. Demni, H. Abdaoui, A. & Messaoud, A. (2016). A Review and perspectives on Control charting with 3D scanned data. The 2016 International Conference on Decision Aid Sciences and Applications (DASA'16), Hammamet, Tunisia, 18-20 July.

8. Messaoud, A. Porzio, G. Ragozini, G. & Limam, M. (2012). A Nonparametric Multivariate Location Control Chart for Angular Symmetric Distributions. 12th Annual Meeting of the European Network for Business and Industrial Statistics (ENBIS 12), Ljubljana, Slovenia, 09-13 September.

9. Messaoud, A. Porzio, G. & Limam, M. (2011). Convex hull peeling: a new nonparametric multivariate control chart. Invited presentation at the 10th Workshop on Quality Improvement methods, HausVilligst, Germany, 03-04 June.

10. Messaoud, A., Raabe, N. & Weihs. C. (2010). Prediction of spiralling in BTA deep-hole drilling. 2nd Meeting on Statistics and Data Mining (MSDM 2010), Hammamet, Tunisia, March 5-6.

11. Weihs, C. Messaoud, A. & Raabe, N (2009). Control charts based on models derived from differential equations. 9th Annual Meeting of the European Network for Business and Industrial Statistics (ENBIS 9), Göteborg, Sweden, 20-24 September.

12. Messaoud, A. (2009). On the performance of the rCUSUM nonparametric control chart. 1st Meeting on Statistics and Data Mining (MSDM 2009), Hammamet, Tunisia, March 5-6.

13. Messaoud, A.& Weihs, C. (2007). On the properties of the rank based multivariate exponentially weighted moving average control charts. 31th Annual Conference of the GfKl (GesellschaftfürKlassifikation), Freiburg, Germany, 09-11 March.

14. Messaoud, A., Raabe, N., Webber, O., Enk, D. & Weihs. C. (2007). Prediction of spiralling in BTA deep-hole drilling. 7th Annual Conference of ENBIS, Dortmund, Germany, September 24-26.

15. Messaoud, A. (2006). A new nonparametric multivariate exponentially weighted moving average control chart. Invited presentation at the 5th Workshop on Quality Improvement methods, Witten-Bommerholz, Germany, 26-27 May.

16. Messaoud, A., Weihs, C. & Hering, F. (2005). Nonlinear time series control charts. 29th Annual Conference of the GFKL (GesellschaftfürKlassifikation), Magdeburg, Germany, 09-11 March.

17. Messaoud, A., Weihs, C. & Hering, F. (2005). Time series, control charts: an industrial application. XIth International Symposium on Applied Stochastic Models and Data Analysis, ASMDA 2005, Brest, France, 17-20 May.

18. Messaoud, A., Theis, W., Weihs, C. & Hering, F. (2004). Improving the BTA deep hole drilling process using multivariate control charts. 8th International Research/Expert Conference" Trends in the Development of Machinery and Associated Technology", TMT 2004, Neum, Bosnia and Herzegovina, 15-19 September.

19. Messaoud, A., Theis, W., Weihs, C. & Hering, F. (2004). Monitoring and control of the BTA drilling process. 28th Annual Conference of the GFKL (GesellschaftfürKlassifikation), Dortmund, Germany, 09-11 March.

PhD Supervision

- 2018-2021: A dual PhD prepared by Houyem Demni entitled "Depth-based classification approaches for directional data". The University of Tunis and the University of Cassino and Southern Lazio, Italy, were involved in this dual PhD program. This PhD thesis was also supervised by Prof. Giovanni Camillo Porzio from the University of Cassino and Southern Lazio.

Master Supervision

- 2023: A master thesis prepared by Rania Fallah entitled "Prévision de l'inflation avec les techniques de machine learning". This work was also supervised by Prof. Rached Bouaziz from the University of Carthage.

- 2021: A master thesis in progress prepared by bechir Beji entitled "Reducing dimensionality for hyper-spherical data". This work was also supervised by Prof. Giovanni Camillo Porzio from the University of Cassino and Southern Lazio.

- 2020: A master thesis prepared by Anas Belkhiria entitled "Visualizing goodness-of-fit tests for circular data". This work was also supervised by Prof. Giovanni Camillo Porzio from the University of Cassino and Southern Lazio.

- 2016: A master thesis prepared by Refka Guesmi entitled "A scoring approach for personality prediction in social network: Twitter case". Higher Institute of Management of Tunis, University of Tunis.

- 2016: A master thesis prepared by Houyem Demni entitled "A Generalized likelihood ratio versus an adaptive cumulative sum control chart for monitoring 2D images". Higher Institute of Management of Tunis, University of Tunis.

- 2016: A master thesis prepared by Hajer yakoubi entitled "The use of statistically efficient design for dimensional analysis". Higher Institute of Management of Tunis, University of Tunis.

- 2015: A master thesis prepared by Asma Abdaoui entitled "A generalized likelihood ratio (GLR) control chart for monitoring image data and providing both spatial and temporal diagnostic information". Higher Institute of Management of Tunis, University of Tunis.

PhD thesis committees

- 2022: Examiner (rapporteur) of the PhD thesis prepared by Omar ben Abdallah "Improving level crossing safety". Faculty of Economics Sciences and Management of Sfax, Univeristy of Sfax.

- 2019: Examiner (rapporteur) of the PhD thesis prepared by Emira Khediri entitled "SPC for monitoring multinomial processes". Higher Institute of Management of Tunis, University of Tunis.

- 2018: Examiner (rapporteur) of the PhD thesis prepared by Miryam Daoud Marrakchi entitled "Efficiency assessment of Tunisian public hospitals using DEA approach". Higher Institute of Management of Tunis, University of Tunis.

- 2015: Examiner (rapporteur) of the PhD thesis prepared by Dhouha Mejri "Multivariate statistical process control using Dynamic ensemble method techniques". Technical University of Dortmund. Germany.

- 2015: Member of the PhD committee of the PhD thesis prepared by Saoussen Bahria about Statistics and remote sensing. Higher Institute of Management of Tunis, University of Tunis.

Scientific Activities

- Member of Laboratory LEGI, Ecole Polytechnique de Tunis, Université de Carthage.

- 2008-2012: General Secretary of the Tunisian Association of Statistics and its Applications (TASA).

- Member of the European Network of Business and Industrial Statistics (ENBIS).

- Member of the Organizing Committee of the first Meeting on Statistics and Data Mining (MSDM 2009), March 05-06 2009, Hammamet, Tunisia.

- Member of the Organizing Committee of the third Meeting on Statistics and Data Mining (MSDM 2012), March 15-16 2012, Hammamet, Tunisia.

- Member of the Organizing Committee of the fourth Meeting on Statistics and Data Mining (MSDM 2013), March 14-15 2013, Hammamet, Tunisia.

Training Periods

- January 2000, One month training in the probability and statistics laboratory of the University of Montpellier II.

- August 1996, One month training in the BEST Bank (Beit Ettamouil SaoudiTounsi).

- July-August 1995, One month training in the STB Bank (Société Tunisienne de Banque).

Computer Skills

- Mathematics and Statistics Software: SPSS and Minitab.
- Programming Languages: Python, R, Matlab and C++.
- Big data tools: SPARK

Languages

- Arabic (mother tongue)
- French (writing: perfect, speaking: perfect)
- English (writing: good, speaking: good)
- German (writing: basic, speaking: basic)