Dhafer Malouche, Ph.D., Professor of Statistics

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Employment History

August 2022 – · · · · · · **Qatar University**, Professor of Statistics, Department of Mathematics, Statistics and Physics, College of Arts and Sciences.

July 2021 – July 2022 **The American University in Cairo**, Professor of Statistics, Department of Mathematics and Actuarial Science, School of Sciences and Engineering. **Teaching:** Statistical Inference, Introduction to Statistics, Data Science with Python

04/2021 – · · · · **Pan-African Scientific Research Council**, Fellow member.

10/2020 – – · · · · **Covidradar24.org** and **Rosettahub.com**, Data analyst master contributor in a real time COVID-19 tracking data science platform.

05/2020 - 05/2021 **World Health Organization, Tunisia** Senior data analyst consultant, Measuring the impact of the COVID 19 pandemic on psychiatric needs of the general population in Tunisia, data collected from a hot line accessible throughout the country, including those without access to Internet.

05/2020 – 01/2021 **WARC, Africa, Sierra Leone** Data analyst consultant, Setting up an online daily data monitoring platform for a survey implemented in Sierra Lean.

2003 – · · · · **University of Carthage,** Ecole Supérieure de la Statistique et de l'Analyse de l'Information, Tunis, Tunisia

- **Positions:** Professor (from 2018), Associate Professor (2011-2018), Assistant Professor (2003-2011).
- **Teaching:** Data Analysis: Principal Component Analysis, Correspondence Analysis, and Multiple Correspondence Analysis, Theory and Practice with `R`, Mathematical Statistics: Statistical Inference, Hypothesis Testing, Regression Analysis, Theory and Practice with `R`, Data Mining and Practice with `R`, Bayesian Statistics with `OpenBugs/Winbugs/RStan/Jags`, Time Series: ARMA and SARIMA Processes, Theory and Practice with `R/Python`, Big Data: Large Data with `R/Python`, `SQL`, `Spark`, `H2O`, Advanced `R/Python`: Data Management, Data Visualization, Dashboards, Shiny Apps, Heroku Apps, Bokeh.
- **Research:**
  - Supervising 5 Ph.D.: Detection and classification of swallowing sound, Sensory Analysis, Genetics, Zoonotic cutaneous leishmaniasis incidence, Cardiovascular risk factor.
  - Papers and collaborations: I had published and coauthored more than 40 scholar papers.
  - Supervising Master and Engineering Thesis on several topics related to applied statistics and data science.
- **Administration:** Director of the Department of Statistics (2004-2007)

Employment History (continued)

2014 – 2019 **Yale University,** Whitney and Betty MacMillan Center for International and Area Studies and the Department of Statistics and Data Science, New Haven, USA.

- **Positions:** Visiting Associate Professor (2014), Consulting on several projects with Yale Scholars (2015-2018), Associate Research Scholar (2019).
- **Missions:** Democratic Transition in Tunisia, Governance and Local Development: Implementing two face-o-face Surveys in Tunisia, G-econ team on building local GDP data,Teaching Time Series with `R/Python Course`.

2016 – 2017 **University of Michigan**, Center for Political Studies of the Institute for Social Research, Ann Arbor, USA.

- **Position:** Visiting Fulbright Scholar.
- **Role:** Research: Working on Data Quality, Survey Methodology, Interviewer Effect, Teaching: 4 Lectures on Applied graphical Models, 1 Lecture on Data visualization with `R`, 1 Lecture on Sensory Analysis.

2011 (May to July) **Stanford University**, Department of Statistics, Palo alto, USA.

- **Position:** Visiting Fulbright Scholar.
- **Role:** Research on Graphical Models, Faithfulness assumption, and Covariance graphs.

2002 – 2003 **York University**, Department of Statistics, Toronto, Canada.

- **Position:** Visiting Assistant Professor,
- **Teaching:** Applied Regression Models with SAS, Introduction to the theory of probability, Introduction to Statistics with Minitab,
- **Research:** Monte Carlo Methods and Bayesian Estimation of the Graphical Models.

1998 – 2002 **University of Sousse** , Institut Préparatoire aux Ecoles d'Ingénieurs, Sousse, Tunis.

- **Teaching:** Analysis, Calculus, Algebra
- **Research:** Natural Exponential Families, Pick functions, Markov Chains
- **Administration:** Director of the Department of Mathematics

Education

Sept 2009 **Habilitation *(Tenure)*, Statistics, Université de Tunis El Manar** Ecole National d'Ingénieurs de Tunis, Tunisia.
Thesis title: *Problèmes autour de la probabilité et de la statistique: Méthodes et Applications.*
Dissertation: `https://malouche.github.io/myCV/reports.html`

October 1997 **Doctorate, *(Ph.D.)*, Statistics, Paul Sabatier University,** Toulouse, France.
Thesis title: *Classification des familles exponentielles associées à des fonctions Pick*.
Dissertation: `https://malouche.github.io/myCV/reports.html`

1993–1994 **Master's Degree (D.E.A), Paul Sabatier University, Applied Mathematics, Statistics**

1989 – 1993 **Bachelor (Maîtrise)**, Ecole Normale Supérieure de Bizerte, Tunisia.

Skills

Languages	Strong reading, writing and speaking competencies for English, French, and Arabic.
Coding	Python, R, TABLEAU, SPARK, H2O, Shiny, LaTeX, …
Misc.	Quantitative research, Project management, Qualitative research, Data Mining, Machine Learning, Big Data, Academic research, Teaching, training, consultation, LaTeX typesetting and publishing.

Papers

Research interests: Graphical models, Public health, COVID-19, Research and development, Well being, Survey methodology, Data quality, Consumer preferences, Genetics.

Research papers

1. Rebhi, I., & Malouche, D. (2023). Sensmap r package and sensmapgui shiny web application for sensory and consumer data mapping: Variations on external preference mapping and stability assessment. *Jorunal of Sensory Studies*. doi:http://doi.org/10.1111/joss.12809. eprint: https://onlinelibrary.wiley.com/doi/10.1111/joss.12809
2. Ben-Hassine, K., Taamalli, A., Rezig, L., Yangui, I., Benincasa, C., Malouche, D., … Mnif, W. (2022). Effect of processing technology on chemical, sensory, and consumers' hedonic rating of seven olive oil varieties. *Food Science & Nutrition*. doi:https://doi.org/10.1002/fsn3.2717. eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1002/fsn3.2717
3. Ben-Hassine, K., Yangui, I., Mnif, W., Taamalli, A., Benincasa, C., Kamoun, N., & Malouche, D. (2022). Chemometric analysis and physicochemical composition of foreign and tunisian olive oil: Consumer preferences. *Journal of Food Quality, vol. 2022, Article ID 3981028*, 10 pages. Retrieved from https://doi.org/10.1155/2022/3981028
4. Malouche, D. (2021c). Implication of faithfulness assumption. *Sankhyā B : The Indian Journal of Statistics*. Retrieved from https://doi.org/10.1007/s13571-021-00271-0
5. Saidi, O., Malouche, D., Saksena, P., Arfaoui, L., Talmoudi, K., Hchaichi, A., … Ben Alaya, N. (2020). Impact of contact tracing, respect of isolation and lockdown in reducing the number of cases infected with covid-19: Case study: Tunisia's response from march 22 to 04 may 2020. *International Journal of Infectious Diseases*. Retrieved from https://doi.org/10.1016/j.ijid.2021.02.010
6. Kongbonga, G. Y. M., Hassine, K. B., Ghalila, H., Malouche, D. et al. (2019). Front-face fluorescence using uv-led coupled to usb spectrometer to discriminate between virgin olive oil from two cultivars. *Food and Nutrition Sciences*, *10*(02), 119. Retrieved from http://www.scirp.org/journal/PaperInformation.aspx?PaperID=90405&#abstract
7. Mekki, I., Malouche, D., Smeti, S., Hajji, H., Mahouachi, M., M, E., & Atti, N. (2019). Study of the breeding systems of sheeps in the montagnous area of north-western tunisia. *Livestock Research for Rural Development*, *31*(108). Retrieved from http://www.lrrd.org/lrrd31/7/ilyes31108.html
8. Saidi, O., Hajjem, S., Zoghlami, N., Aounallah-Skhiri, H., Mansour, N. B., Hsairi, M., … O'Flaherty, M. et al. (2019). Premature mortality attributable to smoking among tunisian men in 2009. *Tobacco induced diseases*, *17*. Retrieved from https://dx.doi.org/10.18332%2Ftid%2F112666
9. Saidi, O., O'Flaherty, M., Zoghlami, N., Malouche, D., Capewell, S., Critchley, J. A., … Guzman Castillo, M. (2019). Comparing strategies to prevent stroke and ischemic heart disease in the tunisian population: Markov modeling approach using a comprehensive sensitivity analysis algorithm. *Computational and mathematical methods in medicine, 2019*. Retrieved from https://doi.org/10.1155/2019/2123079
10. Saidi, O., Zoghlami, N., Bennett, K. E., Mosquera, P. A., Malouche, D., Capewell, S., … O'Flaherty, M. (2019). Explaining income-related inequalities in cardiovascular risk factors in tunisian adults during the last decade: Comparison of sensitivity analysis of logistic regression and wagstaff decomposition analysis. *International journal for equity in health*, *18*(1), 177. Retrieved from https://equityhealthj.biomedcentral.com/articles/10.1186/s12939-019-1047-6
11. Salem, S., Malouche, D., & Romdhane, H. B. (2019). Tunisian population quality of life: A general analysis using sf-36. *Eastern Mediterranean Health Journal*, *25*(9). Retrieved from https://apps.who.int/iris/bitstream/handle/10665/333459/10203397192509-eng.pdf#page=23
12. Khlaifi, H., Istrate, D., Demongeot, J., & Malouche, D. (2018). Swallowing sound recognition at home using gmm. *IRBM*, *39*(6), 407–412. JETSAN. doi:https://doi.org/10.1016/j.irbm.2018.10.009

13. Benstead, L. J., Kao, K., Landry, P. F., Lust, E. M., & Malouche, D. (2017). Using tablet computers to implement surveys in challenging environments. *Survey Practice*, *10*(2), 1–9. Retrieved from https://doi.org/10.29115/SP-2017-0009

14. Rebhi, I., & Malouche, D. (2017a). An approach for external preference mapping improvement by denoising consumer rating data. *International Journal of Advanced Computer science and Applications*, *8*(12), 500–508. Retrieved from https://doi.org/10.14569/IJACSA.2017.081266

15. Rebhi, I., & Malouche, D. (2017b). Decision making about products development through consumer preferences modeling based on descriptive characteristics of products. *IEEE/ACS 14th International Conference on Computer Systems and Applications (AICCSA)*, 423–430. Retrieved from https://doi.org/10.1109/AICCSA.2017.202

16. Talmoudi, K., Bellali, H., Ben-Alaya, N., Saez, M., Malouche, D., & Chahed, M. K. (2017a). Comparative performance analysis for generalized additive and generalized linear modeling in epidemiology. *International Journal of Advanced Computer Science and Applications*, *8*(12). doi:10.14569/IJACSA.2017.081255

17. Talmoudi, K., Bellali, H., Ben-Alaya, N., Saez, M., Malouche, D., & Chahed, M. K. (2017b). Modeling zoonotic cutaneous leishmaniasis incidence in central tunisia from 2009-2015: Forecasting models using climate variables as predictors. *PLoS neglected tropical diseases*, *11*(8), e0005844. Retrieved from https://doi.org/10.1371/journal.pntd.0005844

18. Triki, H. Z., Laabir, M., Lafabrie, C., Malouche, D., Bancon-Montigny, C., Gonzalez, C., … Daly-Yahia, O. K. (2017). Do the levels of industrial pollutants influence the distribution and abundance of dinoflagellate cysts in the recently-deposited sediment of a mediterranean coastal ecosystem? *Science of the Total Environment*, *595*, 380–392. Retrieved from https://doi.org/10.1016/j.scitotenv.2017.03.183

19. Aouinti, S., Giudicelli, V., Duroux, P., Malouche, D., Kossida, S., & Lefranc, M.-P. (2016). Imgt/statclonotype for pairwise evaluation and visualization of ngs ig and tr imgt clonotype (aa) diversity or expression from imgt/highv-quest. *Frontiers in immunology*, *7*, 339. Retrieved from https://doi.org/10.3389/fimmu.2016.00339

20. Aouinti, S., Malouche, D., Giudicelli, V., Kossida, S., & Lefranc, M.-P. (2016). Correction: Imgt/highv-quest statistical significance of imgt clonotype (aa) diversity per gene for standardized comparisons of next generation sequencing immunoprofiles of immunoglobulins and t cell receptors. *PloS one*, *11*(1), e0146702. Retrieved from https://doi.org/10.1371/journal.pone.0146702

21. Kerfai, N., Bejar Ghadhab, B., & Malouche, D. (2016). Performance measurement and quality costing in tunisian manufacturing companies. *The TQM Journal*, *28*(4), 588–596. Retrieved from https://www.emerald.com/insight/content/doi/10.1108/TQM-10-2013-0119/full/html

22. Saidi, O., Malouche, D., O'Flaherty, M., Mansour, N. B., Skhiri, H., Romdhane, H. B., & Bezdah, L. (2016). Assessment of cardiovascular risk in tunisia: Applying the framingham risk score to national survey data. *BMJ open*, *6*(11), e009195. Retrieved from https://doi.org/10.1136/bmjopen-2015-009195

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26. Saidi, O., O'Flaherty, M., Mansour, N. B., Aissi, W., Lassoued, O., Capewell, S., … Romdhane, H. B. (2015). Forecasting tunisian type 2 diabetes prevalence to 2027: Validation of a simple model. *BMC public health*, *15*(1), 104. Retrieved from https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-015-1416-z

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processing system. *European journal of lipid science and technology*, *116*(7), 812–824. Retrieved from https://doi.org/10.1002/ejlt.201300254

29 Karaoud, M., Bouafif, N., Malouche, D., Kouni, C., & Achour, N. (2014). La mortalité parmi les enfants âgés de moins de 15 ans en tunisie peut être liée à la température. *Revue d'Épidémiologie et de Santé Publique*, *62*, S122. Retrieved from https://www.em-consulte.com/article/911510/article/la-mortalite-parmi-les-enfants-ages-de-moins-de-15

30 Karaoud, M., Malouche, D. et al. (2014). Les effets de la température sur la mortalité chez les personnes âgées en tunisie. *Revue d'Épidémiologie et de Santé Publique*, *62*, S219–S220. Retrieved from https://www.em-consulte.com/article/915656/les-effets-de-la-temperature-sur-la-mortalite-chez

31 Karaoud, M., Malouche, D., & Alaya, N. B. (2014). Mortalité et température journalière en tunisie: Une étude multi-région. *Revue d'Épidémiologie et de Santé Publique*, *62*, S218. Retrieved from https://www.em-consulte.com/article/915651/article/mortalite-et-temperature-journaliere-en-tunisie%C2%A0-u

32 Karaoud, M., Malouche, D., & Bouafif, N. (2014). Méthodologie de l'analyse de la relation température–mortalité en tunisie. *Revue d'Épidémiologie et de Santé Publique*, *62*, S141–S142. Retrieved from https://www.em-consulte.com/article/911552/article/methodologie-de-l-analyse-de-la-relation-temperatu

33 Triki, H. Z., Daly-Yahia, O. K., Malouche, D., Komiha, Y., Deidun, A., Brahim, M. et al. (2014). Distribution of resting cysts of the potentially toxic dinoflagellate alexandrium pseudogonyaulax in recently-deposited sediment within bizerte lagoon (mediterranean coast, tunisia). *Marine pollution bulletin*, *84*(1-2), 172–181. Retrieved from https://doi.org/10.1016/j.marpolbul.2014.05.014

34 Aouinti, S., Mallek, H., Malouche, D., Saidi, O., Lassouedi, O., Hentati, F., & Romdhane, H. B. (2013). Graphical interaction models to extract predictive risk factors of the cost of managing stroke in tunisia. *2013 International Conference on Computer Medical Applications (ICCMA)*, 1–6. Retrieved from https://ieeexplore.ieee.org/document/6506162

35 Ben-Hassine, K., Taamalli, A., Ferchichi, S., Mlaouah, A., Benincasa, C., Romano, E., … Hammami, M. (2013). Physicochemical and sensory characteristics of virgin olive oils in relation to cultivar, extraction system and storage conditions. *Food research international*, *54*(2), 1915–1925. Retrieved from https://scholar.cnki.net/Detail/doi/GARJ2013/SJES14010600411056

36 Fehri, R., Rifi, H., Alboueiri, A., Malouche, D., Ayadi, M., Rais, H., & Mezlini, A. (2013). Carcinoma of unknown primary: Retrospective study of 437 patients treated at salah azaiez institute. *La Tunisie medicale*, *91*(3), 205–208. Retrieved from https://www.latunisiemedicale.com/article-medicale-tunisie_2165_en

37 Benstead, L. J., Lust, E., & Malouche, D. (2012). Tunisian post-election survey: Presentation of initial results. *Unpublished media briefing, Portland State University, Portland, OR*.

38 Hassine, K. B., Taamalli, A., Malouche, D., Kammoun, N., Lazzez, A., Benincasa, C., … Bouaziz, M. (2012). Influence of variety, geographical site and extraction system on virgin olive oil (voo) linoleic acid composition and its impact on consumer preference. *Linoleic Acids*, 97. Retrieved from https://www.researchgate.net/publication/288652330_Influence_of_variety_geographical_site_and_extraction_system_on_virgin_olive_oil_VOO_linoleic_acid_composition_and_its_impact_on_consumer_preference

39 Malouche, D., & Rajaratnam, B. (2011). Gaussian covariance faithful markov trees. *Journal of Probability and Statistics*, *2011*. Retrieved from https://doi.org/10.1155/2011/152942

40 Ranjanomennahary, P., Ghalila, S. S., Malouche, D., Marchadier, A., Rachidi, M., Benhamou, C., & Chappard, C. (2011). Comparison of radiograph-based texture analysis and bone mineral density with three-dimensional microarchitecture of trabecular bone. *Medical Physics*, *38*(1), 420–428. doi:10.1118/1.3528125. eprint: https://aapm.onlinelibrary.wiley.com/doi/pdf/10.1118/1.3528125

41 Arfa, I., Nouira, S., Abid, A., Alaya, N. B.-B., Zorgati, M., Malouche, D., … Romdhane, H. B. et al. (2010). Absence d'association entre les polymorphismes du système rénine angiotensine (sra) et l'hypertension artérielle chez les diabétiques de type 2 tunisiens. *la tunisie médicale*, *88*(01), 37–40.

42 Arfa, I., Nouira, S., Abid, A., Bouafif-Ben, N. A., Zorgati, M. M., Malouche, D., … Ben, H. R. et al. (2010). Lack of association between renin-angiotensin system (ras) polymorphisms and hypertension in tunisian type 2 diabetics. *La tunisie Medicale*, *88*(1), 38–41.

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44 Ghouila, A., Yahia, S. B., Malouche, D., Jmel, H., Laouini, D., Guerfali, F. Z., & Abdelhak, S. (2009). Application of multi-som clustering approach to macrophage gene expression analysis. *Infection, Genetics and Evolution*, *9*(3), 328–336. Retrieved from https://doi.org/10.1016/j.meegid.2008.09.009

45 Malouche, D. (2009a). Determining full conditional independence by low-order conditioning. *Bernoulli*, *15*(4), 1179–1189. Retrieved from https://projecteuclid.org/journals/bernoulli/volume-15/issue-4/Determining-full-conditional-independence-by-low-order-conditioning/10.3150/09-BEJ193.full

46 Malouche, D. (2009b). Mixed graphical model selection using holm's procedure. *Communications in Statistics-Theory and Methods*, *38*(9), 1453–1464. Retrieved from https://doi.org/10.1080/03610920802455019

47 Arfa, I., Abid, A., Nouira, S., Elloumi-Zghal, H., Malouche, D., Mannai, I., … Zouari, B. et al. (2008). Lack of association between the angiotensin-converting enzyme gene (i/d) polymorphism and diabetic nephropathy in tunisian type 2 diabetic patients. *Journal of the Renin-Angiotensin-Aldosterone System*, *9*(1), 32–36. Retrieved from https://doi.org/10.3317/jraas.2008.002

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Preprints

1 Malouche, D. (2021b). Www.covidradar24.org, a real-time covid-19 tracker. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3900615

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3 Malouche, D., & Ben Romdhane, H. (2020). Estimating excess mortality associated with covid-19 pandemic: A 151 cross-countries study. Retrieved from https://dx.doi.org/10.2139/ssrn.3731481

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Others

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6. Benstead, L. J., Lust, E. M., Malouche, D., Soltan, G., & Wichmann, J. (2013). Winners and losers after arab spring. Retrieved from https://archive-yaleglobal.yale.edu/content/winners-and-losers-after-arab-spring