Aguech Rafik
Birth: December, 31th, 1971
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Department of Statistics
College of Sciences
King Saud University, Saudi Arabia
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Education

November 2009: Habilitation Degree, Monastir University, Tunisia.

Jul 2000: qualified for the position of assistant-professor in 2000 by the National Council of the French Universities. http://admi.net/jo/20000722/MENP0001377K.html

Jan 2000: PHD in Mathematics (Probability and Statistics), University of Paris 6.
- Laboratory: LPMA (Laboratoire de Probabilités et Modèles Aléatoires), Paris 6.
- Advisor: Pierre Priouret
- Title: *Stochastic Algorithms: asymptotic study of the error.*
- Print: http://www.genealogy.math.ndsu.nodak.edu/id.php?id=13735

Jun 1995: Master's degree of mathematics (Probability and applications), University of Paris 6.

Jun 1994: Bachelor degree in Fundamental Mathematics, Faculty of Sciences of Bizerte.

Positions

Oct. 2014-Today: Associate Professor, King Saud University, College of Science.

Sep. 2012-Oct2014: Associate Professor, Faculty of Sciences of Monastir.

Jan 2011-Jun 2012: Associate Professor, Faculty of Sciences of Sousse.

Nov 2002-Jan 2011: Assistant-Professor, Faculty of Sciences of Monastir.

Sep 2001-Oct 2002: Assistant-Professor, Preparatory institute of Tunis.

Sep 1999-Sep 2001: Assistant-Professor (nontenure track), University of Paris Sud: Orsay.

Sep 1995-Jul 1999: Adjunct-Professor, University of Paris 6, Cergy Pontoise (Paris), Orsay (Paris Sud).

Working Groups

Sep 2020-Today: *Applied Mathematics webinar.* Co-direction: https://sites.google.com/view/webinar-iau/home.

Sep 2002-Today: *Harmonic Analysis* Laboratory of the Fac. of Sc. of Monastir.

Sep 1995 - Nov 2000: *Statistics of processes* group, LPMA of Paris 6, directed by J. Jacod.

Mars 2009 - Jul 2013: *DGRS/CNRS 09/R 15-07.* Tunisian-French Project, LPMA of Paris 6, directed by My Self and Cyril Banderier of the University Paris 13.

Visiting Professorships

Institute Elie Carton, Nancy (France): invited by Pr. Philippe Chassaing, University of Henry Poincarre, July 2012.

Laboratory of Informatics of Paris Nord, Villetaneuse (France): invited by Pr. Cyril Banderier, University of Paris 13, November 2011.

Institute Elie Carton, Nancy (France): invited by Pr. Philippe Chassaing, University of Henry Poincarre, March 2010.

Laboratory of Informatics of Paris Nord, Villetaneuse (France): invited by Pr. Cyril Banderier, University of Paris 13, December2009.

Institute Elie Carton, Nancy (France): invited by Pr. Pierre Vallois, University of Henry Poincarre, November 2008.

Laboratory of Probability and statistics, Versailles (France): invited by Pr. Brigitte Chauvin, University of Versailles saint Quentin, Feb. 2008.

Institute of Advanced Studies scientific (France): IHES, Jan-Feb-March 2005.

Scientific Projects and Organizations Memberships

Sep 2020-Today: Co-direction of the *Applied Mathematics webinar* : https://sites.google.com/view/webinar-iau/home.

October 2012: President of the comity of organisation, of the *School of Probability and combinatorics*, Mahdia. http://lipn.univ-paris13.fr/ aguech/ecole/

October 2010: President of the comity of organisation, of the *School of Probability and combinatorics*, Mahdia. http://lipn.univ-paris13.fr/ aguech/colloque/

Mai 2010: co-organizer, with Khalifa El Mabrouk, of the *the Fifth day of Probability* , Sousse. http://www.uc.rnu.tn/pdf/probapplication.pdf

Mai 2009: co-organizer, with Khalifa El Mabrouk, of the *the Fourth day of Probability* , Monastir. http://www.annonces.rnu.tn/news/annee2009/mai09/JPob09.pdf

Mai 2008: co-organizer, with Khalifa El Mabrouk, of the *the Third day of Probability* , Monastir. http://www.annonces.rnu.tn/news/annee2008/mai08/journeeproba.pdf

March 2007: Member of the comity of organisation of the *International Colloquium On Stochastic and Potential Analysis* Hammamet.

Mai 2007: co-organizer, with Khalifa El Mabrouk, of the *the Second day of Probability* , Monastir.

Jun 2006: co-organizer, with Mounir Zili, of the *the Fisrt day of Probability* , Monastir.

Mar 2008-Today: member of the GDR-IM team (Research group in Informatics and Mathematics - French). http://www.gdr-im.fr/

Research

Published papers

S. Gao, R. Aguech: *Multiple-drawing Dynamic Friedman Urns with Opposite-reinforcement*, Probability in the Engineering and Informational Sciences, to appear (2023)

R. Aguech, W. Jedidi, S. Ilji: *Moments of a non-homogenous bi-variate fragmentation process using integral equations tools*, Mathematical Methos in the Applied Sciences. pp.: 10920-10932. Volume ., Issue .: 2022

R. Aguech,S. Bose, H. Mahmoud, Y. Zhang: *Some properties of exponential trees*, To appear in : International Journal of Computer Mathematics: Computer Systems Theory. 2021

R. Aguech, S. Ilji: *Nonhomogenous bivariate fragmentation process: Asymptotic distribution via contraction method*, Mathematical Methos in the Applied Sciences. pp.: 10920-10932. Volume 44, Issue 14: 2021

R. Aguech, O. Selmi: *Unbalanced multi-drawing urn with random addition matrix*, Arab Journal of Mathematical Sciences, 2019.

R. Aguech, N. Lasmar, O. Selmi: *A generalized urn with multiple drawing and random addition*, Ann Inst Stat Math, June 1 - 20, 2018.

R. Aguech, A. Amri, H. Sulzbach: *On Weighted Depths in Random Binary Search Trees*, Journal of Theoretical Probability, July 1 - 23, 2017.

R. Aguech, W. Jedidi: *New characterizations of completely monotone functions and Bernstein functions, a converse to Hausdorff's moment characterization theorem*, Arab Journal of Mathematical Sciences, march 1 - 26, 2018.

R. Aguech, O. Selmi: *A Generalized Urn Model With Multiple Drawing And Random Addition (I)*, AOFA June 2014.

R. Aguech, C. Banderier: *The Moran Model, height of random walks and analysis of a cache algorithm*, 2009. AOFA09. Frejus, June 14 - 19, 2009.

R. Aguech: *Limit Theorems for random triangular urn schemes*. J. Appl. Probab., pp. 827-843, vol. 46, (3), 2009.

R. Aguech: *The size of random fragmentation intervals*, DMTCS proc AI, pp. 523- 534, 2008.

R. Aguech, N. Lasmar, H. Mahmoud : *Extremal Weighted Path Lengths in Random Binary Search Trees*. Probability in the Engineering and Informational Sciences, pp. 133-141, vol. 21, 2006.

R. Aguech, N. Lasmar, H. Mahmoud : *Limit Distribution of Distances in Biased Random Tries*, Journal of Applied Probability pp. 1-14, vol. 43, 2006.

R. Aguech, N., Lasmar, H. Mahmoud : *Distances in Random Digital Search Trees*, Acta Informatica, pp. 243-264, vol. 43, 2006.

R. Aguech, S. Louhichi, S. Louhichi : *On the asymptotic independent representation for sums of some weakly dependent random variables*, Studia Scientiarum Mathematicarum Hungaruca, pp. 371-383, vol. 42 (4), 2005.

R. Aguech, E. Moulines, P. Priouret : *On a perturbation approach for the analysis of the stochastic tracking algorithms*, SIAM journal of control and optimisation, pp. 872-899, vol. 39 (3), 2001.

R. Aguech, E. Moulines, P. Priouret : *Performance analysis of the LMS algorithm*, SIAM journal of control and optimisation,ICASSP 1998.

Papers submitted

R. Aguech, C. Banderier, A.Althakafi: *Height of walks with resets and the Moran mode.* Seminaire Lotharingien de Combinatoire (2022),

R. Aguech, H. Mahmoud, P. Zhang: *Degree profile of uniform skinny lobsters*, Electron. Commun. Probab (2022)

R. Aguech, M. Javanian: *On the protected nodes in exponential recursive trees* (2022)

Papers under preparation

R. Aguech, C. Banderier, W. Jedidi: *Number of stable segments with length does not exceeds some given level.*

R. Aguech, H. Mahmoud, P. Zhang: *Degree profile of uniform skinny lobsters II: the infinitely case* ,

Conferences

- Talk at the French-meeting *ALEA days*. Marseille, March 2011.

- Talk at the French-meeting *ALEA days*. Marseille, March 2010.

- Talk at the French-meeting *ALEA days*. Marseille, March 2009.

- Talk at the international conference on *Analysis of Algorithms*. Frejus (French), Jun 2009.

- Talk at the seminar of the laboratory Probability and statistics, University of Nancy 1, November 2008.

- Talk at the seminar of the laboratory Probability and statistics, University of Versailles Saint Quentin, March 2008.

- Talk at the international conference on *Analysis of Algorithms*. Nice (French), Jun 2007.

- Talk at the French-meeting *ALEA days*. Marseille, March 2007.

- Talk at the Fourth colloquium on *mathematics and computer science*. Nancy, September 2006.

- Talk at the *Probability and App. Day*, CIRM. International Center of research in Math. May 2000.

- Talk at the International conference ICASSP. Suettle, USA , May 1998.

- Talk at the Probability Days. Nice, September 1998.

- Talk at the Probability Days. Toulouse, September 1997.

- Talk at the French-Tunisian meeting. Bizerte, Tunisia 1996.

Teaching

France

1995-1996: Tutorials, collaboration with J. LACROIX (analysis and numerical analysis, 2nd level).

1996-1997: Tutorials (analysis, 1st level)

1997-1999: Tutorials, collaboration with M. LAUTON (Financial Mathematics, 1st level).

1999-2001: Lectures (Probability and statistics, 2nd level),

Preparatory Institute for Engineering Studies, Tunisia

2001-2002: Lectures in analysis (1st section physics level),

Faculty of Sciences of Monastir, Tunisia

2002-2003: Tutorials (analysis and algebra, 1st level).

2002-2003: Tutorials (probability, 3rd level).

2003-2004: Tutorials (probability, 3rd level).

2004-2010: Lectures in probability: Modeling and Probability (4th level).

Super School of science and technologie of Hammam Sousse (ESSTH), Tunisia

2010-2012: Lectures in Probability Master (1st and 2nd levels): Martingales, Poisson Process, branching Process, Polya Urns, Random trees.

2011-2012: Lectures in Probability (1st, 2nd and 3rd levels).

Faculty of Sciences of Monastir, Tunisia

2012-2013: Lecture Master 2 on *Branching Process.*

2012-2013: Tutorials Master 2 (Differential calculus, 3rd level).

2012-2013: Lecture on *Probability*(3rd level).

Department of Statistics and Operation rsearch, KSA

Lecture Master on *Theory of Probability1: STAT 520.*

Tutorials Master *Non parametric statistics: STAT 536*

Tutorials Master *Statistics: STAT 504*

Lecture on *Statistics: STAT 145, STAT 109, STAT 100, STAT 223, STAT 324*

Lecture on *Probability Theory: STAT 315*