Hamdy F. F. Mahmoud

Collegiate Assistant Professor, Department of Statistics, Virginia Tech.

Contact Information	415-B Hutcheson Hall, Department of Statistics, Virginia Tech, Blacksburg, VA. ehamdy@vt.edu
Research Interests	Semi/nonparametric regression models, spatial and spatio-temporal analysis, linear mixed models, and change points detection.

Education

Virginia Polytechnic Institute and State University, Blacksburg, VA, USA.

- Ph.D., Statistics   September, 2014

  Topic: *Some Advanced Semiparametric Single-Index Modelling for Spatially-Temporally Correlated Data*
  Advisor: Inyoung Kim, professor in Statistics

- M.S., Statistics   Fall 2010

Cairo University, Faculty of Economic and Political Sciences Cairo, Egypt,

- M.S., Statistics   Fall 2005

  Topic: *Bayesian Estimation of Variance Components in Nested Mixed Models*
  Advisors: Tarek Emira, PhD and Alyaa Zahran, PhD

- B.Sc., Statistics

Work Experience

- **Collegiate Assistant Professor**, Department of Statistics, Virginia Tech December 2018 - present
- **Assistant Professor**, Assiut University, Egypt   2015 - 2017
- **Assistant Professor** (Part time), The Canadian University (ACU), Egypt, 2016/2017
- **Technical Board Member**, Cairo Demographic Center (CDC), Egypt   2016/2017
- **Visiting Assistant Professor**, Virginia Tech, USA   2014/2015

  o Teaching graduate courses, such as Advanced Contingency Table Analysis (STAT 5514G) and undergraduate courses, such as Introductory Statistics (STAT 2004) for more than 300 students from a variety of disciplines and Biological Statistics (STAT 3615) with 244 students.

  o Managed 12 TAs who graded and administered assignments

  o Doing research with Inyoung Kim, associate professor in Statistics department at Virginia Tech.

- **Instructor**, Virginia Tech, USA   Spring 2013 - Spring 2014
- **Teaching Assistant**, Virginia Tech, USA   Spring 2012 - Fall 2012
- **Assistant lecturer**, Assiut University, Egypt   January, 2005 - August, 2009
- **Demonstrator**, Assiut University, Egypt   January, 2000 - December, 2004

Teaching Experience

Virginia Polytechnic Institute and State University, Blacksburg, VA

- Courses taught as a Collegiate Assistant Professor:

  STAT 4444/5444G: Applied Bayesian Statistics   Spring 2020
  STAT 4204/5204G: Experimental Design: Concepts and Applications
  Spring 2018-2020
  STAT 3615: Biological Statistics   Spring 2018-2019, Fall 2018-2020
  STAT 2004: Introductory Statistics   Spring 2018-2019, Fall 2018-2020
  STAT 2005: Integrated Quantitative Science I   Fall 2020

- Courses taught as a Visiting Assistant Professor and Instructor:

  STAT 4514/5514G[1]: Contingency Table Analysis   Spring 2015
  STAT 2004[1]: Introductory Statistics   Fall 2014 and Spring 2015
  STAT 3615[1]: Biological Statistics   Fall 2014 and Spring 2015
  STAT 3005[1]: Statistical Methods I   Spring 2013
  STAT 3006[1]: Statistical Methods II   Fall 2013

The Canadian University, School of Business Administration, Egypt
 o BUSGB 300: Quantitative Analysis for Business   Fall 2016

Assiut University, Department of Statistics, Mathematics and Insurance, Assiut, Egypt
- English program.
- Courses taught as an Assistant Professor
 * Applied Statistics   Fall 2015 and 2016
 * Introduction to Operations Research   Fall 2015
 * Principles of Statistics   Spring 2016 and 2017
 * Computer languages and its applications   Spring 2016 and 2017
 * Commercial Applications by Computer   Fall 2015 and 2016

Cairo Demographic Center (CDC), Cairo, Egypt
 o Demographic Analysis Using Computer Software Packages (SPSS) Spring
   2016

Publications   **Refereed Journal Articles**

10. I. Kim, L. Shan, J. Lin, W. Gao, B-J. Kim, and **H.F.F. Mahmoud**. (2020). Multiple and multilevel graphical models. *WIREs Computational Statistics* , 12(5), e1497. doi.org/10.1002/wics.1497.

9. S.F. Farhat, A.K. McLean, and **H.F.F. Mahmoud**. (2020). "Welfare Assessment and Identification of the Associated Risk Factors Compromising the Welfare of Working Donkeys (Equus asinus) in Egyptian Brick Kilns". *Animals*, 2020, 10, 1611. doi:10.3390/ani10091611

8. **H.F.F. Mahmoud** (2020). Bayesian and Frequentist Approaches Robustness in Variance Components Estimation. *Journal of Statistics Applications and Probability*, 9(3):435. doi: 10.18576/jsap/090301.

7. S.A.A. Khaled, E. NasrEldin, Y.S. Makarem, and **H.F.F Mahmoud.** (2020). Value of Platelet Distribution Width and Mean Platelet Volume in Disease Activity Score of Rheumatoid Arthritis. *Journal of Inflammation Research*, 13:595-606. doi.org/10.2147/JIR.S265811.

6. **H.F.F. Mahmoud**, Byung-Jun Kim, and I. Kim. (2020). "Robust Nonparametric Derivative Estimator". *Communications in Statistics - Simulation and Computation*, doi:10.1080/03610918.2020.1722836

5. M.A.H. Abdelhakiem, A.E. Abdelbaset, M. Abd-Elkareem, M.S. Rawy, **H.F.F. Mahmoud**. (2019). "Clinical blood gas indices and histopathological effects of intrathecal injection of tolfenamic acid and lidocaine HCl in donkeys". *Comparative Clinical Pathology*, 29, 83-93. doi:10.1007/s00580-019-03025-7

4. A.S. AbdelKhalek, H.A. Youssef, M.F. Ali, Magda M. Ali, M.A.H. Abdel-Hakim, **H.F.F. Mahmoud**. (2019). "An assessment of clinical, biometric, cosmetic and microscopic outcomes of four suture techniques for cutaneous closure of laparotomy wounds: an experimental study in rabbits". *Journal of Dairy Veterinary Animal Research*, 8(1), 42-53.
doi:10.15406/jdvar.2019.08.00241

3. **H.F.F. Mahmoud**, and I. Kim. (2019). Semiparametric Spatial Mixed Effects Single Index Models. *Computational Statistics & Data Analysis*, 136, 108-122.
doi.org/10.1016/j.csda.2019.01.008.

2. **H.F.F. Mahmoud**. (2018). Simultaneous Permutation-Based Change Points Detection Approach with An Application on Chicago Mortality Data. *Journal of Applied Probability and Statistics*, 13(2), 119-131.

1. **H.F.F. Mahmoud**, I. Kim and H. Kim (2016). "Semiparametric Single Index Multi Change Points Model with an Application of Environmental Health Study on Mortality and Temperature", *Environmetrics*, 27(8), 494-506. doi.org/10.1002/env.2413.

Posters

- M. Farghally, M. Mohammed, **H.F.F. Mahmoud**, M. Ellis, D. Haqq, M. Domino, B. Jones and C. Shaffer. (2020). The online transition of two CS courses in response to COVID-19. *SIGCSE Technical Symposium 2021*.

Submitted Papers

o **H.F.F. Mahmoud** and I. Kim. (2020). Semiparametric Spatially-Dependent Change Points Single Index Model with an Application on Mortality and Temperature in Six Major Cities in Korea. *Statistical Methods in Medical Research*.

o **H.F.F. Mahmoud**. (2020). Parametric versus Semi and Nonparametric Regression Models. *Annals of Data Science*.

o M. Farghally, M. Mohammed, **H.F.F. Mahmoud**, M. Ellis, D. Haqq, M. Domino, B. Jones and C. Shaffer. (2020). The online transition of two CS courses in response to COVID-19. *American Society for Engineering Education (ASEE)*.

Conference Proceedings

o **H.F.F. Mahmoud**, I. Kim. (2020). "Spatio-Temporal Single Index Models for Correlated Data". *In JSM Proceedings, Nonparametric modeling Section*. Alexandria, VA: American Statistical Association.

o **H.F.F. Mahmoud** and A. R. Zahran (2005), "Bayesian Estimation of Variance Components in 3-Fold Nested Mixed Model Using Gibbs Sampling," *The Proceedings of the 17th International Conference on Statistics, Faculty of Economic and Political Sciences, Cairo University, Egypt*, pp. 123-140.

Research & Collaboration Experience	**Lead Statistical Collaborator:** Virginia Tech Laboratory for Interdisciplinary Statistical Analysis (LISA), Blacksburg, Virginia Tech Spring 2013-September 2014

o Collaborated on over 25 projects with Virginia Tech faculty and graduate students from a variety of disciplines and improved their research with statistics.

o Held weekly walk-in consulting hours where researchers would ask specific statistics questions.

o Researched and utilized a broad range of statistical techniques including, but not limited to, Parametric and nonparametric regression models, spatial analysis, repeated measurement ANOVA, zero-inflated models, and experimental design methodology.

o Mentored a group of associate collaborators to refine their statistical and collaboration skills.

LISA Associate Collaborator   Fall 2010, Summer I 2011, and Summer II 2012
Statistics Department, Virginia Tech
Supervisor: Eric Vance, PhD

Research Assistant   Summer I 2012 and Summer II 2013
Statistics Department, Virginia Tech
Supervisor: I Kim, Ph.D

Presentations and Talks

- "Spatio-Temporal Single Index Models for Correlated Data", The Joint Statistical Meetings Conference (JSM), Vertual Conference,   August 2020.

- "Spatio-Temporal Mixed Effects Single Index Models", ENAR Vertual Conference,   March 2020.

- "Semiparametric Spatial Mixed Effects Change Points Single Index Model.", The Joint Statistical Meetings Conference (JSM), Denver, Colorado   July 2019

- "Robust Nonparametric Derivative Estimator", Eastern North American Region Conference (ENAR), Philadelphia, PA   March, 2019

- "Semi/nonparametric Robust Derivative Estimator", *The 28th International Conference on Statistics, Faculty of Economic and Political Sciences, Cairo University, Egypt* March 2016

- "Semiparametric Single-index Modeling for Spatio-Temporal Data.", The Joint Statistical Meetings Conference (JSM), Seattle, Washington   August 2015

- "Semiparametric signle-index modeling for spatially correlated data", Virginia Academy of Science Conference, Statistics Session, 93rd Annual Meeting, James Madison University, Harrisonburg, Virginia.   May, 2015

- "Semiparametric Nonseparable Spatial-Temporal Single Index Model", Eastern North American Region Conference (ENAR), Miami, Florida   March, 2015

- "Semiparametric Spatial Single Index Modelling for Spatially-Temporally Correlated Data.", Colloquium, Department of Statistics, Virginia Tech, Blacksburg, Virginia October 2014

- "Semiparametric Spatial Single Index Models.", The Joint Statistical Meetings Conference (JSM), Boston, Massachusetts   August 2014

- "Multiple Change Points Detection", Virginia Academy of Science Conference, Statistics Session, 92nd Annual Meeting, Virginia Commonwealth University, Richmond, Virginia. May, 2014

- "Single Index Change Points Model and an Application of Environmental Health Study", Eastern North American Region Conference (ENAR), Baltimore, MD   March, 2014

Short Courses and Workshops delivered	o "Linear modeling of real data" Short Course, Assiut University, Egypt. March 2017. o "SAS" Workshop, Faculty of Economic and Political Sciences (FEPS) at Cairo University, Cairo, Egypt. May 2016. o "Parametric versus Semi/nonparametric Regression Models" Short Course, Laboratory for Interdisciplinary Statistical Analysis (LISA) at Virginia Tech, Blacksburg, Virginia. July 2014.
Awards & Honors	* Nominated for Graduate Teaching Excellence - Instructor of Record Award - at Virginia Tech by the statistics department - 2014. * Jesse C. Arnold Award for Teaching Excellence, Statistics Department, Virginia Polytechnic Institute and State University, academic year 2012-2013. * Travel Fund Award, GSA Travel Fund Program (TFP), Virginia Tech Fall 2014 * Inducted into Mu Sigma Rho: National Statistical Honor Society - Virginia Tech chapter, Fall 2011.
Grants & Scholarships	o Teaching Assistant, Statistics Department, Virginia Tech Aug. 2012 - 2014 o Governmental scholarship from the Egyptian government Aug. 2009 - Aug. 2012
Committee Chair and Advisor	* Jonilda Bahja (2018-present, chair): Master of Arts in Data Analysis and Applied Statistics (DAAS), Virginia Tech. * Nicholas Brown (2020-present, committee member): Master of Arts in Data Analysis and Applied Statistics (DAAS), Virginia Tech. * Ahmed AbdelRehim (2016-2019, advisor): Master of Statistics and Insurance, "Loss rate prediction in general insurance using fuzzy set theory with an application on two insurance branches: Airline and ship bodies in Misr insurance company, Assiut University, Egypt.
Departmental Services	• Undergraduate program, teaching evaluation committee, and Service Course Pedagogy committee, Department of Statistics, Virginia Tech, 2019/2020. • Undergraduate committee, Teaching committee and Service Course Pedagogy committee, Department of Statistics, Virginia Tech, 2018/2019. • Community Service and Environmental committee, Department of Statistics, Mathematics and Insurance, Assiut University, Egypt 2016/2017. • Department Committee Board member, Department of Statistics, Mathematics and Insurance, Assiut University, Egypt 2015/2016. • Graduate Studies Committee, Department of Statistics, Mathematics and Insurance, Assiut University, Egypt 2015/2016.

Computer Skills	* Statistical Packages: SAS, R, SPSS, Minitab, OpenBUGS, and JMP.
	* International Computer Driving License (ICDL), Version 4
	* Designing Home Web Page: FrontPage, Digital image, and flash
	* LaTeX

Academic Activities

- Paper Reviewer
  * Statistics in Medicine [1]
  * Journal of Statistical Computation and Simulation [3]
  * Journal of Communications for Statistical Applications and Methods [1].
  * 3rd International Conference on Humanities, Social Sciences and Education (ICHSSE) [3]
  * Sultan Qaboos University Journal for Science for consideration of publication. (SQUJS) [1]
  * Austrian Journal of Statistics [1]
  * American Journal of Translational Research [1]
- Books Reviewed
  * Statistics: Concepts and Controversies, 16th edition.

Memberships & Services

o American Statistical Association	2013-present
o Mu Sigma Rho, the National Statistics Honorary Society	2010-present
o Council of International Student Organizations (CISO) at Virgina Tech	2012-2014
o Commission of Student Affairs (CSA) at Virginia Tech	2012/2013
o President: Egyptian Student Association at North America (ESANA), Blacksburg chapter, 2011-2012	