Sayed A. Mostafa

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EDUCATION

- **OKLAHOMA STATE UNIVERSITY (OSU)**

  Ph.D. in Statistics — July 2016

  Thesis: Nonparametric Kernel Density Estimation Using Auxiliary Information From Complex Surveys

  M.S. in Statistics — May 2014

  SAS & OSU Graduate Certificate in Business Data Mining — July 2014

- **CAIRO UNIVERSITY**

  B.S. in Statistics (with distinction) – Minor: Economics — July 2010

POSITIONS

- **NORTH CAROLINA A&T STATE UNIVERSITY**

  Assistant Professor, Department of Mathematics & Statistics — Aug. 2018 - Present

  Director, Statistical Computing Lab — Jan. 2019 - Present

- **INDIANA UNIVERSITY**

  Visiting Assistant Professor, Department of Statistics — Aug. 2016 - Aug. 2018

  Consultant, Indiana Statistical Consulting Center

- **OKLAHOMA STATE UNIVERSITY**

  Graduate Instructor, Department of Statistics — Jan. 2013 - July 2016

  Teaching Assistant, Department of Statistics — Aug. 2012 - Dec. 2012

- **CAIRO UNIVERSITY**

  Assistant Professor, School of Economics and Political Science — Aug. 2017 - July 2018

  Teaching Assistant, School of Economics and Political Science — Sept. 2010 - July 2012

RESEARCH INTERESTS

Inference from complex survey data, Survey and non-survey data integration, Nonparametric function estimation, Resampling methods, Statistics and data science education

PUBLICATIONS

- **Published**

  1. Babekir, A., **Mostafa, S. A.**, Minor, R. C., Williams, L. L., Harrison, S. H. and Obeng-Gyasi, E. (2022). The Association of Toxoplasma gondii IgG and Liver Injury in US Adults. *International Journal of Environmental Research and Public Health*, 19(12):7515. [DOI:10.3390/ijerph19127515](#)

  2. **Mostafa, S. A.** and Elbayoumi, T. M. (2022). The potential of introductory statistics to promote data literacy and attract underrepresented minority students to data science. In: R Helenius, E Falck (Eds.), *Statistics Education in the Era of Data Science. Proceedings of the Satellite conference of the International Association for Statistical Education (IASE)*. [DOI:10.52041/iase.vrlii](#)

  3. **Mostafa, S. A.**, Cousins-Cooper, K., Burns, S., Tankersley, B. and Tang, G. (2022). The Impact of COVID-19 Induced Emergency Remote Instruction on Students' Academic Performance at an HBCU. *PLoS ONE*, 17(3): e0264947. [DOI:10.1371/journal.pone.0264947](#)

  4. Babekir, A., **Mostafa, S. A.** and Obeng-Gyasi, E. (2022). The Association of Toxoplasma gondii IgG antibody and chronic kidney disease biomarkers. *Microorganisms*, 10(115):1-17. [DOI:10.3390/microorganisms10010115](#)

Updated: June 20, 2022

5. Babekir, A., **Mostafa, S. A.** and Obeng-Gyasi, E. (2021). The association of Toxoplasma gondii IgG and cardiovascular biomarkers. *International Journal of Environmental Research and Public Health*, 18(9):4908. DOI:10.3390/ijerph18094908

6. Soliman, A., Schild-Suhren, M., **Mostafa, S. A.**, Antar, S., Nezzal, A., Refky, B., Güralp and O., Malik, E. (2021). Lymphadenectomy and pelvic irradiation in high-risk endometrioid endometrial cancer: A population-based retrospective analysis using the SEER databank. *Clinical and Experimental Obstetrics & Gynecology*, 48(1):151. DOI:10.31083/j.ceog.2021.01.2168

7. Elbayoumi, T. and **Mostafa, S. A.** (2021). On the estimation bias in first-order bifurcating autoregressive models. *Stat*, 10(1):e342. DOI:10.1002/sta4.342

8. **Mostafa, S. A.** and Ahmad, I. A. (2021). Kernel density estimation based on the distinct units in sampling with replacement. *Sankhyā B: The Indian Journal of Statistics*, 83:B, 507-547. DOI:10.1007/s13571-019-00223-9

9. **Mostafa, S. A.** and Shan, Q. (2019). Finite population model-assisted estimation using combined parametric and nonparametric regression smoothers. *Journal of Statistical Theory and Practice*, 13:58, 1-24. DOI:10.1007/s42519-019-0060-9

10. Mohamed, E. and **Mostafa, S. A.** (2019). Computing happiness from textual data. *Stats*, 2:3, 347-370. DOI:10.3390/stats2030025

11. **Mostafa, S. A.** and Ahmad, I. A. (2019). Kernel density estimation from complex surveys in the presence of complete auxiliary information. *Metrika: International Journal for Theoretical and Applied Statistics*, 82:3, 295-338. DOI:10.1007/s00184-018-0703-y

12. **Mostafa, S. A.** and Ahmad, I. A. (2018). Recent developments in systematic sampling: A review. *Journal of Statistical Theory and Practice*, 12:2, 290-310. DOI:10.1080/15598608.2017.1353456

13. **Mostafa, S. A.** and Ahmad, I. A. (2016). Remainder linear systematic sample with multiple random starts. *Journal of Statistical Theory and Practice*, 10:4, 824-851. DOI:10.1080/15598608.2016.1231094

- **Software**
  - ◇ Elbayoumi, T. and **Mostafa, S. A.** (2021). R Package: *bifurcatingr*: Bifurcating autoregressive models. cran.r-project.org/web/packages/bifurcatingr/index.html

- **In Revision for Re-submission**
  - ◇ **Mostafa, S. A.** On kernel smoothing density estimation using auxiliary information from complex surveys.

- **In Progress**
  - ◇ **Mostafa, S. A.** Nonparametric model-assisted estimation using scrambled responses from complex surveys.
  - ◇ Elbayoumi, T. M. and **Mostafa, S. A.** The impact of bias correction on bootstrap confidence intervals for the first-order bifurcating autoregressive model.
  - ◇ **Mostafa, S. A.** and Flood, J. R. Variable selection for survey data integration and imputation with the LASSO.
  - ◇ Ahmad, I. A. and **Mostafa, S. A.** On the use of incomplete moments for measuring income inequalities.

GRANT AWARDS

- **Principal Investigator (PI):** National Science Foundation (NSF): Broadening Participation Research Project: Effects of Integrating Learning-Strategy Instruction within MATH Courses on Student MATH Mindset, Self-Regulated Learning and Performance
  Award ID: HRD2107285   Award Amount: **$350,000**   Award Period: 08/15/2021 – 07/31/2024

- **PI:** NSF: Targeted Infusion Project: Infusing Data-Centered Pedagogy and Data-Analytical Skills into Introductory Statistics
  Award ID: HRD2106945   Award Amount: **$400,000**   Award Period: 07/01/2021 – 06/30/2024

- **Senior Personnel:** NSF ACE Implementation Project: Data Science and Analytics Advancing STEM Education – PI: Dr. Guoqing Tang – Joined in 06/2020
  Award ID: HRD1719498   Award Amount: **$3,188,850**   Award Period: 05/01/2017 – 05/31/2022

- **PI:** NC A&T: Division of Research and Economic Development: Summer Research Seed Grant
  Award Amount: **$5,000**   Award Period: 06/01/2019 – 08/02/2019

Teaching Experience

- **NORTH CAROLINA A&T STATE UNIVERSITY**
  - ◇ MATH 224: **Introduction to Probability and Statistics**
    - ∗ Fall 2018: $(95^*/48^{**}/4.3^{\S})$ Spring 2019: $(45^*/35^{**}/4.64^{\S})$ Fall 2019: $(37^*/9^{**}/4.13^{\S})$
    - ∗ Spring 2020: $(45^*/30^{**}/4.02^{\S})$ Fall 2020: $(37^*/22^{**}/4.31^{\S})$
  - ◇ MATH 708: **Nonparametric Statistics** $(5^*/2^{**}/4.85^{\S})$ Spring 2019
  - ◇ STAT 707/MATH365: **Introduction to Data Science**
    - ∗ Fall 2019: $(12^*/5^{**}/4.93^{\S})$ Fall 2020 (Online): $(38^*/18^{**}/4.38^{\S})$ Spring 2021: $(12^*/9^{**}/4.76^{\S})$
    - ∗ Fall 2021: $(40^*/21^{**}/4.66^{\S})$
  - ◇ STAT 425/711: **Computational Statistics**
    - ∗ Spring 2020: $(7^*/6^{**}/4.86^{\S})$ Spring 2021: $(6^*/1^{**}/5.00^{\S})$
  - ◇ AST 992: **Doctoral Seminar**
    - ∗ Fall 2021: $(8^*/6^{**}/4.74^{\S})$

  * Total number of students; ** Respondents; § Overall rating (out of 5)

- **INDIANA UNIVERSITY**
  - ◇ STAT 660/460: Sampling
    - ∗ Fall 2016: $(22^*/16^{**}/4.4^{\S})$ Fall 2017: $(18^*/15^{**}/4.3^{\S})$
  - ◇ STAT 301: Business Statistics
    - ∗ Fall 2016: $(99^*/86^{**}/3.5^{\S})$ Spring 2017: $(200^*/157^{**}/3.7^{\S})$ Summer 2017: $(20^*/18^{**}/4.1^{\S})$
    - ∗ Fall 2017: $(97^*/81^{**}/3.4^{\S})$ Spring 2018: $(197^*/159^{**}/3.6^{\S})$

  § I rate this instructor as outstanding (out of 5)

- **OKLAHOMA STATE UNIVERSITY**
  - ◇ STAT 2013: Introductory Statistics   Spring 2013 – Spring 2016
  - ◇ STAT 2023: Business Statistics   Summer 2016

Presentations

- **Conference Presentations Given**
  - ◇ **International Conference on Advances in Interdisciplinary Statistics and Combinatorics**, UNC-Greensboro, NC, Virtual, October 2021. "*Nonparametric model-assisted estimation using scrambled responses from complex surveys*"
  - ◇ **The International Association for Statistical Education (IASE) Satellite Conference**, Virtual, August 2021. "*The Potential of introductory statistics to promote data literacy and attract underrepresented minority students to data science*"
  - ◇ **Joint Statistical Meetings**, Virtual, August 2021. "*Nonparametric model-assisted estimation from quantitative randomized response models*"
  - ◇ **United States Conference on Teaching Statistics**, Virtual, June 2021. "*Breakout Session: Designing introductory statistics to attract minority students to data science*" – with Seongtae Kim
  - ◇ **Joint Statistical Meetings**, Denver, CO, July 2019. "*On the use of incomplete moments for measuring income inequalities*" – with Ibrahim Ahmad
  - ◇ **International Conference on Advances in Interdisciplinary Statistics and Combinatorics**, UNC-Greensboro, NC, October 2018. "*Finite population model-assisted estimation using combined parametric and nonparametric regression smoothers*"
  - ◇ **Joint Statistical Meetings**, Chicago, IL, July 2016. "*Kernel density estimation for complex surveys with auxiliary data*"
  - ◇ **International Conference on Statistics and Modeling in Human and Social Sciences**, Cairo University, March 2011. "*The two-child family ideal in Egypt: From conviction to adoption*" – with Mohamed Hasanein, Ahmed Ali and Amani Maher*

- **Conference Presentations Co-Authored**
  - ◇ **Joint Statistical Meetings**, Virtual, August 2021. "*Empirical comparison of multiplicative and tree-based interaction predictive models*" – with Chinedu Nzekwe and Seongtae Kim
  - ◇ **Symposium on Data Science and Statistics**, Virtual, June 2021. "*The impact of bias correction on bootstrap confidence intervals for the first-order bifurcating autoregressive models*" – with Tamer Elbayoumi
  - ◇ **Research Council on Mathematics Learning**, Virtual, Feb. 2021. "*Performance of students enrolled in mathematics courses during COVID-19*" – with Kathy Cousins-Cooper, Barbara Tankersley, Shea Burns and Guoqing Tang
  - ◇ **Symposium on Data Science and Statistics**, Virtual, June 2020. "*On the estimation bias in first-order bifurcating autoregressive models*" – with Tamer Elbayoumi
  - ◇ **Kongress der Deutschen Gesellschaft für Gynäkologie und Geburtshilfe (DGGG'18)**, Berlin, October 2018. "*Lymphadenectomy and pelvic irradiation in high-risk endometrioid endometrial cancer: A population-based retrospective analysis using the SEER databank*" – with Amr Soliman, Basel Refky and Malik E. DOI:10.1055/s-0038-1671336

- **Invited Talks/Seminars**
  - ◇ **Annual Johnny L. Houston Mathematical Sciences Lecture Series, Department of Mathematics, Computer Science and Engineering Technology, Elizabeth City State University**, Elizabeth City, NC, March 2022. "*Preparing Students for the Data Science Era through Introductory Statistics: A Proposed Model*"
  - ◇ **Millennium Nucleus Center for the Discovery of Structures in Complex Data (MiDas) Colloquium Series, Department of Statistics, Pontificia Universidad Católica de Chile (UC)**, Chile, December 2021. "*Nonparametric model-assisted estimation using scrambled responses from complex surveys*"
  - ◇ **The NSF ACE DSA Implementation Project Lunch and Learn Series**, NCA&T, April 2021. "*The Impact of Emergency Remote Instruction Due to COVID-19 on the Performance of Students Enrolled in Mathematics Courses at NCA&T*" – with Kathy Cousins-Cooper
  - ◇ Invited Lecture, **Summer Research Symposium and Retreat on Data Science, Big Data Analytics and Statistical & Deep Learning** sponsored by the NSF ACE Implementation Project: Data Science and Analytics Advancing STEM Education and the Departments of Mathematics & Statistics and Computer Science, NCA&T, Greensboro, NC, May 2019. "*Statistical Learning for Data Science: An Introduction*"
  - ◇ **Data Science and Analytics Colloquium** sponsored by the NSF ACE Implementation Project: Data Science and Analytics Advancing STEM Education and the Departments of Mathematics & Statistics and Computer Science, NCA&T, Greensboro, NC, February 2019. "*Computing happiness using text mining on the HappyDB corpus: A corpus of 100,000 crowdsourced happy moments*"
  - ◇ **Computer Science Colloquium, Department of Computer Science, UNC-Greensboro**, NC, November 2018. "*Computing happiness from textual data using text mining and machine learning techniques*"
  - ◇ **Statistics Colloquium, Department of Mathematics & Statistics, UNC-Greensboro**, NC, November 2018. "*On kernel density estimation from complex surveys in the presence of complete auxiliary information*"
  - ◇ Invited Seminar, **Center for Survey Research, Indiana University**, Bloomington, IN, October 2017. "*An Overview of Survey Sampling Methods*" –
  - ◇ **Statistics Colloquium, Department of Mathematical Sciences, IUPUI**, April 2017. "*Kernel density estimation from complex surveys in the presence of complete auxiliary information*"
  - ◇ **Annual Research Symposium**, Oklahoma State University, February 2013. "*Remainder linear systematic sampling with multiple random starts*"

- **Workshops/Short Courses Facilitated**
  - ◇ Invited Virtual Workshop on "**Survey Design and Analysis Using Qualtrics**" – Sponsored by the NSF ACE DSA Implementation Project and Department of Mathematics & Statistics, NCA&T, Greensboro, NC, April 2022.

  - ◇ Invited Virtual Workshop on "**Statistical Power and Sample Size Determination for Applied Research**" – Sponsored by the NSF ACE DSA Implementation Project and Department of Mathematics & Statistics, NCA&T, Greensboro, NC, November 2021.
  - ◇ Virtual Three-Day "**REU R Programming**" Workshop – Sponsored by the NSF ACE Implementation Project and the NSA REU Data Science Program, NCA&T, Greensboro, NC, June 2021.

⬦ Invited Two Half-Day Data-Analytics/Visualization Workshop on "**Developing Course Assignments that Fulfill Course Learning Objectives and Foster Development of Students' Data-Analytics and Visualization Skills**" – Sponsored by the PwC, CoST & CoBE Digital Enhancement Project, NCA&T, Greensboro, NC, December 2020.

⬦ Invited Virtual Workshop on "**Logistic Regression for Predictive Analytics**" – Sponsored by the NSF ACE DSA Implementation Project and Department of Mathematics & Statistics, NCA&T, Greensboro, NC, November 2020.

⬦ Virtual Two-Day "**REU R Programming**" Workshop – Sponsored by the NSF ACE Implementation Project and the NSA REU Data Science Program, NCA&T, Greensboro, NC, June 2020.

⬦ Invited Virtual Workshop on "**Hypothesis Testing and ANOVA Using Excel**" – Sponsored by the NSF ACE DSA Implementation Project and Department of Mathematics & Statistics, NCA&T, Greensboro, NC, April 2020.

⬦ Invited Half-Day Short Course on "**Descriptive Statistics, Hypothesis Testing, and Linear Regression Using Excel**" – Sponsored by the NSF ACE DSA Implementation Project and Department of Mathematics & Statistics, NCA&T, Greensboro, NC, December 2019.

⬦ Lunch & Learn Workshop on "**How to Use Excel to do Statistical Analysis**" – Sponsored by the NSF ACE DSA Implementation Project and Department of Mathematics & Statistics, NCA&T, Greensboro, NC, October 2019.

Professional Service

- **Reviewer**

  ⬦ Reviewer and panelist for the **National Science Foundation's**

    * Directorate for Undergraduate Education (2019)
    * Directorate for Mathematical and Physical Sciences (2021)

  ⬦ Referee for

    * Canadian Journal of Statistics
    * Journal of Statistics and Data Science Education
    * Journal of Nonparametric Statistics
    * Journal of Statistical Computation and Simulation
    * Sankhyā: The Indian Journal of Statistics
    * Communications in Statistics
    * Journal of Statistical Theory & Practice

  ⬦ Judge for **The Undergraduate Statistics Project Competition (USPROC)** sponsored by *The Consortium for the Advancement of Undergraduate Statistics Education (CAUSE) and the American Statistical Association*

- **Conference Organization**

  ⬦ Session Chair: **International Conference on Advances in Interdisciplinary Statistics and Combinatorics**, UNC-Greensboro, NC, Virtual, October 2021.

- **Committees at NC A&T**

  ⬦ Member of the Steering Committee for the NSF ACE Implementation Project: Data Science & Analytics Advancing STEM Education   Oct. 2018 - Present

  ⬦ Member of the Statistics & Financial Mathematics Faculty Hiring Committees   Spring 2019

  ⬦ Member of the Statistics & Data Science Faculty Hiring Committee   Spring 2021

  ⬦ Member of the Computer Systems Technology Faculty Hiring Committee (assigned by Dean)   Spring 2021

  ⬦ Member of the Statistics & Data Science Curriculum Development Committee   Fall 2018 - Present

- **PhD Dissertation Advisor**

  ⬦ Co-Advisor (with Dr. Kossi Edoh): Nicole Allen, Computational Data Science & Engineering – Graduated Fall 2020, "Subsampling Big Data for Tree-Based Models"

- ⬦ Co-Advisor (with Dr. Seongtae Kim): Chinedu Nzekwe, Applied Science & Technology (Data Science & Analytics) – Fall 2019 to Fall 2022 (Expected)

- ⬦ Jeremy Flood, Applied Science & Technology (Data Science & Analytics) – Fall 2020 to Spring 2023 (Expected)

- ⬦ Thomas Johnson III, Applied Science & Technology (Data Science & Analytics) – Spring 2022 to Spring 2024 (Expected)

- **MS Project/Thesis Advisor**
  - ⬦ Phillip Gowins, Applied Mathematics (Statistics Concentration) – Graduated Spring 2020, "Analyzing Disparities in Mental Health and Drug Abuse in the U.S. Using the National Survey on Drug Use and Health"

- **Undergraduate Research Advisor**
  - ⬦ Kelly Wentzlof, Cortlyn Morris and Ayan Gulzar, NSF Data Science & Analytics Research Experience for Undergraduates (REU) Program & NSA Data Science REU Program – Summer 2021
    Visualizing, Modeling, and Forecasting Crashes in Wake County, North Carolina

  - ⬦ Arbaaz Mohideen and Kimberly Tse, NSF Data Science & Analytics REU Program & NSA Data Science REU Program – Summer 2020, Modeling and Forecasting Fatal Police Shootings in the U.S.

  - ⬦ Kerstin Fox, NSF Data Science & Analytics Traineeship Program, Fall 2019 – Spring 2020
    "Analyzing and Forecasting Chicken and Egg Production in the U.S."

  - ⬦ Jazmian Johnson, Capstone Experience in Applied Mathematics – Spring 2021
    "Data Analysis of Wake County Traffic Accidents"

  - ⬦ Nawaf Alharbi, Capstone Experience in Applied Mathematics – Fall 2019
    "Statistical Analysis of Fire Incidents in the City of Greensboro, NC, Over the Period 2010–2019"

  - ⬦ Ghazal Mansour, Capstone Experience in Applied Mathematics – Spring 2019
    "Text-based Classification Using Random Forest and Logistic Regression After Supervised and Unsupervised Topic Modeling on the HappyDB Corpus"

- **PhD Dissertation Committee Member**
  - ⬦ Saud Alshahrani, Computational Data Science & Engineering – Graduated Summer 2021
  - ⬦ Christopher Whitfield, Computer Science – Spring 2020 to Present
  - ⬦ Samin Poudel, Computational Data Science & Engineering – Summer 2021 to Present
  - ⬦ Amani Babekir, Applied Science & Technology (Environmental Sciences) – Fall 2020 to Present
  - ⬦ Yang Xue, Applied Science & Technology (Data Science & Analytics) – Fall 2020 to Present
  - ⬦ Brett Hunter, Applied Science & Technology (Data Science & Analytics) – Fall 2020 to Present
  - ⬦ Simachew Ashebir, Applied Science & Technology (Data Science & Analytics) – Fall 2020 to Present

- **MS Project/Thesis Committee Member**
  - ⬦ Nigussie Guluma, MS in Applied Mathematics – Spring 2019

HONORS

- **NORTH CAROLINA A&T STATE UNIVERSITY**
  - ⬦ College of Science & Technology Rookie of the Year (Merit)   June 2021

- **OKLAHOMA STATE UNIVERSITY**
  - ⬦ Outstanding MS Graduate in Statistics (**Robert D. Morrison Award**)   May 2014
  - ⬦ Elected doctoral student to receive one-year free membership to the ASA   Feb. 2016
  - ⬦ Elected MS student to receive one-year free membership to the ASA   Feb. 2014
  - ⬦ Graduate Teaching Assistantship   Aug. 2012 - July 2016

Certifications

- **Technical Certifications**
  - ⬦ Stanford University: *On-line Certificate in Statistical Learning*   Awarded: Apr. 2016
  - ⬦ SAS: SAS Certified Predictive Modeler   Awarded: Apr. 2013

- **Instructional Certifications**
  - ⬦ NCA&T CL092: Teaching Ideologies: Designing Rubrics for Course Assessment: CL-091   Awarded: Sept. 2019
  - ⬦ NCA&T CL060: Culturally Responsive Pedagogies   Awarded: Feb. 2019
  - ⬦ NCA&T CL092: Teaching Ideologies: Constructing Your Teaching Philosophy: TLP-092   Awarded: Jan. 2019
  - ⬦ Top Hat: Top Hat Level 1 Certified Instructor   Awarded: Jan. 2018

Other Conferences/Symposia/Short Courses Attended

- Lecture Breakers Conference, Virtual, June 2020
- Workshop on "Writing Winning NSF Grant Proposals", Sponsored by Center for Excellence in Entrepreneurship and Innovation, NCA&T, Greensboro, NC, Sept. 2019
- Department of Defense – Office of the Under Secretary of Defense for Research and Engineering (OUSD(R&E)) – "Historically Black Colleges and Universities and Minority-Serving Institutions (HBCU/MI) Workshop", Research Triangle Park, NC, June 2019
- North Carolina PKAL Regional Network Meeting: "Increasing Student Motivation: Strategies that Work", NCA&T, Greensboro, NC, May 2019
- NSF Grants Conference, New Orleans, LA, Nov. 2018
- Data Science & Analytics and STEM Center Symposium, NCA&T, Greensboro, NC, Sept. 2018
- Symposium on Data Science and Statistics, Reston, VA, May 2018
- A Short Course on Modern Data Science, NCA&T, Greensboro, NC, Oct. 2018

Statistical Packages

- R, Python, SPSS, SAS

Professional Memberships

- American Statistical Association (ASA)   2014 – Present