Andrews T. Anum, MS, Ph.D. candidate (ABD)

CONTACT INFORMATION	The University of Texas at El Paso Department of Mathematical Sciences 500 West University Ave El Paso, TX 79968-0514

phone: +1-915-234-4211
e-mail: andrewsanum07@gmail.com
www.sites.google.com/view/aanum/home

RESEARCH INTERESTS

Data Mining: data analytics, predictive analysis, etc.; **Machine Learning:** supervised learning – SVM, CART, ANN, RBF, etc.; unsupervised learning – cluster analysis, anomaly detection, etc.; **Multivariate Statistics:** multivariate parametric and nonparametric modeling, estimation and inference, variable selection, robust procedures, etc.; **Scientific Computing:** computational statistics, high-performance computing, etc.

ACADEMIC APPOINTMENTS

PhD Teaching Assistant, The University of Texas at El Paso — August 2019 to present
    Department of Mathematical Sciences

MS Teaching Assistant, The University of Texas at El Paso — August 2017 to May 2019
    Department of Mathematical Sciences

Teaching Assistant, University of Cape Coast — August 2016 to May 2017
    Department of Mathematical Sciences

PREVIOUS ACADEMIC APPOINTMENTS

PhD Research Associate, The University of Texas at El Paso — July 2022 to August 2022
    Department of Mathematical Sciences
- NSF DMS Statistics: "Nonparametric Total Variation Regression for Multivariate Process Data" (PI: Michael Pokojovy, Ph.D.)

EDUCATION

The University of Texas at El Paso, El Paso, TX
    Ph.D., Computational Science Program, — May 2023 (expected)
- Thesis topic: *A New Algorithm for Robust Affine–Invariant Clustering*
- Advisor: Michael Pokojovy, Ph.D.
- Area of Study: Computational Science and Data Science

    M.S., Computational Science Program, — December 2021
- Thesis topic: *A New Algorithm for Robust Affine–Invariant Clustering*
- Advisor: Michael Pokojovy, Ph.D.
- Area of Study: Computational Science

    Graduate Certificates, Department of Mathematical Sciences
- Applied and Computational Mathematics — May 2021
- Big Data Analytics — December 2020

    M.S., Department of Mathematical Sciences, — May 2019
- Thesis topic: *Robust Statistical Inference for Gaussian Distribution*
- Advisor: Michael Pokojovy, Ph.D.
- Area of Study: Mathematics

University of Cape Coast, Cape Coast, Central Region, Ghana
    B.S., Department of Mathematical Sciences, — May 2016
- *Magna cum laude*
- Advisor: Francis Benyah, Ph.D.
- Area of Study: Mathematics and Statistics
- Minor in Computer Science

CONTINUING PROFESSIONAL EDUCATION

- Artificial Intelligence in Oncology Symposium: Precision Medicine and Cancer Disparities. Case Comprehensive Cancer Center, Case Western Reserve University — November 8–9, 2021
- High-Dimensional Statistics: Theory and Applications. Hausdorff Center for Mathematics, University of Bonn, Germany — July 26–30, 2021
- High Dimensional Computing Texas Advanced Computing Center (TACC) systems — 2021

	• Sustainable Horizons Institute (SHI) Sustainable Research Pathways, Berkeley National Laboratory (DOE) November, 2020
PROFESSIONAL ORGANIZATION MEMBERSHIP	• American Statistical Association (ASA) • American Mathematical Society (AMS) • Society for Industrial and Applied Mathematics (SIAM)

THESIS PUBLICATIONS

[1] A new algorithm for robust affine–invariant clustering, Ph.D. proposal/MS thesis, The University of Texas at El Paso, https://www.proquest.com/docview/2621034855?pq-origsite=gscholar&fromopenview=true

[2] Robust statistical inference for the Gaussian distribution, MS thesis, The University of Texas at El Paso, https://www.proquest.com/docview/2309529047?pq-origsite=gscholar&fromopenview=true

MANUSCRIPTS

[3] **A.T. Anum**, M. Pokojovy (2022). A hybrid method for density power divergence minimization with application to robust univariate location and scale estimation. *Communications in Statistics – Theory and Methods*: 1–27 (revised and resubmitted)

[4] M. Pokojovy, **A.T. Anum** (2022). A fast initial response approach to sequential financial surveillance. In: *Proceedings of the 2022 Southwest Data Science Conference, Springer*:1–16 (forthcoming)

[5] H. Xu, **A.T. Anum**, M. Pokojovy, et al (2022). Assessing machine learning techniques for COVID-19 screening based on clinical data. (under review)

CONFERENCE PUBLICATIONS

[6] M. Pokojovy, **A.T. Anum**. A new algorithm for robust affine–invariant clustering. *2022 Symposium on Data Science and Statistics*, June 6–10, 2022

[7] M. Pokojovy, **A.T. Anum**. A fast initial response approach to sequential financial surveillance. *The Southwest Data Science Conference 2022 at Baylor University (**received best paper award**)*, March 25–26, 2022

CONFERENCE PRESENTATIONS

[8] **A.T. Anum**, J. Koomson, M. Pokojovy, S. Chen. Kernel weighted average estimation for calibrating a heavy-tailed financial model. *The 28th UTEP/ NMSU Workshop on Mathematics, Computer Science, and Computational Sciences*, November 5, 2022

[9] M. Pokojovy, **A.T. Anum**. A fast initial response approach to sequential financial surveillance. *Fall Central Sectional Meeting.* AMS, September 17 – 18, 2022

[10] M. Pokojovy, **A.T. Anum**. A fast initial response approach to sequential financial surveillance. *2022 Symposium on Data Science and Statistics*, June 8, 2022

[11] M. Pokojovy, **A.T. Anum**. A fast initial response approach to sequential financial surveillance. *The 27th NMSU/UTEP Workshop on Mathematics, Computer Science, and Computational Sciences*, April 2, 2022

[12] **A.T. Anum**, M. Pokojovy. A hybrid method for density power divergence minimization with application to robust univariate location and scale estimation. *The 26th UTEP/ NMSU Workshop on Mathematics, Computer Science, and Computational Sciences*, November 5, 2021

[13] **A.T. Anum**, M. Pokojovy. A hybrid method for density power divergence minimization with application to robust univariate location and scale estimation. *1st National Institute of Statistical Sciences (NISS) Graduate Student Research Conference*, June 12–13, 2021

[14] **A.T. Anum**. Robust Statistical Inference for the Gaussian Distribution. *Fall Central Sectional Meeting.* AMS, September 12–13, 2020

CONFERENCE POSTERS

[15] M. Pokojovy, **A.T. Anum**. A fast initial response approach to sequential financial surveillance. *2022 Symposium on Data Science and Statistics*, June 6–10, 2022

[16] M. Pokojovy, **A.T. Anum**. A fast initial response approach to sequential financial surveillance. *The Southwest Data Science Conference 2022 at Baylor University*, March 25–26, 2022

PAPERS IN PREPARATION

[17] M. Pokojovy, **A.T. Anum**. A new algorithm for robust affine–invariant clustering.

[18] M. Pokojovy, **A.T. Anum**, A. Mandal, S. Chen. Density power divergence minimization with application to robust location and scale estimation.

[19] M. Pokojovy, S. Chen, **A.T. Anum**, J. Koomson. Univariate kernel weighted average.

[20] M. Pokojovy, S. Chen, **A.T. Anum**. Multivariate kernel weighted average OGK estimator.

GRANTS	**Pending**

[1] M. Pokojovy (PI), A. T. Anum (PhD Research Associate). (06/2023 to 05/2028). CAREER: Robust Cluster Analysis for Multivariate and High-Dimensional Datasets. NSF DMS Statistics, $698,314

Awarded

[2] M. Pokojovy (PI), A. T. Anum (PhD Research Associate). (09/2022 to 08/2025). Nonparametric Total Variation Regression for Multivariate Process Data. NSF DMS Statistics, $120,000

[3] UTEP Graduate School Summer Research Funding Program, June 1, 2022 to July 29, 2022, $4,400

[4] UTEP Graduate School Summer Research Funding Program, June 1, 2021 to July 30, 2021, $4,400

SELECTED TEACHING EXPERIENCE

The University of Texas at El Paso, El Paso, TX

PhD Teaching Assistant   **Fall 2019 to present**
- Introduction to Data Mining – one semester
- Applied Analysis I – one semester
- Applied Analysis II – one semester
- Matrix Algebra – two semesters
- Discrete Mathematics – one semester
- Pre-Calculus – one semester

MS Teaching Assistant   **August 2017 to May 2019**
- Calculus – two semesters
- Matrix Algebra – two semesters
- Differential Equations – one semester
- Discrete Mathematics – two semesters
- Tutor at Math Resource Center for Students (MaRCS) – three semesters

University of Cape Coast, Cape Coast, Central Region, Ghana

Teaching Assistant   **August 2016 to May 2017**
- Ordinary Differential Equations – two semesters
- Numerical Analysis I – two semesters
- Numerical Analysis II – two semesters

OTHER MEETING ATTENDANCE

Invited Participant
- The Southwest Data Science Conference 2022 at Baylor University, Waco, TX, 2022/03/25 through 2022/03/26
- 1st National Institute of the Statistical Sciences (NISS) Graduate Student Research Conference (online) 2021/06/12 through 2021/06/13

General Participant
- 2nd National Institute of the Statistical Sciences (NISS) Graduate Student Research Conference (online) 2022/05/14 through 2022/05/15
- 2022 Symposium on Data Science and Statistics, Pittsburgh, PA, 2022/06/07 through 2022/06/10
- IEEE EMBS Grand Challenges Forum in Healthcare (online) 2021/02/10 through 2021/02/13
- The Role of Climate Emulators in the AR6 Assessment (online) 2021/09/30
- Matlab Expo (online) 2021/05/04 through 2021/05/05

SOFTWARE SKILLS

Statistical Programming and Scientific Computing:
- R, Python, Matlab, Mathematica, etc.

Programming:
- C/C++ (including OpenMP, OpenACC, OpenMPI, CUDA), Python, UNIX shell scripting, etc.

Scientific Typesetting:
- LaTeX, BibTeX, Vim, Microsoft Office, Open Office, etc.

Operating Systems:

	• Microsoft Windows, Apple OS X, Linux, and other UNIX variants
EXPERTISE	Computational Science:
	• numerical analysis, computational mathematics and statistics, computational matrix algebra, high-performance computing, mathematical and statistical modeling, etc.
	Data Science and Statistics:
	• data mining, machine learning, advanced data analytics, multivariate statistics, nonparametric statistics, robust statistics, computational statistics, statistical process control, etc.
	Computer Science:
	• serial and parallel programming, distributed data storage and processing, functional and object-oriented programming, etc.

SERVICE

• Computational Science Student Association at UTEP
President   August 2022 to May 2023
Vice President   August 2021 to May 2022

SCHOLARSHIPS AND AWARDS

The University of Texas at El Paso
• Best paper award (The 2022 Southwest Data Science Conference at Baylor University)
• Texas Public Educational Grant Program, August 24, 2020 to May 14, 2021
• Texas Public Educational Grant Program, August 27, 2018 to May 10, 2019
University of Cape Coast, Cape Coast, Central Region, Ghana
• Vice Chancellor's Distinguished Award, September 2016
• Dean's Distinguished Award, June 2016

REFERENCES AVAILABLE UPON REQUEST

Dr. Michael Pokojovy (e-mail: mpokojovy@utep.edu; phone: +1-915-747-6761)
• Assistant Professor, Department of Mathematical Sciences, The University of Texas at El Paso, El Paso, TX
⬦ The University of Texas at El Paso, 500 W University Ave, El Paso, TX, 79968
⋆ *Dr. Pokojovy is my doctoral advisor and former MS advisor.*
Dr. Su Chen (e-mail: suchen@unmc.edu; phone: +1-405-559-6473)
• Associate Professor, Department of Biostatistics, University of Nebraska Medical Center, Omaha, NE
⬦ University of Nebraska Medical Center, 984375 Nebraska Medical Center, Omaha, NE 68198–4375
⋆ *Dr. Chen is my collaborator.*
Dr. Tzu-Liang (Bill) Tseng (e-mail: btseng@utep.edu; phone: +1-915-747-7990)
• Professor, Chair of Department of Industrial, Manufacturing and Systems Engineering (IMSE), Director of Research Institute for Manufacturing and Engineering Systems (RIMES), The University of Texas at El Paso, El Paso, TX
⬦ The University of Texas at El Paso, 500 W University Ave, El Paso, TX, 79968
⋆ *Dr. Tseng is my collaborator and a member of my doctoral committee.*
Dr. Abhijit Mandal (e-mail: amandal@utep.edu; phone: +1-915-747-8246)
• Assistant Professor, Department of Mathematical Sciences, The University of Texas at El Paso, El Paso, TX
⬦ The University of Texas at El Paso, 500 W University Ave, El Paso, TX, 79968
⋆ *Dr. Mandal is my collaborator and a member of my doctoral committee.*
Dr. Xiaogang Su (e-mail: xsu@utep.edu; phone: +1-915-747-6860)
• Professor, Department of Mathematical Sciences, The University of Texas at El Paso, El Paso, TX
⬦ The University of Texas at El Paso, 500 W University Ave, El Paso, TX, 79968
⋆ *Dr. Su is a member of my doctoral committee.*