

Dr. Kobi A. Abayomi

· Head of Science, Gumbel Demand Acceleration ·
· Clinical Assistant Professor of Data Science, Arizona State University ·
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Expertise Matrix & Research Fields

- **Data Science for Digital Media & Monetization:** Stochastic Processes, Bayesian Estimation, Multi-Layer/Time-Indexed Models, Large Language Models (LLMs), Source Separation, Hilbert Space & Kernel Representations.
- **Business Analytics & Quantitative Strategy:** Probabilistic Search & Sort Algorithms, Copulas, Simplexed Distributions, Measurements of Inequality, Dependency Models.
- **Managerial Economics & Sustainability:** Environmental & Ecological Economics, Labor Market Outcomes, Asset Allocation, Resource Distribution, Quotas.
- **Predictive Analytics in Higher Education:** DFW/Grade Prediction Frameworks, College Undermatching Metrics, Corporate Data Science Curriculum Design.

Earned Degrees & Post-Doctoral Fellowships

Columbia University <i>Ph.D. in Probability and Statistics</i>	Manhattan, New York, USA February 2008
Columbia University <i>M.Phil. in Statistics</i>	Manhattan, New York, USA May 2007
Columbia University <i>M.A. in Statistics</i>	Manhattan, New York, USA February 2002
Georgia Institute of Technology <i>B.S. in Industrial Engineering & Public Policy</i>	Atlanta, Georgia, USA August 2000
Stanford University <i>VIGRE Visiting Scholar – Department of Statistics</i>	Palo Alto, CA, USA 2008
Duke University / SAMSI <i>Postdoctoral Associate – Department of Statistics</i>	Durham, NC, USA 2007–2008

Professional & Academic Appointments

Arizona State University <i>Clinical Assistant Professor of Data Science</i>	Tempe, AZ, USA 2025–Present
Gumbel Demand Acceleration <i>Head of Science</i>	San Diego, CA, USA 2023–Present
Warner Music Group <i>SVP, Data Science & Analytics</i>	New York, NY, USA 2020–2023
WarnerMedia <i>Director, Linear & Cross Platform Monetization</i>	New York, NY, USA 2019–2020
Barnes & Noble Education	Manhattan, NY, USA

<i>Head of U.S. Data Science</i>	2018–2019
Dun & Bradstreet	Short Hills, NJ, USA
<i>Senior Data Scientist – CEO’s Office</i>	2016–2018
Universidad de Cuenca	Cuenca, Ecuador
<i>Prometeo Professor – Facultad de Ingeniería</i>	2014–2016
Binghamton University	Binghamton, NY, USA
<i>SUNY Faculty Professor – Environmental Studies & Dept. of Mathematical Sciences</i>	2012–2015
Duke University	Durham, NC, USA
<i>Visiting Research Fellow – Social Science Research Institute</i>	2011
Georgia Institute of Technology	Atlanta, GA, USA
<i>Assistant Professor – School of Industrial & Systems Engineering (Statistics)</i>	2008–2012
SAMSI	Research Triangle Park, NC, USA
<i>Postdoctoral Associate – Risk Working Group</i>	2007–2008
Duke University	Durham, NC, USA
<i>Visiting Assistant Professor – Department of Statistics</i>	2007–2008
Haverford College	Haverford, PA, USA
<i>Visiting Instructor – Department of Mathematics</i>	2006–2007
University of Chicago	Chicago, IL, USA
<i>Research Intern – Center for Integrating Statistical and Environmental Science (CISES)</i>	2004
CIESIN at Columbia University	Palisades, NY, USA
<i>Research Associate (2002) / Research Assistant (2000–2002)</i>	2000–2002
Georgia Institute of Technology	Atlanta, GA, USA
<i>Research Fellow – School of Industrial and Systems Engineering</i>	1999–2000
Georgia Institute of Technology	Atlanta, GA, USA
<i>Research Assistant – School of Public Policy</i>	1999–2000

Commercialized Intellectual Property & Patents

- [1] **Abayomi K.** “Dynamic Demand Metering” *U.S. Provisional Patent Application* (2023).
- [2] **Abayomi K.**, De Mori J., Liu Z. “Open Set Recognition: An Engine for Automated Music Genre Discovery” *U.S. Provisional Patent Application Pending* (2022).
- [3] **Abayomi K.**, Schwarm A. “Demand Based Marketing Analysis & Recommendation Engine” *U.S. Provisional Patent Application Pending* (2018).
- [4] **Abayomi K.**, Scriffignano A. “Diagnostic Engine and Classifier for Discovery of Behavioral and other Clusters Relating to Entity Relationships to Enhance Modeling for De-Randomized Entity Behavior Identification and Classification” *U.S. Provisional Patent Application No. 62/368,457* (2016).

Scholarly Accomplishments: Refereed Papers

- [5] **Abayomi K.** “Modeling & Optimization for Streaming Listening Demand” *Mathematics Association of America Monthly: Special Issue - Data Science*. January. (2025).

- [6] **Abayomi K.**, De Mori J., Liu Z. “Open Set Recognition: An Engine for Automated Music Genre Classification” *Proceedings of the 23rd. Int. Society for Music Information Retrieval Conf.* Submitted. Bengaluru, India (2022).
- [7] Girma A., **Abayomi K.**, Garuba M. “The Design, Data Flow Architecture, and Methodologies for a Newly Researched Comprehensive Hybrid Model for the Detection of DDoS Attacks on Cloud Computing Environment.” In: Latifi S. (eds) *Information Technology: New Generations. Advances in Intelligent Systems and Computing*, vol **448**. Springer (2016).
- [8] Hill, S., Vastola, J. & **Abayomi K.**, “Statistics for Re-Identification in Network Models.” *Network Links: Connecting Social, Communication and Biological Network Analysis*. University of Minnesota Press. (2015).
- [9] **Abayomi K.**, Pizarro, G. “Monitoring the United Nations Millennium Development Goals: A Simple (Bayesian) Methodology for a Cross-National Index”. *Social Indicators Research: Volume 110*, Issue 2 (2013), Page 489-515.
- [10] **Abayomi, K.** and Yandle, T. “Using conditional Lorenz Curves to examine ITQ Consolidation in New Zealand Commercial Fishing.” *Marine Resource Economics*. Volume **27**. pp 303-321. (2012).
- [11] Cao, F., **Abayomi, K.** and Gebraeel, N. “Probabilistic ‘best set’ sorting algorithms for multivariate prognostic data.” *Algorithms and Computation* (2012).
- [12] **Abayomi, K.**, Gabel J., Jennings, O. “Copula Based Multi-state Hazard Model: An Inferential Methodology for the Innocence Project.” *JSM Proceedings, Statistical Computing Section. Alexandria, VA: American Statistical Association August* (2011).
- [13] **Abayomi, K.** “On Inequality” *Encyclopedia of Race and Racism. 2nd edition*. Edited Volume, Editor in Chief: Mason, P. MacMillan Reference. (2012).
- [14] **Abayomi, K.**, Thomas, V., and Luo, D. “Statistical Evaluation of the Effect of Ethanol in US Corn Production: A Kolmogorov-Smirnov Test for Independence on a Constrained Sum via the Empirical Copula.” *International Journal of Ecological Economics & Statistics*. **20**. Winter (2011).
- [15] **Abayomi, K.**, de la Pena ,V., Lall, U., and Levy, M. “Quantifying Sustainability: Methodology for and Determinants of an Environmental Sustainability Index”, chapter in *Green Finance and Sustainability: Environmentally Aware Business Models and Technologies.*, ed. Z. Luo. (2010).
- [16] **Abayomi, K.** and Hawkins, L. “Copulas for Tunable Markov Processes: Heuristics for extreme-valued labor market outcomes, for African American males. Fortune 500 CEO’s vs. Professional Athletics” *Proceedings of the 2010 Joint Mathematics Meetings*. Spring (2009).
- [17] Sims, R.C., Madhere, S., Clark, E., Gordon, S., **Abayomi, K.A.**, Callender, C.O., Campbell, A.L. Relationships between blood pressure, triglycerides, and verbal learning in African Americans, *Journal of the National Medical Association.*, **102**. (2008).
- [18] **K Abayomi**, A Gelman, M Levy “Diagnostics for Multivariate Imputation.” *Journal of the Royal Statistical Society-C*. **57**, Part 3, 1-19. (2008).
- [19] **MC Thompson**, K Abayomi, A G Barnston, M Levy, M Dilley “El Niño and drought in southern Africa” *The Lancet*. **361**. February 1. (2003).
- [20] **K Abayomi**, R Barke, A Bostrom, S Gen, S Kapplin “Does Trust affect judgements of risk acceptability? A survey based case study form Burgas, Bulgaria.” *Population and Environmental Psychology Bulletin*. **27**. No. 1, Winter. (2001).

Unpublished Research Papers

- **Abayomi K.**, Baer P. “Statistical approximations for sustainably selective welfare functions.”
- **Abayomi, K.**, Darity Jr., W. “A Friendly Amendment of the Theil Index and a Consequent Test for Across and Within Theil Inequality.” (2011)
- **Abayomi, K.**, Gabel, D., and Jennings, O. “Determinants of Wrongful Conviction and Exoneration: A Statistical, Legal and Operational Study of Innocence Project Data.”
- **Abayomi K.**, Lacer, M., Lupton, D. “Thresholding for Multivariate Extreme Values applied to Environmental Hazards.”

Other Institutional & Technical Reports

- **Abayomi, K.** “Report: Determinants of College UnderMatching for High School Students in the New York City Department of Education, with Case-Control Addendum” (2017).
- **Abayomi, K.** “United Nations Millennium Development Goals Prediction & Visualization Module; Univariate & Multivariate Predictions” (2015).
- Pizarro, G., **Abayomi, K.** et. al “The Millennium Development Goals Systematic Time-bound Evaluation of Performance and Systems (STEPS) Index.” United Nations Development Program, Millennium Development Goals. *Working Paper*. 2009.
- **K Abayomi**, U Lall, V De la Pena “Copula based Independent Component Analysis.” *Ph.D Thesis, Columbia University* 2008.
- World Bank-SEDAC Report “Natural Disaster Hotspots: A Global Risk Analysis” *Technical Report*.
- **Abayomi, K.** “Multivariate time series: Ground Level Ozone” Chicago, CISES - University of Chicago: 11. 2004.
- **Abayomi, K.**, “Bayesian Network Analysis of Multiple Hazards: Initial Example” ProVention Consortium Assessment of High-Risk Disaster Hotspots, Palisades, N.Y. November 2002.
- World Economic Forum. 2002 Environmental Sustainability Index.
- World Economic Forum 2001 Environmental Sustainability Index.

Executive Presentations & Invited Seminars

- Math Career Connections, Virginia Tech “Data Science in Digital Media.” Invited Talk. March 2026.
- MAA Seaway Section Fall Meeting. “The Statistics of Demand (for Media) Prediction.” Invited Talk. October 2025.
- MAA Joint Meetings. “Math Stories & Identity.” Invited Talk. August 2025.
- **Chan Stanek Lecture MAA Joint Meetings.** “From Sound to Demand - What a DJ knows. An RKHS approach to demand representation from sound information.” Invited Talk. August 2024.
- CUNY/Hunter College Statistics Seminar. “From Sound to Demand - What a DJ knows.” Invited Talk. February 2024.
- Mathematical Association of America Joint Meetings. “From Sound to Demand - What a DJ knows.” Invited Talk. August 2023.
- **INFORMS 2022.** “Hierarchical modeling for digital media demand.” Invited Talk. November 2022.
- AUC Data Science Colloquium. “Hierarchical modeling for digital media demand.” Invited Talk. January 2022.
- **RStudio Forum: Data Science Business Leaders.** Invited Panel. March 2021.

- Columbia University GSAS Seminar. “Statistics in Data Science” Invited Talk. January 2021.
- Seton Hall University. “Natural Language in B2B Unstructured Data” Invited Talk. May 2018.
- Morehouse College. “Beyond Correlation” Invited Talk. May 2016.
- Oberlin College - Series in Science. “Further Beyond Correlation” Invited Talk. April 2016.
- Universidad de San Francisco de Quito. “Non-Gaussian Computer Experiments” Quito, Ecuador. July 2014.
- American Society of Criminology. “Statistical Methodology for Innocence Project Data.” Chicago, USA. November 2012.
- **INFORMS, Phoenix AZ.** “Probabilistic Versions of ‘Best Set’ Sorting Algorithms, with Measure Theoretic Limits Using Copulas”. November 2012.
- Georgia Tech Economics Department Seminar. “Statistical Approaches for Constrained/Limited Sums.” January 2012.
- Duke Conference on Health and Inequality Measurement. “Conditional Lorenz Curves for Inequality Data” August 2011.
- Joint Statistical Meetings. “Multi-State Hazard Models for Exoneration Data” August 2011.
- Baruch College. “Statistics for Re-identification in Networked Data” May 2011.
- North American Association of Fisheries Economists. “Understanding change in Individual Tradable Quotas (ITQs)” April 2011.
- **INFORMS 2010 Cluster Presentations:**
 - “Statistics for Sorting Multivariate Prognostic Data.”
 - “A Straightforward Bayesian Approach to Indexing: The Millennium Development Goals”
 - “Theil’s Index and a Test for Equi-Inequality.”
 - “Statistics for Re-identification in Networked Data”
 - “Competition in Corn Yield from Ethanol Biofuel Production”
 - “Multivariate Extreme Value Thresholding.”
- Hendricks Symposium. “Theil’s Index and a Test for Equi-Inequality.” 2010.
- WIN Workshop on Information Networks. “Statistics for Re-Identification Signatures.” 2010.
- Joint Mathematics Meetings. “Copulas for Tunable Markov Processes.” Jan 2010.
- Georgia State University College of Law. “Statistics in Forensic Analysis.” March 2010.
- **INFORMS 2009 / 2008 / 2007 / 2006 / 2005 / 2004 Series:** Delivered various continuous research papers spanning Copula Methods for Flood Forecasting, Independent Component Analysis, and Environmental Data Mining.

Grants, Funded Corporate Research & Fellowships

- **Principal Investigator**, Novartis Pharmaceuticals. On *Early Digital-Behavioral Determinants of Psoriatic Arthritis*. August–November 2019.
- **Principal Investigator**, New York City Department of Education (NYCDOE). On *College Undermatching*. September–December 2016.
- **Principal Investigator**, Kedrion Pharmaceuticals. On *Multivariate Production Process Control Statistics*. September–December 2015.
- **Principal Investigator**, United Nations Development Programme, LATAM. On *Aggregating determinants of MDGs*. 2014–2015.
- **Principal Investigator**, GT-FIRE. On *Determinants of Exoneration*, using Innocence Project Network Data. 2010–2011.
- **Consultant**, Ford Foundation. On *Duke University Research Network on Racial and Ethnic Inequality National Asset Scorecard*. 2010–2011.

- **Research Grantee**, Office of Naval Research. Summer funding for signal re-identification algorithms. 2010.
- **National Science Foundation**, IGERT Scholar & Doctoral Fellow (Columbia University). 2003–2006.

Teaching Experience & Curriculum Innovation

- **Curriculum Design Highlights:**
 - *Arizona State University (2025-2026)*: Designed core sequences for **Time Series Analysis** and **Data Science for Digital Media**.
 - *Seton Hall University (2017–2023)*: Architected the complete **Masters of Data Science** sequence, including *Operations Research for Data Science*, *Statistics Sequence*, and *Data Science for Digital Media*.
- **Arizona State University**: Statistics for Machine Learning (DAT 401), Machine Learning (DAT 402).
- **Seton Hall University**: Statistics for Data Science (Math 6611), Operations Research for Data Science (Math 6811), Data Science for Digital Media, Mathematical Statistics.
- **Georgia Tech**: Linear Statistical Models (ISYE 6414), Design of Experiments (ISYE 6413), Statistical Dependency (ISYE 8803).
- **Duke University**: Mathematical Statistics, Introduction to Probability.
- **Columbia University**: Graduate Mentor (Summer Undergraduate Research), Statistics for Engineers.

Board Leadership, Academic Service & Affiliations

- **Professional Affiliations**: Mechanical Licensing Collective (MLC); Digital Data Exchange (DDEX); American Statistical Association; INFORMS (Member since 2006; Minority Cluster Chair 2009; Session Chair 2007–2012).
- **Board Appointments**: Board Member, Ivan Allen College, Georgia Institute of Technology (2021–Present); Board Member, Modal Learning (2021–2024); Board Member, Barnes & Noble Education (2021–2024).
- **National Panels**: National Science Foundation (NSF) Division of Mathematical Sciences, Statistics Panel (2012).
- **Academic Service**: Data Science Advisory Council, Seton Hall University (2018–2024); Chapter Advisor, AI 2030 (2024–Present).

Honors and Awards

- *Alumni of the Year*, Georgia Institute of Technology, Ivan Allen College (2021).
- *Adjunct Teacher of the Year*, Seton Hall University (2016–2017).
- *Young Practitioner Selection*, INFORMS Conference on Practice (Applying Science to the Art of Business) (2009).
- *SAMSI Postdoctoral Fellowship*, Statistical and Applied Mathematical Sciences Institute (2007–2008).

References

- **Dr. Erica Walker**, Dean of the College, University of Toronto · dean.oise@utoronto.ca
- **Dr. Gonzalo Pizarro**, Director, Latin American Program, United Nations · gonzalo.pizarro@un.org
- **Dr. Darrick Hamilton**, Professor, The New School · hamiltod@newschool.edu
- **Dr. William Darity**, Prof. of Econ. & Public Policy, Duke University · william.darity@duke.edu