# MICHAEL D. PORTER

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## EMPLOYMENT

| | |
|---|---|
| 2018–present | **University of Virginia**, Associate Professor<br>*School of Data Science* |
| 2018–present | **University of Virginia**, Associate Professor<br>*Dept. of Systems and Information Engineering* |
| 2022-2024 | **Amazon**, Amazon Scholar (Consulting) |
| 2018-2019 | **University of Virginia**, Associate Professor<br>*Darden School of Business* |
| 2017-2018 | **University of Alabama**, Associate Professor (with tenure)<br>*Information Systems, Statistics, Management Science* |
| 2013-2017 | **University of Alabama**, Assistant Professor<br>*Information Systems, Statistics, Management Science* |
| 2013-2013 | **DigitalGlobe**, Principal Research Scientist |
| 2010-2013 | **GeoEye**, Principal Research Scientist |
| 2008-2010 | **Spadac**, Principal Research Scientist |
| 2007-2008 | **Statistical and Applied Mathematical Sciences Institute (SAMSI)**, Post-doc |
| 2006-2008 | **North Carolina State University**, VIGRE Postdoc Fellow<br>*Department of Statistics* |
| 1998-2001 | **Sanford/Newell-Rubbermaid**, Project Engineer |

## EDUCATION

| | | | |
|---|---|---|---|
| 2006 | Ph.D. | **University of Virginia** | Systems and Information Engineering |
| 2003 | M.S. | **Vanderbilt University** | Systems Engineering/Mgmt of Technology |
| 1998 | B.S. | **Purdue University** | Industrial Engineering |

## PUBLICATIONS

### Peer Reviewed

1. Haregu, F., Dixon, R., McCulloch, M., **Porter, M.** "Machine Learning for Predicting Waitlist Mortality in Pediatric Heart Transplantation". In: *Pediatric Transplantation* 29.4 (2025), e70095
2. Tian, J., **Porter, M.** "Deep-Learning Based Probabilistic Forecasting Framework for Censored Data". In: *23rd IEEE International Conference on Machine Learning and Applications (ICMLA)*. 2024, pp. 1265–1270
3. Akrami, M., **Porter, M.**, Colosi, L. "Addressing uncertainty in machine learning-integrated life cycle assessment (ML+LCA)". in: *Journal of Environmental Management* 389 (2025), p. 126225

4. Liu, H., Tang, X., Chen, T., Liu, J., Indu, I., Zou, H., Dai, P., Galan, R., **Porter, M.**, Jia, D., Zhang, N., Xiong, L. "Sequential LLM Framework for Fashion Recommendation". In: *Proceedings of the 2024 Conference on Empirical Methods in Natural Language Processing: Industry Track*. Miami, Florida, US: Association for Computational Linguistics, Nov. 2024, pp. 1276–1285
5. Tian, J., **Porter, M.** "Time of week intensity estimation from partly interval censored data with applications to police patrol planning". In: *Journal of Applied Statistics* (2024), pp. 1–19
6. Mostafavi, M., **Porter, M.**, Robinson, D. "Contextual Embeddings in Sociological Research: Expanding the Analysis of Sentiment and Social Dynamics". In: *Sociological Methodology* 55 (1 2025), pp. 25–58
7. McCulloch, M., Alonzi, L., White, S., Haregu, F., **Porter, M.** "Pediatric donor heart acceptance practices in the United States: What is really being considered?" In: *Pediatric Transplantation* 28.1 (2024), e14649
8. Ruggeri, F., **Porter, M.**, White, G. "Endogenous and exogenous effects in self-exciting process models of terrorist activity". In: *Statistica Neerlandica* 79.1 (2025), e12347
9. Deverill, H., Scherer, W., **Porter, M.**, Stam, A. "The Utility of Machine Learning Applied to Military Assessment and Selection". In: *Military Operations Research* 29.2 (2024), pp. 53–94
10. Haregu, F., Dixon, R., **Porter, M.**, McCulloch, M. "Pediatric donor heart utilization variability among organ procurement organizations". In: *Pediatric Transplantation* 28.3 (2024), e14747
11. Moghadasi, N., Piran, M., Baek, S., Valdez, R., **Porter, M.**, Johnson, D., Lambert, J. "Systems Analysis of Bias and Risk in AI-Enabled Medical Diagnosis". In: *2023 IEEE Symposium Series on Computational Intelligence (SSCI)*. IEEE. 2023, pp. 1800–1807
12. Tian, J., **Porter, M.** "Changing presidential approval: Detecting and understanding change points in interval censored polling data". In: *Stat* 11.1 (2022), e463
13. Jiang, Y., **Porter, M.** "Simulating Fake News Dissemination on Twitter with Multivariate Hawkes Processes". In: *2022 IEEE International Conference on Big Data (Big Data)*. IEEE. 2022, pp. 3597–3606
14. Kotay, S., Tanabe, K., Colosi, L., Poulter, M., Barry, K., Holstege, C., Mathers, A., **Porter, M.** "Building-Level Wastewater Surveillance for SARS-CoV-2 in Occupied University Dormitories as an Outbreak Forecasting Tool One Year Case Study". In: *ACS ES&T Water* 2.11 (2022), pp. 2094–2104
15. Rostami-Tabar, B., Ali, M., Hong, T., Hyndman, R., **Porter, M.**, Syntetos, A. "Forecasting for social good". In: *International Journal of Forecasting* 38.3 (2022), pp. 1245–1257. eprint: `https://arxiv.org/abs/2009.11669`
16. Jablonski, J., Fernandes, P., Adewole, S., Syed, S., Brown, D., **Porter, M.** "Multi-frame Abnormality Detection in Video Capsule Endoscopy". In: *Proceedings of the Future Technologies Conference*. Vol. 2. Springer. 2022, pp. 177–186
17. Mohler, G., **Porter, M.** "A note on the multiplicative fairness score in the NIJ recidivism forecasting challenge". In: *Crime Science* 10.17 (2021), pp. 1–5
18. Colosi, L., Barry, K., Kotay, S., **Porter, M.**, Poulter, M., Ratliff, C., Simmons, W., Steinberg, L., Wilson, D., Morse, R., Zmick, P., Mathers, A. "Development of Wastewater Pooled Surveillance of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) from Congregate Living Settings". In: *Applied and Environmental Microbiology* 87.13 (2021), e00433–21
19. Adewole, S., Fernandes, P., Jablonski, J., Copland, A., **Porter, M.**, Syed, S., Brown, D. "Graph Convolutional Neural Network For Weakly Supervised Abnormality Localization In Long Capsule Endoscopy Videos". In: *2021 IEEE International Conference on Big Data (Big Data)*. IEEE. 2021, pp. 388–399

20. Fazli, M., Sklar, S., **Porter, M.**, French, B., Shakeri, H. "Wastewater-Based Epidemiological Modeling for Continuous Surveillance of COVID-19 Outbreak". In: *2021 IEEE International Conference on Big Data (Big Data)*. IEEE. 2021, pp. 4342–4349
21. Mostafavi, M., **Porter, M.** "How emoji and word embedding helps to unveil emotional transitions from social media interactions". In: *IEEE International Systems Conference (SysCon)*. 2021
22. Mostafavi, M., **Porter, M.**, Jiang, Y., Phillips, M., Freedman, P. "A Tale of Two Metrics: Polling and Financial Contributions as a Measure of Performance". In: *IEEE International Systems Conference (SysCon)*. 2021
23. Jiang, Y., **Porter, M.** "Discovering Influence of Yelp Reviews Using Hawkes Point Processes". In: *Intelligent Systems Conference (IntelliSys)*. 2021
24. Adewole, S., Fernandes, P., Jablonski, J., Copland, A., **Porter, M.**, Syed, S., Brown, D. "Lesion2Vec: Deep Meta Learning for Few-Shot Lesion Recognition in Capsule Endoscopy Video". In: *Proceedings of the Future Technologies Conference*. Springer. 2021, pp. 762–774
25. Mohler, G., **Porter, M.**, Carter, J., LaFree, G. "Learning to rank spatio-temporal event hotspots". In: *Crime Science* 9.3 (2020), pp. 1–12
26. Pennetti, C., Andrews, D., **Porter, M.**, Lambert, J. "Traveler Perception of Transportation System Performance Using Kernel Density Estimation to Prioritize Infrastructure Investments". In: *International Conference on Transportation and Development*. 2020, pp. 48–61. eprint: `https://ascelibrary.org/doi/pdf/10.1061/9780784483169.005`
27. Cheng, F., **Porter, M.**, Colosi, L. "Is hydrothermal treatment coupled with carbon capture and storage an energy-producing negative emissions technology?" In: *Energy Conversion and Management* 203.112252 (2020)
28. **Porter, M.**, Akakpo, A.. "Detecting, identifying, and localizing radiological material in urban environments using scan statistics". In: *IEEE International Symposium on Technologies for Homeland Security (HST)*. IEEE. 2019, pp. 1–6. eprint: `https://arxiv.org/abs/2002.03224`
29. Mohler, G., **Porter, M.** "Rotational grid, PAI-maximizing crime forecasts". In: *Statistical Analysis and Data Mining* 11.5 (2018), pp. 227–236
30. Wang, K., **Porter, M.** "Optimal Bayesian Clustering using Non-negative Matrix Factorization". In: *Computational Statistics and Data Analysis* 128 (2018), pp. 395–411
31. Wang, K., Simandl, J., **Porter, M.**, Graettinger, A., Smith, R. "How the Choice of Safety Performance Function Affects the Identification of Important Crash Prediction Variables". In: *Accident Analysis and Prevention* 88.1 (2016), pp. 1–8
32. **Porter, M.** "A Statistical Approach to Crime Linkage". In: *The American Statistician* 70.2 (2016), pp. 152–165
33. Bouhana, N., Johnson, S., **Porter, M.** "Consistency and specificity in burglars who commit prolific residential burglary: Testing the core assumptions underpinning behavioural crime linkage". In: *Legal and Criminological Psychology* 21.1 (2016), pp. 77–94
34. Reich, B., **Porter, M.** "Partially-supervised spatiotemporal clustering for burglary crime series identification". In: *Journal of the Royal Statistical Society: Series A (Statistics in Society)* 178.2 (2015), pp. 465–780
35. White, G., **Porter, M.** "GPU accelerated MCMC for modeling terrorist activity". In: *Computational Statistics and Data Analysis* 71 (2014), pp. 643–651
36. White, G., Mazerolle, L., **Porter, M.**, Chalk, P. "Modelling the effectiveness of counter-terrorism interventions". In: *Trends and Issues in Crime and Criminal Justice* 457 (2014), pp. 1–8

37. White, G., **Porter, M.**, Mazerolle, L. "Terrorism Risk, Resilience, and Volatility: A Comparison of Terrorism in Three Southeast Asian Countries". In: *Journal of Quantitative Criminology* 29.2 (2013), pp. 295–320
38. Reich, B., **Porter, M.** "Discussion of Estimating the historical and future probabilities of large terrorist events". In: *The Annals of Applied Statistics* 7.4 (2013), pp. 1871–1875
39. **Porter, M.**, White, G. "Self-exciting hurdle models for terrorist activity". In: *The Annals of Applied Statistics* 6.1 (2012), pp. 106–124
40. **Porter, M.**, Reich, B. "Evaluating temporally weighted kernel density methods for predicting the next event location in a series". In: *Annals of GIS* 18.3 (2012), pp. 225–240
41. **Porter, M.**, Smith, R. "Network Neighborhood Analysis". In: *IEEE Int. Conf. on Intelligence and Security Informatics (ISI)*. Vancouver, B.C., 2010, pp. 31–36
42. Neimi, J., **Porter, M.**, Reich, B. "Mixture Likelihood Ratio Scan Statistic for Disease Surveillance". In: *Advances in Disease Surveillance* 5 (2008), p. 1
43. **Porter, M.**, Brown, D. "Detecting local regions of change in high-dimensional criminal or terrorist point processes". In: *Computational Statistics & Data Analysis* 51.5 (2007), pp. 2753–2768

### Book Chapters

44. **Porter, M.**, White, G., Mazerolle, L. "Evidence-Based Counterterrorism Policy". In: *Evidence-Based Counterterrorism Policy*. Ed. by Lum, C. and Kennedy, L. W. Springer New York, 2012. Chap. Innovative Methods for Terrorism and Counterterrorism Data, pp. 91–112
45. White, G., **Porter, M.** and Mazerolle, L. (2011). The Volatility and Risk of Terrorist Incidents: A Comparative Study Using Self-Exciting Models. Chapter 5 In *Modeling the Effectiveness of Counter-Terrorism Strategies in Indonesia, the Philippines, and Thailand*. A START/CEPS research report.
46. White, G., Mazerolle, L., and **Porter, M.** (2011). Modeling Counter-Terrorism Interventions and their Relative Effectiveness. Chapter 7 In *Modeling the Effectiveness of Counter-Terrorism Strategies in Indonesia, the Philippines, and Thailand*. A START/CEPS research report.

### Editorials, Magazines, and Position Papers

47. **Porter, M.** *Artificial Intelligence Knowledge Supply*. Tech. rep. National Security Data and Policy Institute, University of Virginia, 2024
48. Rostami-Tabar, B., Pinson, P., **Porter, M.** "Guest editorial: Forecasting for social good". In: *International Journal of Forecasting* 41.1 (2025), pp. 1–2
49. Pennetti, C., **Porter, M.** "AI in Motion". In: *Civil Engineering Magazine* 94.6 (2024), pp. 60–69
50. Rostami-Tabar, B., Hong, T., **Porter, M.** "Guest Editorial: Forecasting for social good". In: *International Journal of Forecasting* 38.3 (2022), pp. 1173–1174

### arXiv

51. Jiang, Y., **Porter, M.** "Quantifying the Influence of User Behaviors on the Dissemination of Fake News on Twitter with Multivariate Hawkes Processes". In: *arXiv preprint arXiv:2308.13927* (2023)
52. Mostafavi, M., **Porter, M.** "Reevaluating Data Partitioning for Emotion Detection in EmoWOZ". in: *arXiv preprint arXiv:2303.13364* (2023)

53. Guleria, S., Schwartz, B., Sharma, Y., Fernandes, P., Jablonski, J., Adewole, S., Srivastava, S., Rhoads, F., **Porter, M.**, Yeghyayan, M. "The intersection of video capsule endoscopy and artificial intelligence: addressing unique challenges using machine learning". In: *arXiv preprint arXiv:2308.13035* (2023)
54. Mostafavi, M., **Porter, M.**, Robinson, D. "Learning affective meanings that derives the social behavior using Bidirectional Encoder Representations from Transformers". In: *arXiv preprint arXiv:2202.00065* (2022)

### Major Reports and Technical White Papers

55. **Porter, M.** and Mohler G. (2021) "NIJ Recidivism Forecasting Challenge Report for Team PASDA", Report to the National Institute of Justice.
56. **Porter, M.**, Das T., and Zhang, R. (2016) "Predictive Crash Analytics", Technical Report, CAPS (Center for Advanced Public Safety), University of Virginia.
57. **Porter, M.** and Reich, B.J. (2015) crimelinkage: Statistical Methods for Crime Series Linkage, CRAN. (Open source software and user manual).
58. **Porter, M.** and Reich, B.J. (2014) "Statistical Methods for Crime Series Linkage". Technical Report to National Institute of Justice (NIJ).
59. **Porter, M.** and Holland, B. (2011). "Discovering Temporal Association between Two Types of Events". GeoEye Analytics Technical White Paper.
60. **Porter, M.** (2010). "Multivariate Change Detection". GeoEye Analytics Technical White Paper.
61. Ghosh, S.K. and **Porter, M.** (2009). "Spatio-Temporal Modeling of Health Related Incidents". Report to Centers for Disease Control and Prevention (CDC).
62. Dalton, J.R. and **Porter, M.** (2009). "Geospatial Preference Models in Signature Analyst". SPADAC Technical White Paper.
63. **Porter, M.** (2007). "Probability Estimates for Footwear Evidence".
64. **Porter, M.** (2006). "Detecting Space-Time Anomalies in Point Process Models of Intelligent Site Selection". Doctoral Dissertation, University of Virginia. Dissertations & Theses University of Virginia database. (Publication No. AAT 3225959).

### Blogs

65. **Porter, M.** "Don't Come Around Here No More or Party Like it's 1999?", Blog: Data Science, Statistics, and COVID-19 (2020). `mdporter.github.io/blog/posts/2020-12-31-covid-event-risk/`
66. **Porter, M.** "To SIR, with Love", Blog: Data Science, Statistics, and COVID-19 (2020). `mdporter.github.io/blog/posts/2020-05-12-to-sir-with-love/`

### Conference Proceedings (non/limited peer reviewed)

67. **Porter, M.**, Sharff, J., Dixon, R., Haregu, F., McCulloch, M. "Using Machine Learning to Assess the Predictive Power of Donor Characteristics in Pediatric Heart Transplant Outcomes". In: *The Journal of Heart and Lung Transplantation* 43.4 (2024), S622
68. Haregu, F., Dixon, R., **Porter, M.**, Sharff, J., McCulloch, M. "Machine Learning for Predicting Waitlist Survival in Pediatric Patients Awaiting Heart Transplantation". In: *The Journal of Heart and Lung Transplantation* 43.4 (2024), S621–S622
69. Rogers, A., Dibsie, C., Kuzneski, E., Underwood, D., Brozey, R., Sullivan, L., Robinson, D., **Porter, M.** "Forecasting Breakthroughs: Identifying Future Leaders in the Semiconductor Industry". In: *2024 Systems and Information Engineering Design Symposium (SIEDS)*. IEEE. 2024, pp. 425–430

70. Haregu, F., **Porter, M.**, Dixon, J., McCulloch, M. "Effect of Practice Variation Amongst Organ Procurement Organizations on Pediatric Donor Heart Utilization". In: *The Journal of Heart and Lung Transplantation* 42.4 (2023), S446–S447
71. McCulloch, M., Liu, I., Alonzi, L., White, S., **Porter, M.** "Assessing the Relationship Between Pediatric Donors Terminal Hospitalizations and Heart Acceptance Practices". In: *The Journal of Heart and Lung Transplantation* 41.4 (2022), S508
72. Bullock, J., Grieco, M., Liu, Y., Pedersen, I., Roberson, W., Wright, G., Alonzi, P., McCulloch, M., **Porter, M.** "Determining Factors of Heart Quality and Donor Acceptance in Pediatric Heart Transplants". In: *Systems and Information Engineering Design Symposium (SIEDS)*. 2021
73. Gresham, T., Kim, J., McDonald, J., Scoggins, N., Mostafavi, M., Park, B., **Porter, M.**, Duffy, M., Smith, S. "Safe and Sustainable Fleet Management with Data Analytics and Training". In: *Systems and Information Engineering Design Symposium (SIEDS)*. IEEE. 2021, pp. 1–3
74. Jiang, S., Maggard, K., Shakeri, H., **Porter, M.** "An Application of the Partially Observed Markov Process in the Analysis of Transmission Dynamics of COVID-19 via Wastewater". In: *Systems and Information Engineering Design Symposium (SIEDS)*. 2021
75. Campbell, E., Chamberlayne, E., Gawrylowicz, J., Hood, C., Hudak, A., Orlowsky, M., Rivero, E., **Porter, M.** "Optimization of VDOT Safety Service Patrols to Improve VDOT Response to Incidents". In: *Systems and Information Engineering Design Symposium (SIEDS)*. IEEE. 2020, pp. 1–6
76. Koch, A., Tian, J., **Porter, M.** "Criminal Consistency and Distinctiveness". In: *Systems and Information Engineering Design Symposium (SIEDS)*. IEEE. 2020, pp. 1–3
77. **Porter, M.** and Wang, K. (2019) "Bayesian Clustering using Non-negative Matrix Factorization", Proceedings of the 12th Scientific Meeting of the Classification and Data Analysis Group (CLADAG).
78. Abrisqueta, A., Bishop, C., Perryman, S., Shoebotham, L., Wang, J., **Porter, M.** "Evaluation of VDOT's Safety Service Patrols to Improve Response to Incidents". In: *Systems and Information Engineering Design Symposium (SIEDS)*. IEEE. 2019, pp. 1–5
79. Porter, M.D. (2017) "Multivariate Hawkes Point Process Models for Social Systems", *Proceedings of the 62nd World Statistics Congress of the International Statistical Institute*.
80. **Porter, M.** (2009). "Modeling Site Selection Behavior: Applications to Crime and Terrorism". In *JSM Proceedings*. Alexandria, VA: American Statistical Association, 5284-5293.

### In Progress

81. White, G., **Porter, M.** "Contagion and Diffusion Models for the Dynamics of Terrorist Activity". Under Contract with CRC Press
82. Posey, C., **Porter, M.**, Lowry, P., Moody, G. "Predictive Based Model Selection for Detecting Insider Cyber Security Threats"
83. **Porter, M.**, Sharff, J., Dixon, R., Haregu, F., Mcculloch, M. "Do Donor Factors Matter? A Machine Learning-Based Assessment of Pediatric Heart Transplant Selection Criteria Using UNOS Data"

## FUNDING

| Duration | Award/Share | Role | Agency and Title |
|---|---|---|---|
| 2025–2029 | $4.0M/225K | Cons | **National Highway Traffic Safety Administration (NHTSA)**<br>*Statistical Analysis for Motor Vehicle Crash Insights* |
| 2024–2029 | $1.0M/530K | PI | **Agency for Healthcare Research and Quality (AHRQ)**<br>*Improving Pediatric Donor Heart Utilization with Predictive Analytics* |
| 2024–2027 | $1.2M/10K | co-I | **National Institutes of Health (NIH)**<br>*Research Experiences in Genomics Applications of Responsible Data Science* |
| 2022–2024 | $133K/67K | co-PI | **Jefferson Trust**<br>*Optimizing Pediatric Donor Heart Utilization using Big Data Analytics* |
| 2021–2023 | $350K/70K | co-PI | **National Cooperative Highway Research Program (NCHRP)**<br>*Implementing and Leveraging Machine Learning at State Departments of Transportation* *contracting issues prevented an award being issued |
| 2020–2021 | $61K/48K | co-PI | **Engineering-in-Medicine seed grant**<br>*Impact Quantification of Donor Echocardiographic Data on Pediatric Heart Transplant Recipient Outcomes* |
| 2021–2022 | $22K/11K | co-PI | **iThrive Pilot Translation and Clinical Studies**<br>*Impact Quantification of Donor Echocardiographic Data on Pediatric Heart Transplant Recipient Outcomes* |
| 2021 | $30K/15K | co-PI | **National Institute of Justice (NIJ)**<br>*Recidivism forecasting challenge* |
| 2020–2021 | $100K/9K | co-I | **Ivy Foundation COVID-19 Translational Research Fund**<br>*Epidemiologic Modeling, Public Health Surveillance and Sewershed Monitoring to Predict Surges in the COVID-19 Pandemic* |
| 2020 | $79K/16K | co-PI | **Vibrent Health**<br>*Risk Prediction for COVID-19* |
| 2020–2021 | $122K/36K | co-PI | **Engineering in Medicine Seed Grant**<br>*Deep Learning for Automated Identification and Classification of Gastrointestinal Landmarks in Video Capsule Endoscopies* |
| 2019 | $3K/3K | PI | **TopCoder**<br>*Detecting Radiological Threats in Urban Areas* |
| 2017 | $135K/67K | co-PI | **National Institute of Justice (NIJ)**<br>*Real-time crime forecasting challenge* |
| 2016–2018 | $120K/120K | PI | **Center for Advanced Public Safety**, University of Alabama<br>*Predictive Crash Analytics* |
| 2016–2017 | $115K/115K | PI | **DigitalGlobe**<br>*Statistical Methods for Road Conflation* |
| 2016–2017 | $20K/20K | Advisor | **Alabama Medicaid**<br>*Establishing a baseline distribution of risk scores for provider upcoding and fraud detection* |
| 2015–2016 | $15K/15K | PI | **Culverhouse College of Business**, University of Alabama<br>*Grant Incubator Program* |
| 2011–2013 | $552K/552K | PI | **National Institute of Justice**<br>*Statistical Methods for Spatio-Temporal Crime Series Linkage* |

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| 2007–2008 | $50K/25K | co-PI | **Centers for Disease Control and Prevention**<br>*Anomaly Detection in Space and Time* |

## SOFTWARE

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| R | `crimelinkage`: a set of tools to help crime analysts and researchers with tasks related to crime linkage. This package includes methods for criminal case linkage, crime series identification and clustering, and suspect identification. |
| RShiny | `COVID-19 Event Risk Assessment Dashboard`: an interactive tool that provides the estimated probability that someone at an event will unknowingly be contagious with COVID-19 based on the number of guests and their locations. |

## CONFERENCE PRESENTATIONS

| | |
|---|---|
| 2025 | "Statistical Foundations in Modern Data Science Education: Insights from a School of Data Science". Joint Statistical Meetings (JSM), Aug 4, Nashville, TN. |
| 2024 | "Modeling contagion, excitation, and social influence with Hawkes point processes". Advanced Studies Institute in Mathematics of Data Science & Machine Learning, Jan 8, Urgench State University. *(Invited)* |
| 2023 | "Bridging the Gap in Pediatric Heart Transplants with Data Science". Datapalooza, Nov 10, University of Virginia.*(Invited)* |
| | "Forecasting Pediatric Heart Donors". International Symposium of Forecasting, June 25-28, Charlottesville, VA. |
| | "Data Science Concepts in Risk Modeling". National Institute of Justice (NIJ) National Research Conference, May 23-25, Arlington, VA. *(Invited)* |
| 2020 | "A Tale of Two Metrics: Polling and Financial Contributions as a Measure of Campaign Performance". 2020 Conference on Computational Sociology, Aug 7, Stanford University. |
| 2019 | "Detecting, identifying, and localizing radiological material in urban environments using scan statistics". 2019 IEEE International Symposium on Technologies for Homeland Security, Nov 5  Nov 6, Woburn, MA. |
| | "Bayesian Clustering using Non-negative Matrix Factorization". 12th Scientific Meeting of the Classification and Data Analysis Group (CLADAG), Sep 11  Sep 13, Cassino, Italy. |
| | "Spatial event hotspot prediction using multivariate Hawkes features". Spatial Statistics 2019, Jul 10  Jul 13, Sitges, Spain. |
| | "Exciting Adventures in Crime Linkage". Mathematical Criminology and Security Workshop, Mar 17  Mar 22, BIRS Banff, AB. *(Invited)* |
| 2018 | "Predicting crime hotspots using rotational grids and sparse logistic regression models". Joint Statistical Meetings, Jul 28  Aug 2, Vancouver, BC. |
| 2017 | "Understanding and Evaluating Predictive Crash Models". SAMSI Summer Program on Transportation Statistics, Aug 14-18, Duke University. *(Invited)* |
| | "Point Process Models for Social Systems". ISI World Statistics Congresses, Jul 16-21, Marrakesh, Morocco. |
| 2016 | "Crime Linkage with Self-Exciting Point Process Models". Joint Statistical Meetings, Jul 30  Aug 4, Chicago, IL. |
| 2015 | "Statistical Methods for Crime Series Linkage". International Association of Crime Analysts Training Conference (IACA), Sept 20-25, Denver, CO. |
| | "A Statistical Approach to Crime Linkage". Joint Statistical Meetings, Aug 8 - 13, Seattle, WA. |

Media Coverage: (i) http://www.forensicmag.com/news/2015/08/not-just-hunch-new-software-uses-stats-solve-predict-burglary-experts-say (ii) Software identifies missing link, Police Professional, (20 Jan 2016)

2014 "Interval-Censoring Methods for Aoristic Crime Analysis". Joint Statistical Meetings, Aug 2- 7, Boston, MA.

2013 "An Interval Censoring Approach for Aoristic Analysis". American Society of Criminology Annual Meeting (ASC) Nov 19-23, Atlanta, GA.

"Statistical Crime Linkage: Case Linkage, Crime Series Identification, and Clustering". International Association of Crime Analysts Training Conference (IACA), Sept 9-13, Fort Lauderdale, FL.

"Discussion of Clauset and Woodard: Estimating the Historical and Future Probabilities of Large Terrorist Events". Joint Statistical Meetings, Aug 3- 8, Montreal, Canada. *(Invited)*

2012 "Identifying suspects, discovering new offenders and linking crimes: Crime series identification using model-based clustering". American Society of Criminology Annual Meeting (ASC) Nov 14-17, Chicago, IL.

"Self-Exciting Hurdle Models for Terrorist Activity". Joint Statistical Meetings, Jul 28-Aug 2, San Diego, CA. (Invited "Best of the Annals of Applied Statistics" session.)

"Weighted Kernel Density for Predicting the Location of the Next Event in a Series". Quantitative Methods in Defense and National Security (QMDNS), May 1, George Mason University

2011 "Bayesian Crime Series Linkage Analysis". American Society of Criminology Annual Meeting (ASC) Nov 16-19, Washington, D.C.

"Bayesian Crime Series Linkage Analysis". NIJ Crime Mapping Conference (MAPS), Oct 19-21, Miami, FL.

"StoNA: Structure to Network Activity". HSCB Focus 2011, Feb 8-10, Chantilly, VA. (Dalton, J., Porter, M., Abrams, M., and Valore, J.)

2010 "Self-exciting Hurdle Models for Terrorism". AMS Fall Western Section Meeting, Oct 9-10, Los Angeles, CA.

"Is Terrorism Contagious? Modeling Indonesian Terrorism with Self-Exciting Hurdle Models". Joint Statistical Meetings, Aug. 1-5, Vancouver, BC.

"Discovering Terrorist Subgroups with Network Neighborhood Analysis". Quantitative Methods in Defense and National Security, May 25-26, George Mason University.

"Network Neighborhood Analysis". IEEE Intelligence and Security Informatics, May 23-26, Vancouver, BC. (Smith, R. and Porter, M.)

2009 "Modeling Site Selection Behavior: Applications to Crime and Terrorism". Joint Statistical Meetings, Aug. 1-6, Washington, D.C.

2008 "Mixture Likelihood Ratio Scan Statistic for Disease Outbreak Detection". International Society for Disease Surveillance (ISDS) annual conference, Dec 3-5, Raleigh, NC. (Neimi, J.B., Porter, M., and Reich, B.J.)

"Probability Estimates for Footwear Evidence". NC IAI Fall Conference, October 2-3, Atlantic Beach, NC.

"Probability Estimates for Footwear Evidence". International Association for Identification 93rd International Educational Conference, August 17-23, Louisville, KY.

"A Martingale Methodology for the Quick Identification of Point Process Anomalies". INTERFACE 2008, May 21-24, Durham, NC.

2007 "An Adaptive Methodology for the Quick Identification of Space-Time Anomalies". INFORMS annual meeting, Nov 4-7, Seattle, WA.

"The Search for Spatial and Spatio-Temporal Anomalies". Army Conference on Applied Statistics, Oct 17-19, Rice University.

"Some adaptive approaches for space-time anomaly detection". First International Workshop in Sequential Methodologies, July 22-25, Auburn University.

"Change detection for space-time Poisson point processes with applications to defense and homeland security". Spring Research Conference on Statistics in Industry and Technology, May 21-23, Iowa State University.

"Anomaly Detection in Space-Time Point Processes". 32nd Spring Lecture Series, Spatial and Spatio-Temporal Statistics, Apr. 12-14, University of Arkansas.

"Anomaly Detection in Space-Time (and higher dimensional) Point Processes". Quantitative Methods in Defense and National Security, Feb. 7-8, George Mason University.

2006 "Modeling the Interaction between Intelligent Site Selection and Other Stochastic Processes with Applications to Terrorism". Joint Statistical Meetings, Aug. 6-10, Seattle, WA. (Robinson, C.D., Porter, M.D., and Brown, D.E.)

2005 "Feature Selection, Prediction, and Change Detection in Terrorist/Insurgency Processes Using a Spatial Point Process Approach". Knowledge Fusion Research Workshop, Nov. 29- Dec. 1, Annapolis, MD. *(Invited)*

"Detecting Changes in Criminal or Terrorist Processes". SAMSI National Defense and Homeland Security Kickoff Workshop, Sept. 11-14, RTP, NC.

"Finding Changing Crime Regions: Use of High Dimensional Geographic Feature Space and Classification Trees". Proceedings of the Eighth Crime Mapping Research Conference, Sept. 7-10, Savannah, GA.

2003 "A Modified Response Surface Methodology for Knowledge Discovery: Optimization via Functional Approximation". Poster Presentation. Winter Simulation Conference, Dec. 7-10, New Orleans, LA.

"Obsolescence Management Decision Making in a Life-Cycle Extension". Proceedings of Third COG Conference. May 19-22, 2003, Glasgow, Scotland.

2002 "Functional Discovery to Enable Confident Change". Proceedings of Fifteenth International Conference on Systems Engineering. August 6-8, 2002, Las Vegas, NV. pp. 273-277. (Tomlinson, J., Porter, M.D., and Mahaffey, W.R.)

## OTHER TALKS

2021 Panelist at NIJ Recidivism Forecasting Challenge Symposium. Dec 1-2.

*Modeling contagion, excitation, and social influence with Hawkes point processes.* Amazon Tech Talk, Dec 2021.

2020 *To SIR, with love.* Elder Research, Tech Talk, May 29, 2020.

2020 *Decision Making in a Pandemic: Data, Models, Analytics, and Uncertainty.* Hot Topics in Analytics, Darden Elective, May 4, 2020.

2018 *Modeling contagion, excitation, and social influence with Hawkes point processes.* University of Virginia, Department of Statistics, Nov 30, 2018.

*Modeling contagion, excitation, and social influence with Hawkes point processes.* University of Virginia, Data Science Institute, April 17, 2018.

2015 *Self-exciting Hurdle Models for Terrorist Activity.* Mississippi State University, Statistics Seminar, April 7, 2015.

2014 *Predictive Crime Analytics.* Cambridge, MA, Aug 11-12 2014.

2013 *Statistical Crime Series Linkage.* The University of Alabama, Applied Statistics Seminar, Sept 30, 2013.

*Self-exciting Hurdle Models for Terrorist Activity.* The University of Alabama, Applied Statistics Seminar, Feb 20, 2013.

*Analyzing Terrorist Attack Patterns with Self-exciting Models.* Daniel Rose Yale-Technion Counterterror Research Initiative Seminar, Feb 26, 2013 Yale University.

2011 *Self-exciting Hurdle Models for Terrorism: Understanding the Risk of Indonesian Terrorist Attacks.* University of Louisville, Mathematics Colloquium, Mar 4, 2011.

2008 *Regression and Least Squares: A Matlab Tutorial.* SAMSI/CRSC Undergraduate Workshop, N.C. State University, Raleigh, NC., May 19 23, 2008.

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| | *Cluster Detection in Geographic Sensor Networks.* SAMSI Undergraduate Workshop, RTP, NC. February 29-March 1, 2008. |
| 2007 | *Intelligent Site Selection Models for Asymmetric Threat Prediction and Decision Making.* SAMSI Undergraduate Workshop, Durham, NC, November 9-10, 2007. |
| | *The Search for Spatial and Spatio-Temporal Anomalies.* Virginia Tech, Department of Statistics, August 30, 2007. |
| | *Which targets are next? Modeling Intelligent Site Selection with Applications to Terrorism.* Applications of Statistical Modeling and Simulation, University of Delaware, April 27, 2007. |
| | *Anomaly Detection in Space-Time (and higher dimensional) Point Processes.* North Carolina State University, Department of Statistics, February 22, 2007. |
| | *Intelligent Site Selection and Anomaly Detection.* ADAC Lab, North Carolina State University, Department of Electrical and Computer Engineering, February 15, 2007. |
| 2006 | *Anomaly Detection in Space-Time (and higher dimensional) Point Processes.* University of South Carolina, Department of Statistics, October 26, 2006. |
| | *Anomaly Detection in Space-Time Point Processes.* Ninth Meeting of New Researchers in Statistics and Probability, August 1-5, 2006, Seattle, WA. |
| | *Using Marked Spatial Point Process Models to Detect Change in Intelligent Site Selection Processes.* University at Buffalo, Department of Systems and Industrial Engineering, April 3, 2006. |
| | *Using Point Process Residuals in Space-Time Anomaly Detection.* SAMSI Anomaly Detection Working Group Meeting, March 23, 2006. |

## TEACHING

### University of Virginia

| | |
|---|---|
| DS 6410 | *Machine Learning II: Methods & Application*: Sp 23, Sp 24, Sp 25 |
| DS 6030 | *Statistical Learning*: Fa 21, Fa 22, Fa 23, Fa 24 |
| SYS 6018 | *Data Mining*: Sp 19, Fa 19, Su 20, Fa 20, Sp 21, Sp 22, Sp 23, Sp 24, Sp 25 |
| SYS 4055 | *Systems Engineering Design Colloquium II*: Fa 18 |
| SYS 4053 | *Systems Design (Capstone)*: 18-19, 19-20, 20-21, 23-24 |
| SYS 3055 | *Systems Engineering Design Colloquium I*: Fa 18 |
| SYS 2202 | *Data and Information Engineering*: Fa 19 |
| GBUS 7600 | *Data Analysis and Optimization*: Sp 19 |

### University of Alabama

| | |
|---|---|
| ST 697 | *Advanced Statistical Learning*: Sp 14, Fa 15, Fa 17 |
| ST 597 | *Introduction to Data Analytics*: Sp 15, Sp 16, Sp 17 |
| ST 591 | *Introduction to Statistical Learning*: Fa 16, Su 17 |
| ST 560 | *Statistical Methods*: Fa 15, Fa 16 |
| ST 554 | *Mathematical Statistics I*: Fa 16, Fa 17 |
| ST 260 | *Statistical Data Analysis*: Fa 13, Sp 14, Fa 14, Sp 15, Sp 16, Sp 18 |

### North Carolina State University

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|---|---|
| ST 516 | *Experimental Statistics for Engineers II*: Sp 08 |
| ST 515 | *Experimental Statistics for Engineers I*: Fa 06, 07 |
| ST 371 | *Probability and Distribution Theory*: Sp 07 |

### Student Supervision

| | |
|---|---|
| 2024 | Jiahao Tian (PhD Data Science, University of Virginia) |
| 2024 | Julia Sharff (MS Systems & Information Engr., University of Virginia) |
| 2023 | Moeen Mostafavi (PhD Systems & Information Engr., University of Virginia) |
| 2023 | Yichen Jian (PhD Systems & Information Engr., University of Virginia) |
| 2017 | Ketong Wang (PhD Statistics, University of Alabama) |

### Staff Supervision

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|---|---|
| 2023–present | R. Jerome Dixon, Research Scientist, School of Medicine, University of Virginia |

## SERVICE ACTIVITIES

### Professional

| | |
|---|---|
| 2024 | Chair *Forecasting for Social Good* section of International Institute of Forecasting (IFF) |
| 2023 | Reviewer/Judge National Institute of Justice (NIJ) Innovations in Measuring Community Perceptions Challenge competition |
| 2023 | Program and Organizing committee *International Symposium of Forecasting*, June 2023, Charlottesville, VA. |
| 2022-2024 | Co-chair *Forecasting for Social Good* section of International Institute of Forecasting (IFF) |
| 2022, 2024 | Guest editor International Journal of Forecasting special edition: *Forecasting for Social Good* |
| 2021 | Technical Program Committee, IEEE Big Data 2021 Workshop on Big Data Analytics for COVID-19 (BDA COVID-2021) |
| 2021 | Technical Program Committee, IEEE Big Data 2021 Workshop on Multimodal Big Data (MMBD 2021) |
| 2020 | Technical Program Committee, IEEE Big Data Workshop on Data Science for Smart and Connected Communities |
| 2019-2021 | General Chair, Forecasting for Social Good Workshop |
| 2017-2018 | Guest editor International Journal of Forecasting special edition: *Forecasting for Social Good* |
| 2014 | Statistical Training: Predictive Crime Analytics Workshop, Aug 11-12, Cambridge, MA. Led two-day workshop on geospatial predictive methods for crime analysts. |
| 2013-2014 | Secretary/Treasurer of the American Statistical Association Section on Defense and National Security (ASA-SDNS) |
| 2013-2019 | Grant reviewer for National Institute of Justice (NIJ) Graduate Research Fellowship (2013, 2016, 2019) |
| 2009-2010 | Publications Officer of the American Statistical Association Section on Defense and National Security (ASA-SDNS) |
| 2007-2012 | Program committee for Quantitative Methods in Defense and National Security (QMDNS) conference (2007, 2010, 2012) |
| 2007-2008 | Director of VIGRE Undergraduate Research Project: Examining Footwear Evidence for Identification |
| 2008 | Session organizer “Spatial Risk Mapping: Prediction and Change Detection”, Interface 2008, Durham, NC, May 2008. |
| 2007 | Attended IPAM Crime Hot Spots: Behavioral, Computational and Mathematical Models |
| 2006 | Session organizer “Prediction and Detection in Defense and Homeland Security Applications”, Joint Statistical Meetings Seattle, WA, August 2006 |

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| 2005–present | Article reviews for JASA, CSDA, JABES, AOAS, International Journal of Forecasting, Biostatistics, Biometrics, Journal of Applied Statistics, Management Science, Criminology, Legal and Criminological Psychology, Crime Mapping, Journal of Experimental Criminology, Journal of Quantitative Criminology, Journal of Offender Therapy and Comparative Criminology, NetCrime, Journal of Forensic Science, Journal of Criminal Justice, Crime Science, IEEE Transactions on SMC, Mathematical and Computer Modeling, Forest Science, Annals of GIS, Applied Geography, Int. J. of Information Technology and Decision Making, Decision Sciences, Homeland Security Technologies. |

### School of Data Science

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|---|---|
| 2024-2025 | Chair AGF Search Committee |
| 2024-2025 | NSDPI Faculty Search Committee |
| 2023-2024 | Chair AGF Search Committee |
| 2023-2025 | SDS PhD Program Committee |
| 2022-2024 | Steering Committee UVA Collaboratory for Applied Data Science in Business |
| 2023-2024 | UVA/SDS DCADS Fellowship reviewer |
| 2019-2020 | AGF Search Committee |
| 2020-2021 | AGF Search Committee |
| 2020-2021 | SDS Admissions Committee |
| 2019-2021 | SDS Academic Affairs Committee |
| 2019-2021 | SDS Graduate Education Committee |
| 2019 | Predictive Analytics Postdoctoral Search Committee |

### Department of Systems and Information Engineering

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|---|---|
| 2019-2021 | Systems Engineering Undergrad Committee, Engineering Systems & Environment Department |
| 2019-2022 | Partnership Chair, SIEDS Steering Committee |
| 2019 | Task force on Colloquium, Engineering Systems & Environment Department |

### School of Engineering and Applied Sciences

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|---|---|
| 2021 | Engineering-in-Medicine reviewer, School of Engineering and Applied Science |
| 2020 | Engineering-in-Medicine reviewer, School of Engineering and Applied Science |
| 2020 | Distinguished Fellow Review Committee, School of Engineering and Applied Science |

### Darden School of Business

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| 2024-2025 | Reviewer for LaCross Institute Fellowships in AI Research |

### University of Virginia

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| 2024 | Reviewer for UVA Limited Submissions |
| 2023 | Reviewer for UVA Limited Submissions |

### University of Alabama

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| 2016-2018 | Technology Research Advisory Committee, University of Alabama |
| 2015-2018 | Medicaid Research Committee, Culverhouse College of Commerce |
| 2016-2018 | Business Analytics Steering Committee, Culverhouse College of Commerce |
| 2014-2016 | MS-Business Analytics Committee, ISM Dept, University of Alabama |

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| 2014 | Search Committee, Clinical Professor of Applied Statistics |
| 2014 | Search Committee, Professor of Applied Statistics |
| 2014 | PhD Qualifying Exam Committee, Applied Statistics |
| 2013-2016 | Research Advisory Committee, University of Alabama |

## AWARDS

| | |
|---|---|
| 2024 | University of Virginia Outstanding Researcher |
| 2021 | Outstanding Graduate Teaching in Systems Engineering, University of Virginia |
| 2021 | Winning Submission (1st, 2nd, 3rd in bias reduction categories) Recidivism Forecasting Challenge (NIJ); Joint w/ G. Mohler |
| 2019 | Winning Submission (9th place) Detecting Radiological Threats in Urban Areas (TopCoder) |
| 2017 | Winning Submission (1st place in 9 categories) Real-time Crime Forecasting Challenge (NIJ); Joint w/ G. Mohler |
| 2007 | Louis T. Rader Outstanding Ph.D. Student Award, awarded by the Department of Systems and Information Engineering, University of Virginia |
| 2006 | Winner of the Student Paper Competition for ASA Section on Statistics in Defense and National Security (ASA-SDNS) |
| 2005 | NSF travel award for NATO ASI (Advanced Study Institute): Multisensor Data and Information Processing for Rapid and Robust Situation and Threat Assessment |
| 2005 | Travel award for the Eighth Crime Mapping Research Conference, Savannah, GA. |
| 2005 | Travel award for the SAMSI National Defense and Homeland Security Kickoff Workshop, RTP, NC. |

## CITATION METRICS

Google Scholar: `https://scholar.google.com/citations?user=pbOK99MAAAAJ`
ORCID ID: `https://orcid.org/0000-0001-9316-3578`
Citations: 961 h-index: 15

## PUBLIC DOMAIN RESOURCES

Github: `https://github.com/mdporter`
29 Repositories covering research, teaching, and public outreach.