

Christopher L. Barrett, Ph.D.

Executive Director

Distinguished Professor in Biocomplexity
Biocomplexity Institute, University of Virginia
Professor of Computer Science

School of Engineering and Applied Science, University of Virginia

EDUCATION

- 1986 U.S. Navy Aerospace Experimental Psychology, Medical Service Corps Post Ph.D. Certification
- 1985 California Institute of Technology, Ph.D., Bioinformation Systems/Engineering Science
- 1983 California Institute of Technology, M.S., Engineering Science

POSITIONS

- 2019 – present University of Virginia, Biocomplexity Institute and Initiative, Distinguished Professor in Biocomplexity
- 2018 – present University of Virginia, Biocomplexity Institute and Initiative, Founding Executive Director
- 2018 – present University of Virginia, Department of Computer Science, Professor
- 2015 – 2018 Virginia Tech, Biocomplexity Institute, Founding Executive Director
- 2014 – 2015 Virginia Tech, Virginia Bioinformatics Institute, Executive Director
- 2012 – 2015 Virginia Tech, Virginia Bioinformatics Institute, Scientific Director
- 2009 – 2015 Virginia Tech, Virginia Bioinformatics Institute, Advanced Computing and Informatics Laboratories Division, Division Director
- 2008 – 2015 Virginia Tech, Virginia Bioinformatics Institute, National Capital Region, Director
- 2004 – 2018 Virginia Tech, Department of Computer Science, Professor
- 2004 – 2014 Virginia Tech, Virginia Bioinformatics Institute, Network Dynamics and Simulation Science Laboratory, Founding Laboratory Director
- 1991 – 2004 Los Alamos National Laboratory, Computing and Computational Science Division, Basic and Applied Simulation Science Group, Founding Group Leader, Member of the Technical Staff
- 1988 – 1991 Los Alamos National Laboratory, Decision Applications Division, Founding Group Leader of Simulation Applications Group, Member of the Technical Staff
- 1986 – 1988 Naval Air Development Center, Decision Analysis Research Team, Scientific Officer serving as Technical Staff Member
- 1976 – 1988 Officer, U.S. Navy Submarine Force, and later, Officer Scientist working in Aerospace Engineering/Aircrew Systems/Advanced Computing for Functional Human Integration and Decision-Making Analysis

VISITING POSITIONS

2012 – present	Chalmers University, Göteborg, Sweden, Department of Computer Science, Affiliated Professor; 2012-2013 Jubileum Distinguished Professor of Computer Science
1997 – 1998	Royal Institute of Technology, Stockholm, Sweden, Department of Urban Planning, Distinguished International Guest Professor
1991 – 1996	Royal Institute of Technology, Stockholm, Sweden, Department of Urban Planning, Visiting Professor

SCIENTIFIC ADVISORY BOARDS

2021 – present	The Intelligence Community Studies Board (ICSB) of the National Academies of Sciences, Engineering, and Medicine (NAEM): Planning Committee Chair, Anticipating Rare Events of Major Significance
2021 – present	The International Symposium for Next Generation Infrastructure (ISNGI): Program Committee
2015 – present	Secretariat of the Commonwealth Appointee: Modeling and Simulation Advisory Council, Commonwealth of Virginia
2015 – present	Commonwealth of Virginia's Information Technology Advisory Council (ITAC): Health IT Standards Advisory Committee (HITSAC)
2011 – 2015	European Commission, FuturICT: Future and Emerging Technologies Programme, Scientific Advisory Board
2009 – 2015	University of Chicago, Argonne National Laboratory LLC, Review Committee for Computing Environment and Life Sciences (CELS)
2009 – 2015	Argonne National Laboratory, Scientific Advisory Board
2009 – 2014	Infrastructure Facility: University of Wollongong, Australia, Scientific Advisory Board, SMART
2009 – 2013	Institute for Scientific Interchange Foundation (ISI), Turin, Italy, Lagrange Award Committee
2008 – 2015	European Commission, Global System Dynamics Coordination: Future and Emerging Technologies Programme, Scientific Review Committee
2007 – 2013	Institute for Scientific Interchange Foundation (ISI), Turin, Italy, Scientific Advisory Board
2005 – 2009	U.S. Department of Homeland Security: Expert Panel Member

HONORS

2021	Elected Member: Virginia Academy of Science, Engineering, and Medicine
2013	Army Patriot Award recipient: given to outstanding employers of members of the U.S. Army Reserve
2012 – 2013	Jubileum Distinguished Professor of Computer Science: Chalmers University, Göteborg, Sweden, Department of Computer Science
2011	Invited Participant: The Royal Colloquium Series, "The Future Urban World: Environment, Equity, Economy," The Swedish Royal Academy of Sciences, by HM King Carl XVI Gustav
2006 – 2013	Guest Scientist, Coordinator for Graduate Course on Complex Systems: Institute for Scientific Interchange Foundation (ISI), Turin, Italy

2000	Distinguished Innovation & Entrepreneurialism: Copyright Award, Los Alamos National Laboratory
1999	Invited Participant: The Abisko Workshop, “Meso-Scale Complexity,” The Swedish Royal Academy of Sciences
1998	Distinguished Invited Scholar: Artificial Life and Robotics, Oita University, Japan
1995	Distinguished Achievement Award: Los Alamos National Laboratory
1993	Distinguished Performance Award: Los Alamos National Laboratory
1992	Distinguished Research Award: Alliance for Transportation Research
1991	Letter of Appreciation (FAA Administrator) for membership on Administrator’s Science Panel: National Air Traffic Control System Ten-Year Technology Improvement Plan
1988	U.S. Navy Commendation Medal: Research and Development in Automated Assisted Reasoning Systems for Naval Aircraft

PROFESSIONAL MEMBERSHIPS

American Association for the Advancement of Science (AAAS)
 Institute of Electrical and Electronics Engineers (IEEE) Computer Society
 Association of Computing Machinery (ACM)
 Association for the Advancement of Artificial Intelligence (AAAI)
 Society for Industrial and Applied Mathematics (SIAM)

FUNDING

In the 3 years since the establishment of the Biocomplexity Institute at the University of Virginia, the Institute has received awards totaling \$115 million. While leading the Biocomplexity Institute at Virginia Tech, the Institute generated more than \$125 million in research awards funded by major federal agencies, foundations and corporations, and state and local governments between 2015-2018.

This funding represents an interdisciplinary portfolio of sponsored research balanced across sources including:

- ***Defense and Intelligence sponsors:*** Defense Threat Reduction Assessment (DTRA), Defense Advanced Research Projects Agency (DARPA), Intelligence Advanced Research Projects Activity (IARPA), Office of the Director of National Intelligence (ODNI), and the US Army Research Institute for Behavioral and Social Science research.
- ***National Lab sponsors:*** Argonne, Los Alamos, and Oak Ridge.
- ***Federal health related sponsors:*** Centers for Disease Control and Prevention, National Institutes of Health (Center for Scientific Review, National Human Genome Research Institute, National Institute for General Medical Science, National Institute of Allergy & Infectious Diseases, National Institute of Neurological Disorders), and National Network of Public Health Institutes.
- ***Other US federal sponsors:*** Agency for International Development, Department of Energy, National Science Foundation, Census Bureau, Department of Agriculture (Economic Research Services, National Agricultural Statistics Service, and National Institute for Food and Agriculture), Fish & Wildlife Service, and Geological Survey).
- ***Corporate sponsors:*** AccuWeather, Gallup Government, Inc., Metabiota, Mitre, Next Century Corporation, and Procter & Gamble.

- **Non-profit sponsors:** AKC Canine Foundation, Bill & Melinda Gates Foundation, Laura and John Arnold Foundation, Research Foundation for the State University of New York; American Institute for Research and SAIC, Inc.
- **State, Local Government sponsors:** Virginia counties - Albemarle, Arlington, Fairfax, and agencies State Council of Higher Education for Virginia, Department of Emergency Management (VDEM), Virginia Department of Health (VDH), Virginia Department of Social Services (VDSS).

PI on 9 multi-million dollar grants during tenure at Los Alamos National Laboratory led to the creation of the National Infrastructure Simulation & Analysis Center (NISAC), TRANSIMS - the first high performance computing-based, individually resolved, regionally scaled transportation infrastructure microsimulation system – and other intelligent simulation systems focused on social and behavioral technical design, epidemiology models (EpiSIMS), remoting sensing, and cognitive augmentation for situation assessment and control.

PATENTS GRANTED

1. Barrett, C., Marathe, M.; inventors. 1 March 2018. "Complex Situation Analysis System." *Australia Patent, 2015213280*.
2. Barrett, C., Marathe, M., Bisset, K.; inventors. 16 January 2018. "Analysis system using brokers that access information sources." *United States Patent, US 9,870,531*.
3. Barrett, C., Marathe, M., Bisset, K.; inventors. 14 June 2016. "Complex situation analysis system using a plurality of brokers that control access to information sources." *United States Patent, US 9,367,805*.
4. Barrett, C., Marathe, M., Bisset, K., Stretz, P.; inventors. 25 March 2014. "Complex situation analysis system that spawns/creates new brokers using existing brokers as needed to respond to requests for data." *United States Patent, US 8,682,828*.
5. Barrett, C., Marathe, M., Bisset, K., Beckman, R., Stretz, P., Mortveit, H., Eubank, S., Marathe, A., Vullikanti, A.; inventors. 16 April 2013. "Complex situation analysis system that generates a social contract network, uses edge brokers, and service brokers and dynamically adds brokers." *United States Patent, US 8,423,494*.
6. Barrett, C., Marathe, M., Bisset, K., Beckman, R., Stretz, P., Mortveit, H., Eubank, S., Marathe, A., Vullikanti, A., Atkins, K.; inventors. 21 October 2010. "Complex Situation Analysis System." *Australia Patent, AS 2010236510*.
7. Barrett, C., Marathe, M., Bisset, K., Beckman, R., Stretz, P., Mortveit, H., Eubank, S., Marathe, A., Vullikanti, A., Atkins, K.; inventors. 14 April 2010. "Complex Situation Analysis System." *Singapore Patent, SG 175215*.

PATENT APPLICATIONS

1. Barrett, C., Reidys, C.; inventors. 2021 September 30. "Method and System For Early Efficient Detection of Co-Evolutionary Sites in Evolving Bio-Networks." *International Application (PCT) received by US Receiving Office, PCT/US 2021/052999 Based on Application US 63/085,949*.
2. Barrett, C., Marathe, M., Reidys, C.; inventors. 30 September 2020. "Mathematics of Multiscale Interactions Across Evolving Bio-Networks." *United States Patent, Application US 63/085,949*.
3. Barrett, C.L., Reidys, C., He, Q., Huang, W.; inventor. 12 October 2018. "Systems and methods for characterizing and sampling nucleic acid sequences and structures of same" *United States Patent, U.S. Patent Application 16/158,964*.
4. Barrett, C., Marathe, M., Bisset, K.; inventors. Virginia Polytechnic Institute and State University; assignee. 19 April 2018. "Complex Situation Analysis System Using a Plurality of Brokers that Control Access to Information Sources." *United States Patent, Application US 15/842,403*.

5. Barrett, C., Marathe, M., Lewis, B., Akupatni, V.; inventors. 27 April 2017. "Computerized event-forecasting system and user interface." *United States Patent, Application 15/499,423*.
6. Barrett, C., Marathe, M.; inventors. 14 April 2017. "Computerized event simulation using synthetic populations." *United States Patent, Application 15/487,929*.
7. Barrett, C., Marathe, M., Bisset, K., Beckman, R., Stretz, P., Mortveit, H., Eubank, S., Marathe, A., Vullikanti, A., Atkins, K.; inventors. 23 November 2012. "Complex Situation Analysis System." Hong Kong Patent, Application 12107829.8
8. Barrett, C., Marathe, M., Bisset, K., Beckman, R., Stretz, P., Mortveit, H., Eubank, S., Marathe, A., Vullikanti, A., Atkins, K.; inventors. 16 November 2012. "Complex Situation Analysis System." India Patent, Application 7713/CHENP/2011.
9. Barrett, C., Marathe, M., Bisset, K., Beckman, R., Stretz, P., Mortveit, H., Eubank, S., Marathe, A., Vullikanti, A., Atkins, K.; inventors. 22 February 2012. "Complex Situation Analysis System." *European Patent, European Patent Application 10765062.4*.
10. Barrett, C., Beckman, R., Eubank, S., Marathe, M., Baggerly, K., McKay, M., Speckman, P., Jacob, R., Konjevod, G., Nagel, K., Berkbigler, K.; inventors. 6 May 2004. "Population mobility generator and simulator." *United States Patent, Application 10/100,501*.

PUBLISHED JOURNALS

1. Espinoza, B., Swarup, S., Barrett, C., Marathe, M. (2022). Heterogeneous Adaptive Behavioral Responses May Increase Epidemic Burden. *Scientific Reports (ResearchGate)*. January 28, 2022. <https://www.researchsquare.com/article/rs-1229867/v1>
2. Chen, J., Vullikanti, A., Santos, J., Venkatramanan, S., Hoops, S., Mortveit, H., Lewis, B., You, W., Eubank, S., Marathe, M., Barrett, C., Marathe, A. (2021). Epidemiological and economic impact of COVID-19 in the US. *Scientific Reports*, 11, 20451. <https://doi.org/10.1038/s41598-021-99712-z>
3. Barrett, C., Bura, A., He, Q., Huang, F., Li, T., Waterman, M., Reidys, C. (2021). Multiscale Feedback Loops in SARS-CoV-2 Viral Evolution. *Journal of Computational Biology*, 28(3), 248-256. <https://doi.org/10.1089/cmb.2020.0343>
4. Venkatramanan, S., Sadilek, A., Fadikar, A., Barrett, C. *et al.* (2021). Forecasting influenza activity using machine-learned mobility map. *Nature Communications*, 12(1), 1-12. <https://doi.org/10.1038/s41467-021-21018-5>
5. Huang, F., Barrett, C., Reidys, C. (2021). The energy-spectrum of biocompatible sequences. *Algorithms for Molecular Biology*, 16(1), 1-18. <https://doi.org/10.1186/s13015-021-00187-4>
6. Hurt, B., Adiga, A., Marathe, M., Barrett, C. (2021). Informing University COVID-19 Decisions Using Simple Compartmental Models. medRxiv. <https://doi.org/10.1101/2021.07.01.21259851>
7. Machi, J., Bhattacharya, P., Hoops, S., Chen, J., Mortveit, H., Venkatramanan, S., Lewis, B., Wilson, M., Fadikar, A., Maiden, T., Barrett, C., Marathe, M. (2021). Scalable Epidemiological Workflows to Support COVID-19 Planning and Response. medRxiv. <https://doi.org/10.1101/2021.02.23.21252325>
8. Chen, J., Hoops, S., Marathe, A., Mortveit, H., Lewis, B., Venkatramanan, S., Haddadan, A., Bhattacharya, P., Adiga, A., Vullikanti, A., Wilson, M., Ehrlich, G., Fenster, M., Eubank, S., Barrett, C., Marathe, M. (2021). Prioritizing Allocation of COVID-19 Vaccinees Based on Social Contacts Increases Vaccination Effectiveness. medRxiv. <https://doi.org/10.1101/2021.02.04.21251012>
9. Chen, J., Vullikanti, A., Hoops, S., Henning, M., Lewis, B., Venkatramanan, S., Eubank, S., Marathe, M., Barrett, C., Marathe, A. (2020). Medical costs of keeping the US economy open during COVID-19. *Scientific Reports*, 10, 18422. <https://doi.org/10.1038/s41598-020-75280-6>

10. Eubank, S., Eckstrand, I., Lewis, B., Venkatramanan, S., Marathe, M., Barrett, C.L. (2020). Commentary on Ferguson, et. al., “Impact of Non-pharmaceutical Interventions (NPIs) to Reduce COVID-19 Mortality and Healthcare Demand.” *Bulletin of Mathematical Biology*, 82(52), 1-7. <https://doi.org/10.1007/s11538-020-00726-x>
11. Cedeno-Mieles, V., Hu, Z., Ren, Y., Deng, X., Adiga, A., Barrett, C., Contractor, N., Ekanayake, S., Epstein, J., Goode, B., Korkmaz, G., Kuhlman, C., Machi, D., Macy, M.W., Marathe, M., Ramakrishnan, N., Ravi, S., Saraf, P., Self, N. (2020). Networked experiments and modeling for producing collective identity in a group of human subjects using an iterative abduction framework. *Social Network Analysis and Mining*, 10(1), 1-43. <https://doi.org/10.1007/s13278-019-0620-8>
12. He, Q., Huang, F.W., Barrett, C., Reidys, C. (2019). Genetic robustness of let-7 miRNA sequence-structure pairs. *RNA*, 25, 1592-1603. <https://doi.org/10.1261/rna.065763.118>
13. Huang, F.W., Barrett, C., Reidys, C. (2019). *The energy-spectrum of biocompatible sequences*. arXiv. <https://arxiv.org/abs/1910.00190v1>
14. Barrett, C., He, Q., Huang, F.W., Reidys, C. (2019). A Boltzman Sampler for 1-Pairs with Double Filtration. *Journal of Computational Biology*, 26(3), 173-192. <https://doi.org/10.1089/cmb.2018.0095>
15. Barrett, C., Huang, F.W., He, Q., Reidys, C. (2018). An efficient dual sampling algorithm with Hamming distance filtration. *Journal of Computational Biology*, 25(11), 1179-1192. <https://doi.org/10.1089/cmb.2018.0075>
16. Barrett, C., Johnson, J., Marathe, M. (2018). High Performance Synthetic Information Environments: An integrating architecture in the age of pervasive data and computing: Big Data. *Ubiquity*, 2018(2018), 1-11. <https://doi.org/10.1145/3158342>
17. Rezazadegan, R., Barrett, C., Reidys, C. (2018). Multiplicity of phenotypes and RNA evolution. *Journal of Theoretical Biology*, 447, 139-46. <https://doi.org/10.1016/j.jtbi.2018.03.027>
18. Barrett, C., Huang, F., Reidys, C. (2017). Sequence-structure relations of biopolymers. *Bioinformatics*, 33 (3), 382-389. <https://doi.org/10.1093/bioinformatics/btw621>
19. Barrett, C., Li, T.J., Reidys, C. (2016). RNA Secondary Structures Having a Compatible Sequence of Certain Nucleotide Ratios. *Journal of Computational Biology*, 23(11), 857-873. <https://doi.org/10.1089/cmb.2016.0049>
20. Lewis, B., Swarup, S., Bisset, K., Eubank, S., Marathe, M., Barrett, C. (2013). A Simulation Environment for the Dynamic Evaluation of Disaster Preparedness Policies and Interventions. *Journal of Public Health Management and Practice*, 19, S42-S48. <https://doi.org/10.1097/PHH.0b013e31829398eb>
21. Barrett, C., Channakeshava, K., Huang, F., Kim, J., Marathe, A., Marathe, M., Pei, G., Saha, S., Subbiah, R., Vullikanti, A. (2012). Human Initiated Cascading Failures in Societal Infrastructures. *PLoS ONE*, 7(10), e45406. <https://doi.org/10.1371/journal.pone.0045406>
22. Barrett, C., Bisset, K., Leidig, J., Marathe, A., Marathe, M. (2011). Economic and social impact of influenza mitigation strategies by demographic class. *Epidemics Journal*, 3(1),19-31. <https://doi.org/10.1016/j.epidem.2010.11.002>
23. Barrett, C., Hunt III, H.B., Marathe, M., Ravi, S., Rosenkrantz, D., Stearns, R. (2011). Modeling and analyzing social network dynamics using stochastic discrete graphical dynamical systems. *Theoretical Computer Science*, Special Edition on Cellular Automata and Dynamical Systems, 412, 3932–3946. <https://doi.org/10.1016/j.tcs.2011.02.027>
24. Barrett, C., Channakeshava, K., Eubank, S., Vullikanti, A., Marathe, M. (2011) From biological and social network metaphors to coupled bio-social wireless networks. *International Journal of Autonomous U.S. Adaptive Communications*, 4:122–144. <https://doi.org/10.1504/IJAACS.2011.039720>

25. Barrett, C., Eubank, S., Marathe, A., Marathe, M., Pan, Z., Swarup, S. (2011). Information Integration to Support Model-Based Policy Informatics. *The Innovation Journal*, 16(1), article 2. PMCID: PMC3278309
26. Marathe, A., Lewis, B., Barrett, C., Chen, J., Marathe, M., Eubank, S., Ma, Y. (2011). Comparing Effectiveness of Top-Down and Bottom-Up Strategies in Containing Influenza. *PLoS ONE*, 6(9), e25149. <https://doi.org/10.1371/journal.pone.0025149>
27. Barrett, C., Bisset, K., Leidig, J., Marathe, A., Marathe, M. (2010). An integrated modeling environment to study the co-evolution of networks, individual behavior and epidemics. *AI Magazine*, 31(1), 75-87. <https://doi.org/10.1609/aimag.v31i1.2283>
28. Eubank, S., Barrett, C., Beckman, R., Bisset, K., Durbeck, L., Kuhlman, C., Lewis, B., Marathe, A., Marathe, M., Stretz, P. (2010). Detail in network models of epidemiology: Are we there yet? *Journal of Biological Dynamics*, 4(5), 446-455. PMCID: PMC2953274.
29. Halloran, M., Ferguson, N., Eubank, S., Longini, I., Cummings, D., Lewis, B., Xu, S., Fraser, C., Kumar, A., Germann, T., Wagener, D., Beckman, R., Kadau, K., Barrett, C., Macken, C., Burke, D., Cooley, P. (2008). Modeling targeted layered containment of an influenza pandemic in the United States. *Proceedings of the National Academy of Sciences (PNAS)*, 105(12), 4639-4644. <https://doi.org/10.1073/pnas.0706849105>
30. Atkins, K., Barrett, C., Beckman, R., Bisset, K., Chen, J., Eubank, S., Feng, A., Feng, X., Harris, S., Lewis, B., Vullikanti, A., Marathe, M., Marathe, A., Mortveit, H., Stretz, P. (2008). An interaction based composable architecture for building scalable models of large social, biological, information and technical systems. *CT Watch*, 4, 46-53. PMCID: PMC2800380.
31. Barrett, C., Hunt III, H., Marathe, M., Ravi, S., Rosenkrantz, D., Stearns, R., Thakur, M. (2007). Predecessor existence problems for finite discrete dynamical systems. *Theoretical Computer Science*, 386(1-2), 3-37. <https://doi.org/10.1016/j.tcs.2007.04.026>
32. Atkins, K., Marathe, A., Barrett, C. (2007). A computational approach to modeling commodity markets. *Computational Economics*, 30(2), 125-142. <https://doi.org/10.1007/s10614-007-9090-6>
33. Barrett, C., Hunt III, H.B., Marathe, M., Ravi, S.S., Rosenkrantz, D., Stearns, R. (2006). Complexity of reachability problems for finite discrete dynamical systems. *Journal of Computer and System Sciences*, 72(8), 1317-1345. <https://doi.org/10.1016/j.jcss.2006.03.006>
34. Barrett, C., Eubank, S., Smith, J. (2005). If Smallpox Strikes Portland... *Scientific American, Inc.*, 292(3), 54-61. PMID: 15859212
35. Barrett, C., Eidenbenz, S., Kroc, L., Marathe, M., Smith, J. (2005). Parametric probabilistic routing in sensor networks. *ACM/Baltzer J Mobile Networks and Applications (MONET)*, 10, 529-544. <https://doi.org/10.1007/s11036-005-1565-x>
36. Barrett, C., Marathe, M., Engelhart, D., Sivasubramaniam, A. (2004). Approximating the connectivity between nodes when simulating large-scale mobile ad hoc radio networks. *The Journal of Systems and Software*. 73, 63-74. [https://doi.org/10.1016/S0164-1212\(03\)00245-0](https://doi.org/10.1016/S0164-1212(03)00245-0)
37. Barrett, C., Drozda, M., Marathe, M., Ravi, S., Smith, J. (2004). A mobility and traffic generation framework for modeling and simulating ad hoc communication networks. *Scientific Programming*, 12(1), 1-23, containing selected papers presented at the 6th ACM Symposium on Applied Computing (SAC) special track on Simulations of Discrete Entities. <https://doi.org/10.1155/2004/921065>
38. Balakrishnan, H., Barrett, C., Vullikanti, A., Marathe, M., Thite, S. (2004). The distance-2 matching problem and its relationship to the MAC-layer capacity of ad hoc wireless networks. *IEEE Journal on Selected Areas in Communications*, 22(6), 1069-1079. <https://doi.org/10.1109/JSAC.2004.830909>

39. Shawky, H., Marathe, A., Barrett, C. (2003). A first look at the empirical relations between SPT and future electricity prices in the United States. *Journal of Futures Market*, 23, 931-955.
<https://doi.org/10.1002/fut.10093>
40. Barrett, C., Mortveit, H., Reidys, C. (2003). ETS IV: Sequential Dynamical Systems: fixed points, invertibility and equivalence. *Applied Mathematics and Computation*, 134, 153-171.
[https://doi.org/10.1016/S0096-3003\(01\)00277-6](https://doi.org/10.1016/S0096-3003(01)00277-6)
41. Barrett, C., Hunt III, H.B., Marathe, M., Ravi, S., Rosenkrantz, D., Stearns, R. (2003). Reachability problems for sequential dynamical systems with threshold functions. *Theoretical Computer Science*, 295(1-3), 41-64. [https://doi.org/10.1016/S0304-3975\(02\)00395-X](https://doi.org/10.1016/S0304-3975(02)00395-X)
42. Barrett, C., Hunt III, H.B., Marathe, M., Ravi, S., Rosenkrantz, D., Stearns, R. (2003). On some special classes of sequential dynamical systems. *Annals of Combinatorics*, 7(4), 381-408.
<https://doi.org/10.1007/s00026-003-0193-z>
43. Barrett, C., Cook, D., Faber, V., Hicks, G., Marathe, M., Marathe, A., Srinivasan, A., Sussmann, Y., Thornquist, H. (2003). Statistical analysis of algorithms: a case study of market-clearing mechanisms in the power industry. *Journal of Graph Algorithms and Applications (JGAA)*, 7(1), 3-31.
https://doi.org/10.1142/9789812773296_0001
44. Arciniegas, I., Barrett, C., Marathe, A. (2003). Assessing the efficiency of U.S. electricity markets, *Utilities Policy*, 11(2), 75-86. [https://doi.org/10.1016/S0957-1787\(03\)00003-1](https://doi.org/10.1016/S0957-1787(03)00003-1)
45. Barrett, C., Marathe, M., Engelhart, D., Sivasubramaniam, A. (2003). Approximate connectivity graph generation in mobile ad hoc radio networks, Special issue of the *Journal of Systems and Software*, 73, 63-74 containing selected papers presented at the 36th IEEE Annual Simulation Symposium.
[https://doi.org/10.1016/S0164-1212\(03\)00245-0](https://doi.org/10.1016/S0164-1212(03)00245-0).
46. Barrett, C., Mortveit, H., Reidys, C. (2001). Elements of a theory of simulation III: equivalence of SDS. *Applied Mathematics and Computation*, 122(3), 325-340. [https://doi.org/10.1016/S0096-3003\(00\)00042-4](https://doi.org/10.1016/S0096-3003(00)00042-4)
47. Barrett, C., Mortveit, H., Reidys, C. (2000). Elements of a theory of simulation II: sequential dynamical systems. *Applied Mathematics and Computation*, 107(2-3), 121-136. [https://doi.org/10.1016/S0096-3003\(98\)10114-5](https://doi.org/10.1016/S0096-3003(98)10114-5)
48. Barrett, C., Jacob, R., Marathe, M. (2000). Formal language constrained path problems. *SIAM Journal of Computing*, 30(3), 809-837. <https://doi.org/10.1137/S0097539798337716>
49. Barrett, C., Reidys, C. (1999). Elements of a theory of computer simulation - I: Sequential CA over random graphs. *Applied Mathematics and Computation*, 98(2-3), 241-259.
[https://doi.org/10.1016/S0096-3003\(97\)10166-7](https://doi.org/10.1016/S0096-3003(97)10166-7)
50. Nagel, K., Barrett, C. (1997). Using Microsimulation Feedback For Trip Adaptation For Realistic Traffic In Dallas. *International Journal of Modern Physics C*, 08(03), 505-525.
<https://doi.org/10.1142/S0129183197000412>
51. Barrett, C., Donnell, M. (1990). Real time expert advisory systems: Considerations and imperatives, *Information and Decision Technologies*, Elsevier Science Publishers B.V. (North-Holland), 16, 15-25. IAOR:19911820
52. Barrett, C.L. (1988). The Knowledgeable Operator Analysis-Linked Advisory System (KOALAS) Approach to Decision Support System Design. Analysis and Synthesis (*Interim Report*). Warminster, PA: Naval Air Development Center.

PUBLICATIONS IN PEER-REVIEWED CONFERENCES

1. Bhattacharya, P., Machi, D., Chen, J., Hoops, S., Lewis, B., Mortveit, H., Venkatramanan, S., Wilson, M., Marathe, A., Porebski, P., Klahn, B., Outten, J., Vullikanti, A., Xie, D., Adiga, A., Brown, S., Barrett, C., and Marathe, M. (2021). AI-Driven Agent-Based Models to Study the Role of Vaccine Acceptance in Controlling COVID-19 Spread in the US. *In the Proceedings of the 2021 IEEE International Conference on Big Data (ICBD)*. Virtual, December 15-18.
2. Hurt, B., Adiga, A., Marathe, M., Barrett, C. (2021). Informing University COVID-19 Decisions Using Simple Compartmental Models. *In the Proceedings of the 2021 Winter Simulation Conference (WSC)*. Phoenix, AZ (December 13-15), and Virtual (December 15-17).
3. Hoops, S., Chen, J., Adiga, A., Lewis, B., Mortveit, H., Baek, H., Wilson, M., Xie, D., Swarup, S., Venkatramanan, S., Barrett, C., Crow, J., Diskin, E., Levin, S., Tazelaar, H., Rossheim, B., Ghaemmaghami, C., Price, C., Marathe, M. (2021). High Performance Agent-Based Modeling to Study Realistic Contact Tracing Protocols. *In the Proceedings of the 2021 Winter Simulation Conference (WSC)*. (December 13-15), and Virtual (December 15-17).
4. Machi, D., Bhattacharya, P., Hoops, S., Chen, J., Mortveit, H., Venkatramanan, S., Lewis, B., Wilson, M., Fadikar, A., Maiden, T., Barrett, C., Marathe, M. (2021). Scalable Epidemiological Workflows to Support COVID-19 Planning and Response. *In the Proceedings of the 35th IEEE International Parallel and Distributed Processing Symposium (IPDPS)*.
5. Cedeno-Mieles, V., Hu, Z., Deng, X., Ren, Y., Adiga, A., Barrett, C., Ekanayake, S., Korkmaz, G., Kuhlman, C., Machi, D., Marathe, M., Ravi, S., Goode, B., Ramakrishnan, N., Saraf, P., Self, N., Contractor, N., Epstein, J., Macy, M. (2019). Mechanistic and data-driven agent-based models to explain human behavior in online networked group anagram games. *In the Proceedings of the 2019 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*. Vancouver, Canada.
6. Adiga, A., Barrett, C., Eubank, S., Kuhlman, C., Marathe, M., Mortveit, H., Ravi, S., Rosenkrantz, D., Stearns, R., Swarup, S., Vullikanti, A. (2019). Validating agent-based models of large networked systems. Invited paper. *In the Proceedings of the Winter Simulation Conference*. National Harbor, MD.
7. Ren, Y., Cedeno-Mieles, V., Hu, Z., Deng, X., Adiga, A., Barrett, C., Contractor, N., Ekanayake, S., Epstein, J., Goode, B., Korkmaz, G., Kuhlman, C., Machi, D., Macy, M., Marathe, M., Ramakrishnan, N., Ravi, S., Saraf, P., Self, N. (2018). Generative Modeling of Human Behavior and Social Interactions using Abductive Analysis. *In the Proceedings of the IEEE/ACM International Conference on Social Networks Analysis and Mining (ASONAM)*, 413-420. Barcelona, Spain.
8. Barrett, C., Huang, F., Reidys, C. (2015). Evidence of higher order patterns in information transmission between nucleotide sequences and folded molecular shapes of RNA. *In the Proceedings of the 9th EAI International Conference on Bio-inspired Information and Communications Technologies (formerly BIONETICS)*. New York City, NY.
9. Deodhar, S., Chen, J., Wilson, M., Soundarapandian, M., Bisset, K., Lewis, B., Barrett, C., Marathe, M. (2015). FluCaster: A Pervasive Web Application for High Resolution Situation Assessment and Forecasting of Flu Outbreaks. *In the Proceedings of the IEEE International Conference on Healthcare Informatics (ICHI)*, 105-114. Dallas, TX.
10. Deodhar, S., Chen, J., Wilson, M., Bisset, K., Lewis, B., Barrett, C., Marathe, M. (2015). EpiCaster: An Integrated Web Application for Forecasting of Global Epidemics. *In the Proceedings of the 6th ACM Conference on Bioinformatics, Computational Biology and Health Informatics (BCB)*, 156-165. Atlanta, GA.

11. Pal, A., Yousef, M., Kumar, V.S. Anil, Marathe, A., Eubank, S., Marathe, M., Barrett, C., Thorp, J., Phadke, A., Centeno, V. (2015). Role of Power System Relays in a Large Scale Physical Attack. *In the Proceedings of the 6th CRIS International Conference*. St. Petersburg, Russia.
12. Barrett, C., Centeno, V., Eubank, S., Evrenosoglu, C., Marathe, A., Marathe, M., Mishra, C., Mortveit, H., Pal, A., Phadke, A., Thorp, J., Kumar, V., Youssef, M. (2014). Impact of a surface nuclear blast on the transient stability of the power system. *In the Proceedings of the 9th International Conference on Critical Information Infrastructures Security (CRIS)*. Limassol, Cyprus.
13. Barrett, C., Bisset, K., Chandan, S., Chen, J., Chungbaek, Y., Eubank, S., Evrenosoglu, Y., Lewis, B., Lum, K., Marathe, A., Marathe, M., Mortveit, H., Parikh, N., Phadke, A., Reed, J., Rivers, C., Saha, S., Stretz, P., Swarup, S., Thorpe, J., Vullikanti, A., Xie, D. (2013). Planning and Response in the Aftermath of a Large Crisis: An Agent-based Informatics Framework. *In the Proceedings of the 2013 Winter Simulation Conference*. Washington D.C.
14. Swarup, S., Lum, K., Barrett, C., Bisset, K., Eubank, S., Marathe, M., Stretz, P. (2013). A Synthetic Information Approach to Urban-scale Disaster Modeling. *In the Proceedings of the 2nd IEEE International Conference on Big Data Science and Engineering (BDSE2013)*. Sydney, Australia.
15. Xia, H., Barrett, C., Chen, J., Marathe, M. (2013). Computational Methods for Testing Adequacy and Quality of Massive Synthetic Proximity Social Networks. *In the Proceedings of the 2nd IEEE International Conference on Big Data Science and Engineering (BDSE2013)*. Sydney, Australia.
16. Barrett, C., Bisset, K., Marathe, M. (2013). Preparing for next Pandemic by Harnessing the Power of Pervasive Supercomputing. *In the Proceedings of Supercomputing 2013*. Denver, CO.
17. Barrett, C., Eubank, S., Evrenosoglu, Y., Marathe, A., Marathe, M., Phadke, A., Thorp, J., Kumar, V. (2013). Effects of Hypothetical Improvised Nuclear Detonation on the Electrical Infrastructure. *Security in Critical Infrastructures Today. In the Proceedings of the International ETG-Congress (CRIS)*. Berlin.
18. Bisset, K., Deodhar, S., Makkapati, H., Marathe, M., Stretz, P., Barrett, C. (2013). Simfrastructure: A Flexible and Adaptable Middleware Platform for Modeling and Analysis of Socially Coupled Systems. *In the Proceedings of the 13th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing*. Delft, Netherlands.
19. Parikh, N., Swarup, S., Stretz, P., Rivers, C., Lewis, B., Marathe, M., Eubank, S., Barrett, C., Lum, K., Chungbaek, Y. (2013). Modeling Human Behavior in the Aftermath of a Hypothetical Improvised Nuclear Detonation. *In the Proceedings of The Twelfth International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, 949-956. Saint Paul, MN.
20. Chandan, S., Saha, S., Barrett, C., Eubank, S., Marathe, A., Marathe, M., Swarup, S., Kumar, V.S. Anil (2013). Modeling the Interaction between Emergency Communications and Behavior in the Aftermath of a Disaster. *In the Proceedings of The International Conference on Social Computing, Behavioral-Cultural Modeling, and Prediction (SBP)*, 7812 476-485. Washington D.C.
21. Swarup, S., Lum, K., Barrett, C., Bisset, K., Eubank, S., Marathe, M., Stretz, P. (2013). A Synthetic Information Approach to Urban-scale Disaster Modeling. *In the Proceedings of the 2nd IEEE International Conference on Big Data Science and Engineering (BDSE)*.
22. Xia, H., Barrett, C., Chen, J., Marathe, M. (2013). Computational Methods for Testing Adequacy and Quality of Massive Synthetic Proximity Social Networks. *In the Proceedings of the 2nd IEEE International Conference on Big Data Science and Engineering (BDSE)*.
23. Marathe, M., Barrett, C. (2012). Towards Global Synthetic Information Systems. *In the Proceedings of the Meeting in Chalmers University and Institute of the Futures*. Stockholm.
24. Eubank, S., Marathe, M., Lewis, B., Barrett, C., Marathe, A., Swarup, S., Chen, J., Bisset, K. (2012). Modeling and Systems Approaches for Public Health Policy-Making. *In the Proceedings of the APHA Annual Meeting*. San Francisco, CA.

25. Marathe, M., Barrett, C. (2012). Planning and Responding to Human Initiated Crisis: Role of Data Intensive Computing and Computational Socio-Technical Sciences. *In the Proceedings of the International Conference on Networks in Biology, Social Science and Engineering*. Indian Institute of Sciences, Bangalore, India.
26. Barrett, C., Beckman, R., Bisset, K., Chen, J., Eubank, S., Kumar, V., Lewis, B., Marathe, M., Stretz, P., DuBois, T., Srinivasan, A. (2012). Optimizing Epidemic Protection for Socially Essential Workers. *In the Proceedings of the 2nd ACM SIGHIT International Health Informatics Symposium*, 31-40. Miami, FL.
27. Marathe, M., Barrett, C., Eubank, S., Mortveit, H. (2011). Validation and verification for network-based models of complex socio-technical systems. *In the Proceedings of the HSCB Focus 2011: Integrating Social Science Theory and Analytic Methods for Operational Use*, Chantilly, VA.
28. Leidig, J., Barrett, C., Marathe, M. (2011). Guiding Health Care Policy Through Applied Public Health Modeling and Simulation. *In the Proceedings of the First International Conference on Health Information Technology Advancement (ICHITA 2011)*. Western Michigan University, Kalamazoo, MI.
29. Barrett, C., Beckman, R., Bisset, K., Chen, J., Eubank, S., Khan, M., Kumar, V., Lewis, B., Marathe, A., Marathe, M., Mortveit, H., Stretz, P. (2011). Experiences and lessons learned in critical infrastructure decision informatics. *In the Proceedings of NetONets 2011 (a satellite to the conference NetSci 2011)*, Budapest, Hungary.
30. Barrett, C., Chen, J., Eubank, S., Lewis, B., Ma, Y., Marathe, A., Marathe, M. (2010). Comparison of individual behavioral interventions and public mitigation strategies for containing influenza epidemic. *In the Proceedings of the CDC'10 Conference, Modeling for Public Health Action: From Epidemiology to Operations*, Atlanta, GA.
31. Apolloni, A., Lewis, B., Barrett, C., Marathe, M., Eubank, S., Chen, J. (2010). Optimal vaccine allocation and vulnerability. *In the Proceedings of the ECCS'10 European Conference on Complex Systems*, Lisbon, Portugal.
32. Barrett, C., Beckman, R., Channakeshava, K., Huang, F., Kumar, V.S. Anil, Marathe, A., Marathe, M., Pei, G. (2010). Cascading failures in multiple infrastructures: From transportation to communication network. *In the Proceedings of the Interacting Critical Infrastructures for the 21st Century*, 1-8. Beijing, China.
33. Eubank, S., Kumar, V., Khan, M., Marathe, M., Barrett, C. (2010). Beyond Degree Distributions: Local to Global Structure of Social Contact Graphs. *In the Proceedings of the Advances in Social Computing, 3rd International Conference on Social Computing, Behavioral Modeling, and Prediction (SBP)*, 6007 (Lecture Notes in Computer Science).
34. Barrett, C., Eubank, S., Marathe, M. (2009). Policy informatics for co-evolving socio- technical networks. *In the Proceedings of the 4th International Conference on Critical Infrastructures*. Linkoping, Sweden.
35. Barrett, C., Bisset, K., Leidig, J., Marathe, A., Marathe, M. (2009). Estimating the impact of public and private strategies for controlling and epidemic: A multi-agent approach. *In the Proceedings of the 21st Innovative Applications of Artificial Intelligence Conference*, Pasadena, California.
36. Barrett, C., Beckman, R., Khan, M., Kumar, A., Marathe, M., Stretz, P., Dutta, T., Lewis, B. (2009). Generation and analysis of large synthetic social contact networks. *In the Proceedings of the Winter Simulation Conference: 1003-1014*, Austin, Texas.
37. Atkins, K., Barrett, C., Marathe, A. (2009). A web-based artificial market. *In the Proceedings of the Winter Simulation Conference: 3047-3054*, Austin, Texas.

38. Barrett, C. (2009). Demonstration of CNIMS-Based analysis of layered interventions in Seattle/Ft. Lewis for logistics and TMTI-Based interventions during a bio-attack event. *In the Proceedings of the Conference in 2009*.
39. Barrett, C., DuBois, T., Eubank, S., Kumar, V.S. Anil, Marathe, M., Srinivasan, A. (2009). Sequestering critical workers in event of epidemics. *In the Proceedings of the ACM-SIAM Symposium on Discrete Algorithms (SODA10)*. Austin, TX.
40. Eubank, S., Marathe, M., Barrett, C. (2008). Estimation in network models of epidemiology. *In the Proceedings of the Statistical Estimation Approaches in Epidemiology*.
41. Barrett, C., Bisset, K., Eubank, S., Feng, X., Marathe, M. (2008). EpiSimdemics: An efficient and scalable framework for simulating the spread of infectious disease on large social network. *In the Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis (SC08)*, Austin, Texas.
42. Barrett, C., Chen, J., Eubank, S., Kumar, A., Marathe, A., Marathe, M. (2008). Role of vulnerable and critical nodes in controlling epidemics in social networks. *In the Proceedings of the Epidemics Journal and Conference on Infectious Diseases*, Asilomar, California.
43. Barrett, C., Bisset, K., Konjevod, G., Marathe, M., Wagner, D. (2008). Engineering label-constrained shortest-path algorithms. *In the Proceedings of the Ninth DIMACS Implementation Challenge on Shortest Paths (DIMACS 2008)*, AMS.
44. Barrett, C., Eubank, S., Marathe, M. (2008). An interaction-based approach to computational epidemiology. *In the Proceedings of the 23rd Association for the Advancement of Artificial Intelligence*, Chicago, Illinois.
45. Barrett, C., Beckman, R., Bisset, K., Chen, J., Lewis, B., Eubank, S., Kumar, A., Marathe, M., Mortveit, H. (2008). Investigating the role of public policies and individual behavior on epidemics: a multi-agent systems approach. *In the Proceedings of the Association for the Advancement of Artificial Intelligence*. Chicago, IL, July 13- 17, 2008.
46. Atkins, K., Barrett, C., Marathe, A. (2008). The web service based experimental market. *In the Proceedings of the AIW Track No. 44*.
47. Barrett, C., Bisset, K., Konjevod, G., Marathe, M., Wagner, D. (2008). Engineering label-constrained shortest-path algorithms. *In the Proceedings of the Ninth DIMACS Implementation Challenge on Shortest Paths (DIMACS 2006)*, AMS, 1-10: 27-37.
48. Barrett, C., Bisset, K., Chen, J., Eubank, S., Lewis, B., Kumar, V.S. Anil, Marathe, M., Mortveit, H. (2007). Effect of public policies and individual behavior on the co-evolution of social networks and infectious disease dynamics. *In the Proceedings of the DIMACS Workshop on Computational Methods for Dynamic Interaction Networks*. Rutgers University.
49. Barrett, C., Hunt III, H.B., Marathe, M., Ravi, S., Rosenkrantz, D., Stearns, R., Thakur, M. (2007). Computational aspects of analyzing social network dynamics. *In the Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI 07)*, 2268-2273. Hyderabad, India.
50. Barrett, C., Istrate, G., Kumar, A., Marathe, M., Thite, S., Thulasidasan, S. (2006). Strong edge coloring for channel assignment in wireless radio networks. *In the Proceedings of the IEEE International Workshop on Foundations and Algorithms for Wireless Networking*, Pisa, Italy, 106-110.
51. Barrett, C., Hunt III, H.B., Marathe, M., Ravi, S., Rosenkrantz, D., Stearns, R., Thakur, M. (2006). Computational complexity of analyzing the dynamic reliability of interdependent infrastructures. *In the Proceedings of the Third International Conference on Critical Infrastructures*.
52. Halloran, M., Barrett, C., Beckman, R., Burke, D., Cooley, P., Cummings, D., Eubank, S., Ferguson, N., Fraser, C., Germann, T., Kadau, K., Lewis, B., Longini, I., Macken, C., Kumar, V.S. Anil,

- Wagener, D., Xu, S. (2006). Considering options for planning public health response to an influenza pandemic in the U.S.A. In *In the Proceedings of the Conference*.
53. Atkins, K., Barrett, C., Beckman, R., Bisset, K., Chen, J., Eubank, S., Kumar, V.S. Anil, Lewis, B., Marathe, A., Marathe, M., Mortveit, H., Stretz, P. (2006). Exystance: short course at Torino on complex systems. *In the Proceedings of the 2006 Conference*.
 54. Istrate, G., Hansson, A., Marathe, M., Thulasidasan, S., Barrett, C. (2006). Semantic compression of TCP traces. *In the Proceedings of the IFIP Conference on Networking*, Boavida F, Plagemann T, Stiller B, Westphal C, Monteiro E (eds), Lecture Notes in Computer Science, 3976:123-135.
 55. Barrett, C., Hunt III, H.B., Marathe, M., Ravi, S., Rosenkrantz, D., Stearns, R. (2006). Analysis problems for sequential dynamical systems and communicating state machines. *In the Proceedings of the 2th Mathematical Foundations of Computer Science (MFCS 01)*, Lecture Notes in Computer Science, 2136 159-172. Marianske Lazne, Czech Republic.
 56. Barrett, C., Eidenbenz, S., Kroc, L., Marathe, M., Smith, J. (2005). Probabilistic multi-path vs. deterministic single-path protocols for dynamic ad-hoc network scenarios. *In the Proceedings of the ACM Symposium on Applied Computing (SAC)*, 1166-1173.
 57. Barrett, C., Drozda, M., Engelhart, D., Kumar, A., Marathe, M., Morin, M., Ravi, S., Smith, J. (2005). Understanding protocol performance and robustness of ad hoc networks through structural analysis. *In Proceedings of the IEEE International Conference on Wireless and Mobile Computing, Networking, and Communications (WiMob)*, 65-72.
 58. Engelhart, C., Sivasubramaniam, A., Barrett, C., Marathe, M., Smith, J., Morin, M. (2004). A spatial analysis of mobility models: Application to wireless ad hoc network simulation. *In the Proceedings of the 37th Annual Symposium on Simulation*, 35.
 59. Atkins, K., Barrett, C., Homan, C., Marathe, A., Marathe, M., Thite, S. (2004). Agent based economic analysis of deregulated electricity markets. *In the Proceedings of the 6th IAEE European Energy Conference, Swiss Federal Institute of Technology. Zurich, Switzerland*.
 60. Atkins, K., Barrett, C., Homan, C., Marathe, A., Marathe, M., Thite, S. (2004). Market Lecture: A simulation- based framework for studying experimental deregulated power markets. *In the Proceedings of the 6th IAEE European Energy Conference, Zurich, Switzerland*.
 61. Barrett, C., Eidenbenz, S., Kroc, L., Marathe, M., Smith, J. (2003). Parametric probabilistic sensor network routing. LANL Technical Report LA-UR-03-4170, *In the Proceedings of the 2nd ACM International Workshop on Wireless Sensor Networks (WSNA)*, 122.
 62. Barrett, C., Hunt III, H.B., Marathe, M., Ravi, S., Rosenkrantz, D., Stearns, R. (2003). Predecessor and permutation existence problems for sequential dynamical systems. LANL Technical Report LA-UR- 02-180, *In the Proceedings of the Discrete Models for Complex Systems (DMCS)*, 69-80.
 63. Barrett, C., Marathe, M., Engelhart, D., Sivasubramaniam, A. (2003). Approximate connectivity graph generation in mobile ad hoc radio networks. *In the Proceedings of the 36th Annual Symposium on Simulation*, IEEE Computer Society, Washington, D.C., 81-88.
 64. Barrett, C., Drozda, M., Marathe, A., Marathe, M. (2003). Analyzing interaction between network protocols, topology and traffic in wireless radio networks. *In the Proceedings of the Wireless Communications and Networking Conference. WCNC 2003. 2003 IEEE, New Orleans, 3: 1760-1766*.
 65. Barrett, C., Marathe, M., Smith, J., Ravi, S. (2002). A mobility and traffic generation framework for modeling and simulating ad hoc communication networks. *In the Proceedings of the 2002 ACM Symposium on Applied Computing, Madrid, Spain*, 122-126.
 66. Barrett, C., Eubank, S., Marathe, M., Mortveit, H., Reidys, C. (2002). Science and engineering of large scale socio-technical simulations. *In the Proceedings of the 1st International Conference on Grand Challenges in Simulations*.

67. Barrett, C., Drozda, M., Marathe, M. (2002). A comparative experimental study of media access protocols for wireless radio networks. *In the Proceedings of the Wireless Communications and Networking Conference*. WCNC2002. 2002 IEEE, 1: 405-411.
68. Barrett, C., Mortveit, H., Reidys, C. (2002). Sequential dynamical systems. In artificial life and robotics. *In the Proceedings of the Sixth International Symposium on Artificial Life and Robotics*, Tokyo, Japan 6 (4): 167-169.
69. Barrett, C., Marathe, M., Engelhart, D., Sivasubramaniam, A. (2002). Analyzing the short-term fairness of IEEE 802.11 in wireless multi-hop radio networks. *In the Proceedings of the 10th IEEE International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunications Systems (MASCOTS'02)*, IEEE Computer Society, 137.
70. Barrett, C., Bisset, K., Jacob, R., Konjevod, G., Marathe, M. (2002). An experimental analysis of a routing algorithm for realistic transportation networks. *In the Proceedings of the European Symposium on Algorithms (ESA)*, Rome, Italy.
71. Barrett, C., Drozda, M., Marathe, A., Marathe, M. (2002). Characterizing the interaction between routing and MAC protocols in ad-hoc networks. *In the Proceedings of the 3rd ACM international Symposium on Mobile Ad Hoc Networking and Computing*, Lausanne, Switzerland, 92-103.
72. Barrett, C., Hunt III, H.B., Marathe, M., Ravi, S., Rosenkrantz, D., Stearns, R. (2001). Analysis problems for sequential dynamical systems and communicating state machines. *In the Proceedings of the 26th International Symposium on Mathematical Foundations of Computer Science, Lecture Notes in Computer Science*, 2136: 159-172.
73. Barrett, C., Mortveit, H., Reidys, C. (2001). Factorization of simulations. Applied Simulation and Modeling. *In the Proceedings of the IASTED International Conference*, 245-252.
74. Barrett, C., Hunt, III H.B., Marathe, M., Ravi, S.S., Rosenkrantz, D., Stearns, R., Tasic, P. (2001). Gardens of Eden and fixed points in sequential dynamical systems. *In the Proceedings of the International Conference on Discrete Models in Combinatorics, Computation and Geometry (DM-CCG)*, 95-110.
75. Barrett, C., Cook, D., Hicks, G., Faber, V., Marathe, A., Marathe, M., Srinivasan, A., Sussmann, Y., Thronquist, H. (2001). Experimental analysis of algorithms for bilateral-contract clearing mechanisms arising in deregulated power industry. *In the Proceedings of the Algorithm Engineering: 5th International Workshop, WAE 2001*, Aarhus, Denmark, Springer Berlin/Heidelberg.
76. Barrett, C., Bush, B., Kopp, S., Mortveit, H., Reidys, C. (2000). Sequential dynamical systems and applications to simulations. *In the Proceedings of the 33rd Annual Simulation Symposium*, IEEE Computer Society.
77. Barrett, C., Eubank, S., Marathe, M., Mortveit, H., Reidys, C. (2000). Science and engineering of large scale socio-technical simulations. *In the Proceedings of the 2000 ICSEE Western*.
78. Barrett, C., Hunt III, H.B., Marathe, M., Ravi, S., Rosenkrantz, D., Stearns, R., Tasic, P. (2001). Gardens of Eden and fixed points in sequential dynamical systems. *In the Proceedings of the International Conference on Discrete Models in Combinatorics, Computation and Geometry (DM-CCG)*, 95-110. Paris, France.
79. Nagel, K., Beckman, R., Barrett, C. (1999). TRANSIMS for transportation planning. *In the Proceedings of the 1998 International Conference on Complex Systems*, New England Complex Systems Institute, Boston, Massachusetts.
80. Nagel, K., Rickert, M., Frye, R., Stretz, P., Simon, P., Jacob, R., & Barrett, C. L. (1998). Regional transportation simulations. *In the Proceedings of the 1998 Advanced Simulation Technologies Conference*, Boston, Massachusetts.

81. Barrett, C., Jacob, R., Marathe, M. (1998). Formal language constrained path problems. *In the Proceedings of the 6th Scandinavian Workshop on Algorithm Theory*, Stockholm, Sweden. Lecture Notes in Computer Science, 1432: 234-245.
82. Barrett, C., Mortveit, H., Reidys, C. (1998). On theoretical issues of computer simulations-sequential dynamical systems. *In the Proceedings of the World Multiconference on Systemics, Cybernetics and Informatics-SCI 98*, Orlando, FL, 4: 141-147.
83. Nagel, K., Rickert, M., Barrett, C. (1997). Large scale traffic simulations. *In the Proceedings of the Second International Conference on Vector and Parallel Processing*.
84. Barrett, C., Wolinsky, M., Olesen, M. (1997). Emergent local control properties in particle hopping traffic microsimulations. *In the Proceedings of the Traffic and Granular Flow*, Julich, Germany.
85. Rasmussen, S., Barrett, C., Baas, N., Olesen, M. (1996). A note on simulation and dynamical hierarchies. *In the Proceedings of the International Twin Conference on Self-Organization and Complexity*, Stuttgart, Germany.
86. Nagel, K., Rasmussen, S., Barrett, C. (1996). Network traffic as a self-organized critical phenomena. *In the Proceedings of the International Twin Conference on Self-Organization and Complexity*, Stuttgart, Germany, Technical Report LA-UR-96-659.

BOOK CHAPTERS

1. Swarup, S., Marathe, A., Marathe, M., and Barrett, C., (2019). Simulation Analytics for Social and Behavioral Modeling. *Social-Behavioral Modeling For Complex Systems*, Davis, P., O'Mahony, A., Pfautz, J. (eds), 26:617-632. John Wiley & Sons, Inc.
2. Nagel, K., Beckman, R.L., Barrett, C.L. (2018). TRANSIMS for transportation planning. *Unifying Themes in Complex Systems, Volume 2*. CRC Press; 437-444.
3. Barrett, C., Centeno, V., Eubank, S., Evrenosoglu, C., Marathe, A., Marathe, M., Mishra, C., Mortveit, H., Pal, A., Phadke, A., Thorp, J., Vullikanti, A., Youssef, M. (2016). Impact of a surface nuclear blast on the transient stability of the power system. *Critical Information Infrastructures Security*, Panayiotou, C., Ellinas, G., Kyriakides, E., Polycarpou, M. (eds). Limassol, Cyprus: Springer International Publishing.
4. Barrett, C., Eubank, S., Marathe, A., Marathe, M., Swarup, S. (2013). Synthetic Information Environments for Policy Informatics: A Distributed Cognition Perspective. *The Policy Informatics Handbook*, Johnston E (ed). Springer.
5. Barrett, C., Lewis, B., Chen, J., Vullikanti, A., Eubank, S., Marathe, M., Mortveit, H. (2009). Interactions among human behavior, social networks, and societal infrastructures: A case study in computational epidemiology. *Fundamental Problems in Computing: Essays in Honor of Professor Daniel J. Rosenkrantz*, Ravi, S., Shukla, S. (eds), XXII, 477-507. Springer Verlag.
6. Barrett, C., Bisset, K., Konjevod, G., Marathe, M., Wagner, D. (2008). Engineering label-constrained shortest- path algorithms. *Proceedings of the 9th DIMACS Implementation Challenge on Shortest Paths (DIMACS 2006)*, 1-10:27-37. AMS.
7. Eubank, S., Marathe, M., Barrett, C. (2008). Estimation in network models of epidemiology. *Statistical estimation approaches in epidemiology*. Gerardo, Chowell MH, Nick Hengartner, Luis Bettencourt, Carols Castillo-Chavez (ed), Springer.
8. Barrett, C., Eubank, S., Lewis, B., Marathe, M. (2008). Information systems for detection and management of pandemics. *Encyclopedia of Geographic Information Systems*, Shekhar, S., Xiong, X., Eds. Springer-Verlag.

9. Barrett, C., Eubank, S., Lewis, B., Marathe, M. (2008). Pandemics, Detection and Management. *Encyclopedia of Geographic Information Systems*, 839-843. Springer-Verlag.
10. Barrett, C., Eubank, S., Smith, J. REPRINT (2007). If Smallpox Strikes Portland... In: *Fighting Infectious Diseases First*. The Rosen Publishing Group, 4-21.
11. Barrett, C., Bisset, K., Eubank, S., Fox, E., Ma, Y., Marathe, M., Zhang, X. (2007). A scalable data management tool to support epidemiological modeling of large urban regions. In *Research and Advanced Technology for Digital Libraries* (pp. 546-548), Springer Berlin/Heidelberg.
12. Barrett C, Bisset K, Eubank S, Vullikanti A, Marathe M, Mortveit H (2007). Modeling and simulation of large biological, information and socio-technical systems: An interaction-based approach. *Proceedings of the Symposia in Applied Mathematics, Short Course on Modeling and Simulation of Biological Network (PSAPM)*, AMS Lecture Notes Series, 64:101-147.
13. Barrett, C., Eubank, S., Marathe, M., Mortveit, H. (2006). An interaction-based computing approach to modeling and simulation of large biological and socio-technical systems. In *Proceedings of AMS Lecture Notes*.
14. Istrate, G., Hansson, A., Marathe, M., Thulasidasan, S., Barrett, C. (2006). Semantic compression of TCP traces. In *Proceedings of IFIP Conference on Networking Conference*, Boavida, F., Plagemann, T., Stiller, B., Westphal, C., Monteiro, E. (eds), Lecture Notes in Computer Science, 3976: 123-135, Berlin/Heidelberg:Springer Verlag.
15. Barrett, C., Eubank, S., Marathe, M. (2006). Modeling and simulation of large biological, information and socio-technical systems: An interaction based approach. *Interactive Computing: A new Paradigm*, Goldin D, Smoka S, Wegner P (eds), 353-394. Springer Berlin/Heidelberg.
16. Barrett, C., Hunt, III H.B., Marathe, M., Ravi, S., Rosenkrantz, D., Stearns, R. (2003). On some special classes of sequential dynamical systems. *Annals of Combinatorics*, 7: 381-408.
17. Barrett, C., Thord, R., Reidys, C. (1998). Simulations in decisions making for socio-technical systems: In knowledge and networks in a dynamical economy. Springer: Berlin Heidelberg.
18. Barrett, C., Wolinsky, M., Olesen, M. (1997). Emergent local control properties in particle Hopping Traffic Microsimulations. *Proc. of Traffic and Granular Flow*. Julich, Germany: Springer-Verlag.
19. Donnell, M. L., Stottler, R. S., Barrett, C. L. (1990). Evaluation of Real-Time Expert Advisory Systems: A General Methodology and Case Study. *Advances in Technology for Command & Control Systems Engineering*. S.J. Andriole (Editor), AFCEA International Press.

SELECTED TECHNICAL REPORTS

1. Adiga, A., Baek, H., Barrett, C., Barrow, G., Beckman, R., Bhattacharya, P., Bura, A., Jiangzhuo, C., Cucinell, C., Dickerman, A., Eubank, S., Goldstein, J., Hoops, S., Keller, S., Kenyon, R., Klahn, B., Korkmaz, G., Lancaster, V., Lewis, B., Machi, D., Mao, C., Marathe, A., Marathe, M., Meng, F., Mortveit, H., Orr, M., Porebski, P., Ravi, SS., Raymond, E., Bayoan, J., Calderon, S., Schlitt, J., Schroeder, A., Shipp, S., Swarup, S., Telionis, A., Venkatramanan, A., Vullikanti, A., Walke, J., Wilson, A., Xie, D. Biocomplexity COVID-19 Response Team, COVID Response Team (2022 – 22 briefing reports as of 5.11.22), (2021 – 104 briefing reports), (2020 – 143 briefing reports). *COVID-19 Response Reports (269 briefing reports total)*.
2. Marathe, M., Barrett, C., Adiga, A., Chen, J., Chungbaek, Y., Eubank, S., Gupta, S., Kuhlman, C., Lawrence, M., Lewis, B., Marathe, A., Mortveit, H., Nordberg, E., Ravi, R., Ren, Y., Swarup, S., Venkatramanan, S., Vullikanti, A., Wilson, M., Xie, D. (2017). *Comprehensive National Incident Management System (CNIMS): Task 1 Final Project Status Report*. Project Report, DTRA. BI TR 2017-1060.

3. Lewis, B., Rivers, C., Lofgren, E., Schlitt, J., Telionis, A., Wilson, M., Mortveit, H., Xie, D., Swarup, S., Chungbaek, H., Bisset, K., Khan, M., Kuhlman, C., Eubank, S., Marathe, M., Barrett, C. (2014-2015). *Modeling the Ebola Outbreak in West Africa (29 briefing reports)*.
4. Barrett, C., Marathe, M. (2014). *National Planning Scenario 1: Modeling Advancements and Results*. NDSSL Technical Report Number: 14-008.
5. Eubank, S., Lewis, B., Marathe, M., Allen, T., Aizcorbe, A., Barrett, C., Chen, J., Keller, S., Lofgren, E., Lum, K., Marathe, A., Mulheren, J., Kumar, V.S. Anil, Yi, M., Chungbaek, Y. (2014). *Novel Methods and Software Systems for Inference and Modeling of Epidemic Behavior*. NDSSL Technical Report Number: 14-030.
6. Barrett, C., Marathe, M., Eubank, S. (2013). *NDSSL R&D Program Overview*. NDSSL Technical Report Number: 13-027.
7. Barrett, C., Marathe, M., Eubank, S. (2013). *CNIMS Task 1 & 2 DTRA Presentation*. NDSSL Technical Report Number: 13-073.
8. Barrett, C., Chen, J., Eubank, S., Khan, M., Laskowski, K., Lawrence-Kuether, M., Lewis, B., Marathe, M., Marmagas, W., Mortveit, H., & Xie, D. (2013). *Senior Level Exercise for National Security Council, Domestic Resiliency Group*. NDSSL Technical Report Number: 13-135.
9. Xia, H., Barrett, C., Chen, J., Marathe, M. (2013). *Computational Methods for Testing Adequacy and Quality of Massive Synthetic Proximity Social Networks*. NDSSL Technical Report Number: 13-153.
10. Barrett, C., Chen, J., Lum, K., Marathe, M., Mortveit, H., Parikh, N., Stretz, P., Swarup, S., Xia, H. (2013). *Synthetic Population for Israel*. NDSSL Technical Report N. 13-001.
11. Barrett, C., Eubank, S., Khan, M., Kumar, V., Marathe, M. (2012). *Beyond degree distributions: local to global structure of social contact graphs*. NDSSL Technical Report Number: 12- 002.
12. Barrett, C., Marathe, M., Eubank, S., Kumar, V.S. Anil, Bisset, K., Feng, A., Khan, M., Mortveit, H., Stretz, P. (2012). *DTRA CNIMS NPS-1 Presentation*. NDSSL Technical Report Number: 12- 025.
13. Barrett, C., Beckman, R., Marathe, M., Mortveit, H., Lazer, D. (2012). *High Performance Computing Methods for Inference of State Assessment and Course of Action Analysis in Large Socio-Technical Networks Project Report*. NDSSL Technical Report Number: 12-032.
14. Barrett, C., Beckman, R., Marathe, M., Mortveit, H., Eubank, S., Ravi, S. (2012). *Rigorous Approaches for Validation. Project Report*. NDSSL Technical Report Number: 12-033.
15. Barrett, C., Bisset, K., Eubank, S., Feng, A., Khan, M., Marathe, A., Marathe, M., Mortveit, H., Pan, Z., Stretz, P., Swarup, S. (2011). *NatEpi: Simulation of epidemic Using the national mode*. NDSSL Technical Report No. 11-039.
16. Barrett, C., Bisset, K., Eubank, S., Feng, A., Khan, M., Marathe, A., Marathe, M., Mortveit, H., Pan, Z., Stretz, P., Swarup, S. (2011). *Experiments with national model for DTRA Northcom Tabletop Study*. NDSSL Technical Report No.11-040.
17. Barrett, C., Eubank, S., Marathe, A., Marathe, M., Kumar, A. (2011). *Effects of Multiple Local Network Insults: Vulnerabilities, Analysis and Recommendations*. NDSSL Technical Report Number: 11-001.
18. Barrett, C., Beckman, R., Bisset, K., Chen, J., Eubank, S., Feng, A., Khan, M., Lewis, B., Marathe, A., Marathe, M., Mortveit, H., Pan, Z., Stretz, P., Swarup, S., Kumar, A. (2011). *FERVENT Virus TTX, Modeling to Support A Table Top Exercise for USNORTHCOM*. NDSSL Technical Report Number: 11-141.
19. Barrett, C., Beckman, R., Bisset, K., Chen, J., DuBois ,T., Eubank, S., Lewis, B., Kumar, A., Marathe, M., Srinivasan, A., Stretz, P. (2010). *Protective sequestering of socially essential subpopulations*. Vol. NDSSL Technical Report No. 10-040.

20. Barrett, C., Eubank, S., Marathe, M. (2009). *Modeling and evaluation of household centered caregiving in community mitigation strategies using high resolution modeling environments*. NDSSL Technical Report Number: 09-018.
21. Barrett, C., Beckman, R., Khan, M., Kumar, V.S. Anil, Marathe, M., Stretz, P., Dutta, T., Lewis, B. (2009). *Generation and analysis of large synthetic social contact networks*. NDSSL Technical Report Number: 09-065.
22. Atkins, K., Barrett, C., Beckman, R., Bisset, K., Chen, J., Eubank, S., Kumar, A., Lewis, B., Marathe, A., Marathe, M., Mortveit, H., Stretz, P. (2008). *Issues of National Guard force readiness during an influenza epidemic*. NDSSL Technical Report No.08-089.
23. Adasi, K., Barrett, C., Eubank, S., Lewis, B., Marathe, A., Marathe, M., Mortveit, H. (2008). *A Review of malaria modeling*. NDSSL Technical Report Number: 08-016.
24. Atkins, K., Barrett, C., Beckman, R., Bisset, K., Chen, J., Eubank, S., Vullikanti, A., Lewis, B., Macauley, M., Marathe, A., Marathe, M., Mortveit, H., Stretz, P. (2007). *Simulated pandemic influenza outbreaks in Chicago*. NIH DHHS Study Final Report. BI TR 2007-004
25. Atkins, K., Barrett, C., Beckman, R., Bisset, K., Chen, J., Eubank, S., Kumar, A., Lewis, B., Marathe, A., Marathe, M., Stretz, P. (2007). *Tools for Isolation Group Sizing (TIGS)*. NDSSL Technical Report Number: 07-018.
26. Barrett, C., Marathe, M. (2007). *Co-evolving, coupled very large complex networks*. NDSSL Technical Report Number: 07-040.
27. Atkins, K., Barrett, C., Beckman, R., Bisset, K., Chen, J., Eubank, S., Lewis, B., Marathe, A., Marathe, M., Mortveit, H., Stretz, P., Vullikanti, A. (2007). *An analysis of layered public health interventions at Ft. Lewis and Ft. Hood during a pandemic influenza event*. NDSSL Technical Report No. 07-019.
28. Atkins, K., Barrett, C., Beckman, R., Bisset, K., Chen, J., Eubank, S., Kumar, A., Lewis, B., Marathe, A., Marathe, M., Mortveit, H., & Stretz, P. (2007). *DTRA Alabama National Guard study capability demonstration*. NDSSL Technical Report No. 06-060.
29. Barrett, C., Eubank, S., Lewis, B. (2006). *Impact of influenza vaccine purchases on force readiness*. NDSSL Technical Report Number: 06-036.
30. Atkins, K., Barrett, C., Beckman, R., Bisset, K., Chen, J., Eubank, S., Kumar, A., Lewis, B., Macauley, M., Marathe, A., Marathe, M., Mortveit, H., Stretz, P. (2006). *Complex situation analysis and support system*. NDSSL Technical Report Number: 06-064.
31. Barrett, C., Beckman, R., Chen, J., Eubank, S., Kumar, A., Marathe, M. (2006). *Fast diffuse: Percolation based methods for studying epidemics on directed networks*. NDSSL Technical Report No. 06-022.
32. Atkins, K., Barrett, C., Beckman, R., Bisset, K., Chen, J., Eubank, S., Kumar, A., Lewis, B., Macauley, M., Marathe, A., Marathe, M., Mortveit, H., Stretz, P. (2006). *Simulated pandemic influenza outbreaks in Chicago: NIH DHHS Study Final report*. Technical Report, NDSSL Technical Report Number: 07-004.
33. Atkins, K., Barrett, C., Bisset, K., Beckman, R., Eubank, S., Marathe, M., Mortveit, H., Stretz, P., Chen, J. (2006). *White House Area Transportation Study*. Technical Report, NDSSL Technical Report Number: 06-503.
34. Bisset, K., Atkins, K., Barrett, C., Beckman, R., Eubank, S., Marathe, A., Marathe, M., Mortveit, H., Stretz, P., Vullikanti, A. (2006). *Synthetic data products for societal infrastructures and proto populations: Data set 1.0*. NDSSL Technical Report No. 06-006.
35. Atkins, K., Barrett, C., Beckman, R., Bisset, K., Chen, J., Eubank, S., Kumar, V., Lewis, B., Macauley, M., Marathe, A., Marathe, M., Mortveit, H., Stretz, P. (2006). *Simulated pandemic influenza outbreaks in Chicago: NIH DHHS Study Final report*. NDSSL Internal Report No. 06-023.

36. Barrett, C., Bisset, K., Atkins, K., Eubank, S., Marathe, M., Marathe, A., Mortveit, H., Stretz, P. (2005). *An Architecture for Network Centric Simfrastructure*. NDSSL Technical Report Number: 05-001.
37. Bisset, K., Eubank, S., Marathe, M., Mortveit, H., Atkins, K., Barrett, C., Beckman, R., Marathe, A., Stretz, P., Kumar, V.S. Anil (2005). *The Design and Implementation of Simdemics*. NDSSL Technical Report Number: 05-017.
38. Bisset, K., Atkins, K., Barrett, C., Beckman, R., Eubank, S., Kumar, A., Marathe, A., Marathe, M., Mortveit, H., Stretz, P. (2005). *A high-level architecture for Simfrastructure*. NDSSL Technical Report No. 05-018.
39. Barrett, C., Eubank, S., Kumar, A., Marathe, M., (2004). *Understanding large-scale social and infrastructure networks: A simulation based approach*. Technical Report No. LA-UR-04-1160, Los Alamos National Laboratory.
40. Barrett, C., Hunt III, H.B., Marathe, M., Ravi, S., Rosenkrantz, D., Stearns, R. (2003). *Predecessor and permutation existence problems for sequential dynamical systems*. In *Proceedings of Discrete Models for Complex Systems, DMCS'03*, Lyon, France. Technical Report No. LA-UR-02-180, Los Alamos National Laboratory AB, 69-80.
41. Barrett, C., Drozda, M., Marathe, A., Marathe, M. (2003). *Analyzing the effect of routing protocols on media access control protocols in radio networks, C, submitted to WCNC 2003*. Technical Report LA-UR-02-1747, Los Alamos National Laboratory.
42. Barrett, C., Marathe, M. (2003). *Foundations of simulation science*. Technical Report, Los Alamos National Laboratory.
43. Barrett, C., Bisset, K., Marathe, M., Mortveit, H., Reidys, C. (2003). *Design, specification and analysis of ad-hoc networks*. Technical Report No. LA-CP-03-0148, Los Alamos National Laboratory.
44. Atkins, K., Barrett, C., Beckman, R., Bisset, K., Drozda, M., Eubank, S., Engelhart, C., Hengartner, N., Istrate, G., Kumar, A., Marathe, M., Morin, M., Reidys, C., Ravi, S., Romero, P., Pistone, R., Pathak, S., Smith, J., Stretz, P., (2003). *Ad-hopNET: Integrated tool for end-to-end analysis of extremely large next generation communication networks, Volume I and II*. Technical Report No. LA-UR-03-2076, and LA-UR-03-2077, Los Alamos National Laboratory.
45. Barrett, C., Marathe, M., Reidys, C., Ravi, S., Smith, J. (2001). *Ad-hopNET: A large scale simulation based analysis of ad hoc networks, a seedling study for DARPA*. Technical Report No. LA-UR-01-1644, Los Alamos National Laboratory, Final Report.
46. Hunt, III H.B., Rosenkrantz, D., Barrett, C., Marathe, M., Ravi, S. (2001). *Complexity of analysis and verification problems for communicating automata and discrete dynamical systems*. Technical Report No. LA-UR-01-1687, Los Alamos National Laboratory.
47. Barrett, C., Marathe, M., Reidys, C. (2001). *Commercial prospects for mobile communications from the developments in large scale infrastructure simulation technology*. Final Report, CRADA agreement with Motorola.
48. Barrett, C., Marathe, A., Marathe, M. (2001). *Parameterized scalable models for simulating deregulated electric power industry*. Technical Report, Los Alamos National Laboratory.
49. Barrett, C., Beckman, R., Bisset, K., Berkgigler, K., Bush, B., Eubank, S., Hurford, J., Konjevod, G., Kubicek, D., Marathe, M., Morgeson, J., Rickert, M., Romero, P., Smith, L., Speckman, M., Speckman, P., Stretz, P., Thayer, G., Williams, M. (1999) *TRANSIMS (TRANSPORTATION ANALYSIS SIMULATION SYSTEM): Volume 0: Overview*, LA-UR-99-1658; *Volume 2: Software, Part 1: Modules*, LA-UR-99-2574; *Volume 2: Software, Part 2: Selectors*, LA-UR-99-2575; *Volume 2: Software, Part 3: Test Networks*, LA-UR-99-2576; *Volume 2: Software, Part 5: Libraries*, LA-UR-99-2578; *Volume 3: Files*, LA-UR-99-2579; *Volume 6: Installation*, LA-UR-99-2580.

50. Anson, D., Barrett, C., Marathe, M., Nagel, K., Stein, M. (1997). *A theoretical study of some routing algorithms*. Technical Report No LAUR-No-97-1333, Los Alamos National Laboratory. Anson, D., Barrett, C., Marathe, M., Nagel, K., Rickert, M., Stein, M. *Engineering the route planner for the Dallas case study*. Technical Report, LAUR-No-97-1331, Los Alamos National Laboratory.
51. Anson, D., Barrett, C., Marathe, M., Nagel, K., Rickert, M., Stein, M. (1997). *Route planner for the Dallas case study*. Technical Report No LA-UR-No-97-1332, Los Alamos National Laboratory.
52. Anson, D., Barrett, C., Stein, M., Nagel, K., Marathe, M. (1996). *Route planning and generation in TRANSIMS*. Technical Report No LA-UR-96-2179, Los Alamos National Laboratory.
53. Rasmussen, S., Baas, N., Barrett, C., Olesen, M. (1996). *Dynamical hierarchies- a summary. Artificial life and robotics (AROB)*, Oita, Japan. Technical Report No. LA-UR-96-660, Los Alamos National Laboratory.
54. Anson, D., Barrett, C., Marathe, M. (1995). *Distributed route generation for travelers in TRANSIMS*. Technical Report, LA-UR-96-105, Los Alamos National Laboratory.
55. Barrett, C., Eubank, S., Nagel, K., Rasmussen, S., Riordan, J., Wolinsky, M. (1995). *Issues in the representation of traffic with multiresolution cellular automata*, LA-UR-95-2658, Los Alamos Unclassified Report.
56. Barrett, C., Weisgerber, S. (1989). *Workload Induced Spatio-Temporal Distortions and Safety of Flight: An Investigation of Cognitive Intrusions in Perceptual Processes. Situational Awareness in Aerospace Operations*, NATO, AGARD, Copenhagen, Technical Report, LA-UR-89-2895, Los Alamos National Laboratory.
57. Stokes, J.M., Barrett, C.L. (1988b). *The Modification of AEW-RTAS in a KOALAS Concept Demonstration. Analytics Technical Report 2100.11b*. Warminster, PA: Naval Air Development Center.
58. Stokes, J. M., Barrett, C. L., (1988a). *Incorporating AEW-RTAS in a KOALAS Environment: A concept Demonstration of an Intelligent CICO Workstation. Analytics Technical Report 2100.11a*. Warminster, PA: Naval Air Development Center.

RECENT INVITED PRESENTATIONS

1. Barrett, C. (2022). *Big data analytics in infrastructure planning*. International Symposium for Next Generation Infrastructure (ISNGI) 2022. Rotterdam, Netherlands. Academic Steering Group, Program Committee Member, Panelist. September 7-9, 2022.
2. Barrett, C. (2022). *Anticipating Rare Events of Major Significance: A Workshop Series*. Intelligence Community Studies Board of The National Academies of Sciences, Engineering, and Medicine (NASEM) workshop series 2 of 2 (Sponsored by the U.S. Defense Threat Reduction Agency (DTRA)). Workshop Planning Committee Chair, Moderator. March 2, 2022.
3. Barrett, C. (2021). *The Need for Computational Augmentation to Address Important, Rare Events*. Anticipating Rare Events of Major Significance: A Workshop Series. Intelligence Community Studies Board of The National Academies of Sciences, Engineering, and Medicine (NASEM) workshop series 1 of 2 (Sponsored by the U.S. Defense Threat Reduction Agency (DTRA)). Virtual. Workshop Planning Committee Chair, Moderator. December 17 & 21, 2021.
4. Barrett, C. (2021). *Agents for Information Fusion in Very Large Socially-Coupled Systems: Epidemic Decision-Making Support Analytics*. First International Workshop on Agentization: Rendering Conventional Models with Agent-Based Computing. Proteus Foundation Series on Agents, Networks, & Society. Virtual (George Mason University). September 15-17, 2021.

5. Barrett, C. (2021). *Computational decision support in very large socially-coupled agent systems: what is real?* ODNI Sci-Tech Intelligence Committee Advanced Computing Working Group Forum. Virtual (National Security Agency/Central Security Service, National Intelligence S&T Advanced Computing Working Group). June 15, 2021.
6. Barrett, C. (2021, 2020). *Big data analytics in infrastructure planning*. International Symposium for Next Generation Infrastructure (ISNGI) 2022. Virtual (Rotterdam, Netherlands). Panelist. September 7-9, 2022. Academic Steering Group, Program Committee Member. 2020-2021.
7. Barrett, C. (2020). *Using AI to forecast adverse events in COVID-19 patients*. ICCAI'20 Program, Meaningful AI in the time of COVID. Virtual (Charlottesville, VA.). September 11, 2020.
8. Barrett, C. (2020). *Moving Beyond Sequence Alignment: Mathematical Study of RNA Shape/Sequence Relationships*. Department of Biochemistry and Molecular Genetics Spring 2020 Colloquium. University of Virginia School of Medicine. Charlottesville, VA. March 5, 2020.
9. Barrett, C. (2020). *Provisional Sense-making and Deliberation by Agents in Complex Environments*. Inverse Generative Social Science Workshop. MITRE. McLean, VA. January 23-25, 2020.
10. Barrett, C. (2019). *The Flexibility and Utility of Autonomous Transportation – A Safer More Efficient Model: System-level Analysis of Autonomous Vehicles*. NVTC's Autonomous Technology Summit of Virginia, "All Things Autonomous." Inova Center for Personalized Health. Fairfax, VA. Panelist. November 7, 2019.
11. Barrett, C. (2019). *Infrastructure Investment and Urban Development in the Developing World*. International Symposia for Next Generation Infrastructure (ISNGI). Palacio De Las Aguas. Buenos Aires, Argentina. Panelist, September 20, 2019. Academic Steering Group. September 18-20, 2019.
12. Barrett, C. (2019). *Agency, Awareness and Privacy in the Emerging Psychosocial Information Technology: Who/What studies the systems that study themselves?* Computing for Global Challenges Symposium (C4GC). Biocomplexity Institute at University of Virginia. Charlottesville, VA. July 29, 2019.
13. Barrett, C. (2019). *The Emerging Psychosocial Technology: Decentralized cognition, engineered intelligence and the importance of lying*. Commonwealth Conference on National Defense and Intelligence (CCNDI). Rivanna Station. Charlottesville, VA. June 10, 2019. Poster presented by Barrett, C. and Marathe, M. Security and Reliability of Interdependent Infrastructure Systems.
14. Barrett, C. (2019). *Decentralized Cognition in Naturally Occurring and Engineered Intelligence*. 2019 UVA Brain Symposium. University of Virginia Brain Institute. Claude Moore Medical Education Building, UVA School of Medicine. Charlottesville, VA. May 29, 2019.
15. Barrett, C. (2018). *Rethinking Thinking: Decentralized Intelligence in Networks of Individuals, Technology, Societies and their Data*. Defense One Tech Summit. Washington, D.C. June 26, 2018.
16. Barrett, C. (2018). *Pervasive, Point-of-View, analytics in biosocial systems*. Medical Grand Rounds. Virginia Tech School of Medicine. Roanoke, VA. June 1, 2018.
17. Barrett, C. (2018). *How simulations of artificial societies help planners cope with the unthinkable*. National Alliance for Radiation Readiness Annual Meeting. Washington, D.C. May 15, 2018.
18. Barrett, C., Clancy, C., Tideman, N., Sporny, M., Kogler, B., McBeath, B. (2018). *Panel 1: Decentralization – Generating Trust without Authority*. Blacksburg Blockchain Symposium. Blacksburg, VA. April 20, 2018.
19. Barrett, C. (2017). *National Security and Human Migration, Implications for Policy*. International Refugee Research Workshop. Arlington, VA. October 25, 2017.
20. Barrett, C., Goncalves, B., Marathe, M., Vespignani, A. (Oct 2017) *Panel: Addressing the Daunting Risks of Pandemics*. IMT and CoeGSS Consortium International Conference: Computing Power for Global Challenges, Lucca, Italy. October 24, 2017.

21. Barrett, C. (2017). *Agent based models / Highly scalable applications*. 26th Workshop on Sustained Simulation Performance. Stuttgart, Germany. October 11, 2017.
22. Barrett, C. (2017). *Panel session: Delivery of infrastructure systems and services*. International Symposium for Next Generation Infrastructure (ISNGI) 2017. London, England. September 11, 2017.
23. Barrett, C. (2017). *Defense Threat Reduction Agency Technical Reachback Division- Comprehensive National Incident Management System (CNIMS) Overview*. JTF-CS Interagency Bio Workshop. Fort Eustis, VA. August 29, 2017.
24. Barrett, C. (2017). *CNIMS Overview*. Joint Warfare Analysis Center Meeting. Dahlgren, VA. August 30, 2017.
25. Barrett, C. (2017). *Scalable Interaction Systems*. 18th International Conference on Systems Biology (ICSB 2017). Blacksburg, VA. August 10, 2017.
26. Barrett, C. (2017). *Scalable Models of Massively Interacting Systems for Integrative Science and Applications*. Information Science and Technology Institute (ISTI) Seminar Series, Los Alamos National Laboratory. Los Alamos, NM. May 31, 2017.
27. Barrett, C. (2017). *The Digital Interactum*. United State Innovation Hub Workshop. Embassy of Japan. Washington, D.C. May 12, 2017.
28. Barrett, C. (2017). *Leaving a trace: thinking and deciding in the age of pervasive data*. Complexity-Based Analytics and Policies for Social Good (CAPS 2017). Washington, D.C. April 12, 2017.
29. Barrett, C. (2017). *Data, Agency, and Synthetic Agents*. International Conference on Synthetic Populations. Lucca, Italy. February 2017.

RECENT MEDIA APPEARANCES

1. Bromley, Anne E., *UVA Today* (2022), Public Service Awards: Uva Honors Those Who Built Bridges, Led Pandemic Efforts. https://news.virginia.edu/content/public-service-awards-uva-honors-those-who-built-bridges-led-pandemic-efforts?utm_source=DailyReport&utm_medium=email&utm_campaign=news, May 12, 2022.
2. BII, *Biocomplexity Institute News* (2022), Bold Predictions for a Brave New World. <https://biocomplexity.virginia.edu/news/bold-predictions-brave-new-world>, January 24, 2022.
3. BII, *Biocomplexity Institute News* (2021), Barrett Elected to Esteemed Virginia Academy. <https://biocomplexity.virginia.edu/news/barrett-elected-esteemed-virginia-academy>, October 29, 2021.
4. Cole, M., *UVA Today* (2021), UVA Honors Distinguished Researchers at Virtual Awards Event. <https://news.virginia.edu/content/uva-honors-distinguished-researchers-virtual-awards-event>, January 29, 2021.
5. Holmes, B., *Knowable Magazine* (2020), Virtual agents of change: How computers are mapping COVID-19's future. <https://knowablemagazine.org/article/technology/2020/virtual-agents-change-how-computers-are-mapping-covid19s-future>, December 15, 2020.
6. Basken, P., *The World University Rankings* (2020), US campuses try chiding and suspending students to stay open. <https://www.timeshighereducation.com/news/us-campus-try-chiding-and-suspending-students-stay-open>, August 25, 2020.
7. McPherson, K., *S&P Global Market Intelligence* (2020), UVA Biocomplexity Institute tries to solve puzzle of projecting global pandemic. <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/uva-biocomplexity-institute-tries-to-solve-puzzle-of-projecting-global-pandemic-59733087>, August 4, 2020.

8. Paschall, C., *NBC29.com* (2020), UVA COVID-19 modeling predicts steep spike in virus cases in September. <https://www.nbc29.com/2020/07/28/uva-covid-modeling-predicts-steep-spike-virus-cases-september/>, July 28, 2020.
9. Hausman, S., *radioIQ/wvtf music* (2020), UVA to Lead Study of How Big Data Can Battle Future Pandemics. <https://www.wvtf.org/post/uva-lead-study-how-big-data-can-battle-future-pandemics#stream/0>, June 1, 2020.
10. Paviour, B., *VPM NPR/PBS* (2020), Models Predict Uptick in Cases as Virginia Reopens. <https://vpm.org/news/articles/13635/models-predict-uptick-in-cases-as-virginia-reopens>, May 21, 2020.
11. BII, *Biocomplexity Institute and Initiative* (2020), Biocomplexity Institute Develops COVID-19 Dashboard Projecting Hospital Capacity Scenarios in Virginia. <https://biocomplexity.virginia.edu/biocomplexity-institute-develops-covid-19-dashboard-projecting-hospital-capacity-scenarios-virginia>, May 19, 2020.
12. BII, *Biocomplexity Institute and Initiative* (2020), Governor Northam, University of Virginia Biocomplexity Institute, RAND Corporation Present Infectious Disease Modeling on Impact of COVID-19 Mitigations in Virginia. <https://biocomplexity.virginia.edu/governor-northam-university-virginia-biocomplexity-institute-rand-corporation-present-infectious>, April 14, 2020.
13. Samarrai, F., *UVA Today* (2020), Biocomplexity Institute Researchers Develop Covid-19 Projection Model For Virginia. https://news.virginia.edu/content/biocomplexity-institute-researchers-develop-covid-19-projection-model-virginia?utm_source=DailyReport&utm_medium=email&utm_campaign=news, April 13, 2020.
14. Ziff, Z., *The Cavalier Daily* (2020), Biocomplexity Institute receives \$10 million to model, research pandemics. <https://www.cavalierdaily.com/article/2020/04/biocomplexity-institute-receives-10-million-to-model-research-pandemics>, April 7, 2020.
15. Samarrai, F., *UVA Today* (2020), Biocomplexity Institute Wins \$10M Grant to Thwart Future Pandemics. <https://news.virginia.edu/content/biocomplexity-institute-wins-10m-grant-thwart-future-pandemics>, March 25, 2020.
16. Council, J., *Wall Street Journal* (2020), AI Platform Aims to Help Policy Makers Calibrate Virus Response. <https://www.wsj.com/articles/ai-platform-aims-to-help-policy-makers-calibrate-virus-response-11585042201>, March 24, 2020.
17. BII, *Biocomplexity Institute and Initiative* (2020), NSF Awards Biocomplexity Institute \$10 Million Collaborative Grant for Global Pervasive Computational Epidemiology Project. <https://biocomplexity.virginia.edu/nsf-awards-biocomplexity-institute-10-million-collaborative-grant-global-pervasive-computational>, March 24, 2020.
18. Dusseau, G., *UVA Today* (2020) Trailblazing Statistician Elected to National Academy of Engineering. https://news.virginia.edu/content/trailblazing-statistician-elected-national-academy-engineering?utm_source=DailyReport&utm_medium=email&utm_campaign=news. February 12, 2020.
19. BII, *Biocomplexity Institute and Initiative* (2020) Biocomplexity Institute Appoints Founder of Computational Biology Dr. Michael S. Waterman as Distinguished Institute Professor. <https://biocomplexity.virginia.edu/news/biocomplexity-institute-appoints-founder-computational-biology-dr-michael-s-waterman>. February 10, 2020.
20. Cole, M., *UVA Today* (2020): UVA Honors its Leading Researchers at Boar's Head Banquet. https://news.virginia.edu/content/uva-honors-its-leading-researchers-boars-head-banquet?utm_source=DailyReport&utm_medium=email&utm_campaign=news, January 30, 2020.

21. BII, *Biocomplexity Institute and Initiative* (2020), University at Albany Honors Achla Marathe with 2020 Excellence in Science and Technology Award.
<https://biocomplexity.virginia.edu/news/university-albany-honors-achla-marathe-2020-excellence-science-and-technology-award>. January 7, 2020.