



**Fall 2018**

CSC 211 Intermediate Programming, CSC 754 System Simulation Topics

**Spring 2018**

CSC 429 Advanced High Performance Computing, CSC 450 Honor's Workshop

**Fall 2017**

CSC 429 Advanced High Performance Computing, CSC 450 Honor's Workshop

**Spring 2017**

CSC 229 Introduction to High Performance Computing, CSC 754 System Simulation Topics

**Fall 2016**

CSC 229 Introduction to High Performance Computing, CSC 429 Advanced High Performance Computing

**Spring 2016**

CSC 211 Intermediate Programming, CSC 229 Introduction to High Performance Computing

**Fall 2015**

CSC 429 Advanced High Performance Computing

**Spring 2015**

CSC 229 Introduction to High Performance Computing, CSC 450 Honor Workshop, CSC 754 System Simulation Topics

**Spring 2014**

CSC 229 Introduction to High Performance Computing, CSC 770 Parallel Computing

**Fall 2013**

CSC 429 Advanced High Performance Computing

*Voorhees College, Denmark*

**Spring 2013**

CMP 333 Computer Architecture II, CMP 420 Operating Systems, CMP 449 Senior Seminar I, CMP 450 Senior Seminar II

**Fall 2012**

CMP 333 Computer Architecture I, CMP 410 Data Structures and Algorithms, CMP 449 Senior Seminar I

**Spring 2012**

CMP 130 Introduction to Computer Concepts, CMP 334 Computer Architecture II, CMP 420 Operating Systems, CMP 450 Senior Seminar II

**Fall 2011**

CMP 130 Introduction to Computer Concepts, CMP 333 Computer Architecture I, CMP 410 Data Structures and Algorithms, CMP 449 Senior Seminar I

**Spring 2011**

CMP 130 Introduction to Computer Concepts, CMP 420 Operating Systems, CMP 450 Senior Seminar II

**Fall 2010**

CMP 130 Introduction to Computer Concepts, CMP 410 Data Structures and Algorithms, CMP 449 Senior Seminar I

*Georgia State University, Atlanta*

**Summer 2009**

CSC 3320 System Level Programming

**Spring 2009**

CSC 1310 Introduction to Computer Programming Non-major  
(Python)

**Fall 2007**

CSC 1010 Computers and Applications

## WORKING EXPERIENCES

*College of Staten Island, Staten Island, NY*

*CUNY Graduate Center, New York, NY*

**Associate Professor of Computer Science**

**August 2019 – Present**

*College of Staten Island, Staten Island, NY*

*CUNY Graduate Center, New York, NY*

**Assistant Professor of Computer Science**

**August 2013 – July 2019**

*Voorhees College, Denmark, South Carolina*

**Chair, Department of Computer Science and Mathematics**

**August 2012 – July 2013**

**Assistant Professor of Computer Science**

**August 2010 – July 2013**

*Higher Education Press, Beijing, China*

**Development Editor**

**April 2003 – July 2006**

*China Research Coal Institute, Nanjing, China*

**Assistant Engineer**

**August 1998 – August 2000**

## PUBLICATIONS

### REFEREED ARTICLES

1. Zhong, W., and **Gu, F.** Predicting local protein 3D structures using clustering deep recurrent neural network. *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, 2020.
2. Hou, Y., Hao, G.-S., Zhang, Y., **Gu, F.**, Wang, X., and Zhang, T. T. A molecular interactions-based social learning particle swarm optimization algorithm. *IEEE Access*, 8: 135661-135674, 2020.
3. Zhong, Wei, and **Gu, F.** A multi-level deep learning system for malware detection. *Expert Systems with Applications*, 133: 151-162, 2019.
4. **Gu, F.** On-demand data assimilation of large-scale spatial temporal systems using sequential Monte Carlo methods. *Simulation Modelling Practice and Theory*, Elsevier, 85: 1-14, 2018.

5. Dai, M., He, W., Tian, X., Giraldi, A.M., and **Gu, F.** Working with communities on social media: varieties in the use of Facebook and Twitter by local police, *Online Information Review*, Emerald Publishing, 41(6): 782-796, 2017. (Outstanding Paper in the 2018 Emerald Literati Awards)
6. Yu, N., Yu, Z., **Gu, F.**, Li, T., Tian, X., and Pan, Y. Deep learning in genomic and medical image data analysis: challenges and approaches, *Journal of Information Processing Systems*, 13(2): 204-214, KIPS, 2017.
7. **Gu, F.** Localized recursive spatial-temporal state quantification method for data assimilation of wildfire spread simulation, *SIMULATION: Transactions of The Society for Modeling and Simulation International*, 93(4): 343-360, SAGE Publishing, 2017.
8. Yu, N., Guo, X., **Gu, F.**, and Pan, Y. Signalign: An ontology of DNA as signal for comparative gene structure prediction using information-coding-and-processing techniques, *IEEE Transactions on NanoBioscience*, 15(2): 119-130, IEEE, accepted, 2016.
9. Yu, N., Yu, Z., Li, B., **Gu, F.**, and Pan, Y. A comprehensive review of emerging computational methods for gene identification, *Journal of Information Processing Systems*, 12(1): 1-34, KIPS, 2016.
10. Bai, F., **Gu, F.**, Hu, X., and Guo, S. Particle routing in distributed particle filters for large-scale spatial temporal systems, *IEEE Transactions on Parallel and Distributed Systems*, 27(2): 481-493, IEEE, 2016.
11. Wu, S., Zhang, P., Li, F., **Gu, F.**, and Pan, Y. A hybrid discrete particle swarm optimization-genetic algorithm for service-oriented manufacturing systems, *Journal of Central South University*, 23: 421-429, Springer, 2016.
12. **Gu, F.**, and Wang, X. Analysis of allele specific expression--a survey, *Tsinghua Science and Technology*, 20(5): 513-529, IEEE Xplore, 2015.
13. Yu, N., Guo, X., **Gu, F.**, and Pan, Y. DNA as X: an information-coding-based model to improve comparative gene analysis, *Lecture Notes in Computer Science*, 9096: 366-377, Springer, 2015.
14. Ai, C., Zhong, W., Yan, M., and **Gu, F.** A partner-matching framework for social activity communities. *Computational Social Networks*, 2014 1:5: 1-12, Springer, 2014.
15. Guo, X., Yu, N., **Gu, F.**, Ding, X., Wang, J., and Pan, Y. Genome-wide interaction-based association of human diseases — a survey. *Tsinghua Science and Technology*, 19(6): 596-616, IEEE Xplore, 2014.
16. Ai, C., Zhong, W., Yan, M., and **Gu, F.** Partner matching applications of social networks. *Computing and Combinatorics, Lecture Notes in Computer Science 8591*: 647-656, Springer, 2014.
17. Zheng, X., and **Gu, F.** Fast Fourier transform on FCC and BCC lattices with outputs on FCC and BCC lattices respectively, *Journal of Mathematical Imaging and Vision*, 49(3): 530-550, Springer, 2014.
18. Yan, X., **Gu, F.**, Hu, X., and Pan, Y. Dynamic formation control for autonomous underwater vehicles, *Journal of Central South University*, 21:113-123, Springer, 2014.

19. Xue, H., **Gu, F.**, and Hu, X. Data assimilation using sequential Monte Carlo methods in wildfire spread simulation, *ACM Transactions on Modeling and Computer Simulation*, 22(4), ACM, 2012.
20. **Gu, F.**, Hu, X. Analysis and quantification of data assimilation based on sequential Monte Carlo methods for wildfire spread simulation, *International Journal of Modeling, Simulation, and Scientific Computing*, 2010 (4): 445-468, World Scientific, 2010.
21. **Gu, F.**, Lu, T. The study and implementation of web-based office automation. *Journal of Beijing Institute of Machinery*, vol. 17, No.3, 2002.

## REFEREED PROCEEDINGS

1. Zhang, X., Xiao, J., Gong, Y., Yu, N., Zhang, W., Jang, S., and **Gu, F.** Handling the missing data problem in electronic health records for cancer prediction, MSM 2020, 2020 Spring Simulation Multi-Conference, 57: 1-9, 2020.
2. Zhang, X., and **Gu, F.** Adaptive particle sampling and resampling parallel/distributed particle filters, HPC 2019, 2019 Spring Simulation Multi-Conference, 2019.
3. Zhang, X., Xiao, J., and **Gu, F.** Applying support vector machine to electronic health records for cancer classification, MSM 2019, 2019 Spring Simulation Multi-Conference, 2019.
4. Zhang, X., Mohamed, A., Nguyen, L., and **Gu, F.** Performance analysis of parallel/distributed particle filters, TMS/DEVS 2018, 2018 Spring Simulation Multi-Conference, 761-771, 2018. (**TMS/DEVS 2018 best paper award**)
5. Yu, N., Yu, Z., **Gu, F.**, and Pan, Y. Evaluating the impact of encoding schemes on deep auto-encoders for DNA annotation, 13th International Symposium on Bioinformatics Research and Applications (ISBRA 2017), 390-395, 2017.
6. Zhang, X., Huang, L., Ferguson-Hull, E., and **Gu, F.** Adaptive particle routing in parallel/distributed particle filters, HPC 2017, 2017 Spring Simulation Multi-Conference, 580-589, 2017.
7. Liao, S., Xiao, J., Xie, Y., and **Gu, F.** Towards use of electronic health records: Cancer classification, MSM 2017, 2017 Spring Simulation Multi-Conference, accepted, 2017.
8. **Gu, F.**, Syeda, R., and Ai, C. Geo-referenced image data assimilation for wildfire spread simulation, ANSS 2016, 2016 Spring Simulation Multi-Conference, 78-85, 2016.
9. Xie, X., Verbraeck, A., and **Gu, F.** Data assimilation in discrete event simulations-A rollback based sequential Monte Carlo approach, TMS/DEVS 2016, 2016 Spring Simulation Multi-Conference, 522-529, 2016.
10. **Gu, F.**, Butt, M., Ai, C., Shen, X., and Xiao, J. Adaptive particle filtering in data assimilation of wildfire spread simulation, 2015 Summer Simulation Multi-Conference, 159-168, 2015.
11. **Gu, F.** Adaptively perturbing localized state space in data assimilation of wildfire spread simulation, ANSS 2015, Spring Simulation Multi-Conference 2015, 254-263, 2015. (**ANSS best paper runner-up**)
12. Yu, N., **Gu, F.**, Guo, X., and He, Z. A Fine-grained flow control model for cloud-assisted data broadcasting, 18th CNS, Spring Simulation Multi-Conference 2015, 324-331, 2015.

13. Yan, X., **Gu, F.**, Hu, X., and Engstrom, C. Dynamic data driven event reconstruction for traffic system using sequential Monte Carlo methods, 2013 Winter Simulation Conference, 2042-2053, 2013.
14. **Gu, F.**, Hu, X. Analysis of sequential Monte Carol methods in dynamic data driven simulation of wildfire, Huntsville Simulation Conference 2010.
15. Yan, X., **Gu, F.**, Hu, X., Guo, S. A dynamic data driven application system for wildfire spread simulation, Proc. 2009 Winter Simulation Conference (WSC'09), 2009.
16. Yan, X., Chen, B., Qian, H., **Gu, F.**, Hu, X. A handover scheme for subnet mobility in heterogeneous networks. World Conference on Engineering, 2009.
17. **Gu, F.**, Yan, X., Hu, X. State estimation using particle filters in wildfire spread simulation. Proc. 42nd Annual Simulation Symposium (ANSS), 2009.
18. **Gu, F.**, Hu, X. Towards applications of particle filter in wildfire spread simulation. Proc. 2008 Winter Simulation Conference (WSC'08), 2008.
19. **Gu, F.**, Hu, X., Ntaimo, L. Towards validation of DEVS-FIRE wildfire simulation model. Proc. High Performance Computing and Simulation Symposium (HPCS08), part of SpringSim'08, 2008.

## PROFESSIONAL ACTIVITIES

*Peer Reviewer for the following journals and conferences*

1. Smart Science
2. Mathematical Problems in Engineering
3. Big Data and Analytics
4. IEEE Access
5. IEEE Transactions on Parallel and Distributed Systems
6. Expert Systems with Applications
7. Concurrency and Computation
8. Personal and Ubiquitous Computing
9. International Journal of Simulation and Process Modelling
10. Physica A
11. IEEE Transactions on Neural Networks and Learning Systems
12. IEEE INFOCOM 2017
13. Tsinghua Science and Technology
14. Transactions on Spatial Algorithms and Systems
15. IEEE INFOCOM 2016
16. Engineering Application of Artificial Intelligence
17. Symposium on Theory of Modeling and Simulation (TMS/DEVS) 2015
18. IEEE INFOCOM 2015
19. IEEE/ACM Transactions on Computational Biology and Bioinformatics
20. IEEE INFOCOM 2014
21. ACM Transaction on Modeling and Computer Simulation
22. Symposium on Theory of Modeling and Simulation (TMS/DEVS) 2013
23. Intelligent Agent Technology 2013
24. 26th ACM/IEEE/SCS Workshop on Principles of Advanced and Distributed Simulation (PADS 2012)

25. 9th International Conference on Modeling, Optimization and SIMulation (MOSIM 2012)
26. International Journal of Agent Technologies and Systems
27. Simulation: Transactions of the Society for Modeling and Simulation International
28. International Journal of Modeling, Simulation, and Scientific Computing
29. International Journal of Knowledge and Systems Science
30. Agent-Directed Simulation Symposium 2011 (ADS 2011)
31. Huntsville Simulation Conference 2010

*Member of Scientific Working Group Board of SC EPSCoR/IDeA*

*Demo/Exhibition Co-Chair of The 36th IEEE Sarnoff Symposium*

*Demo/Exhibition Co-Chair of The 38th IEEE Sarnoff Symposium*

*Technical Program Committee and Session Chair*

1. Artificial Intelligence for Industries 2020 (ai4i 2020), TPC
2. 2020 International Symposium on Neural Computing and Applications (ISNCA 2020), TPC
3. 2020 2nd International Conference on Information Technology and Computer Communications (ITCC 2020), TPC
4. 2020 the 3rd International Conference on Computing and Big Data (ICCBD 2020), TPC
5. 2020 3rd Artificial Intelligence and Cloud Computing Conference (AICCC 2020), TPC
6. 2020 The 4th International Conference on E-Business and Internet (ICEBI 2020), TPC
7. 2020 International Conference on Electronics, Communications and Information Technology (CECIT 2020), TPC
8. 2020 2nd International Conference on Advanced Information Science and System (AISS 2020), TPC
9. 2020 3rd International Conference on Data Science and Information Technology (DSIT 2020), TPC
10. 2020 International Conference on Big Data Engineering (BDE 2020), TPC
11. 2020 International Conference on Computing, Networks, and Internet of Things (CNIOT 2020), TPC
12. 2020 5th International Conference on Big Data and Computing (ICBDC 2020), TPC
13. 2020 International Conference on Big Data and Education (ICBDE 2020), TPC
14. 2020 the 3rd International Conference on Big Data Management (ICBDM 2020), TPC
15. The 5th IEEE International Conference on Cloud Computing and Big Data Analysis (ICCCBDA 2020), TPC
16. Artificial Intelligence for Industries 2019 (ai4i 2019), TPC
17. 2019 2nd Artificial Intelligence and Cloud Computing Conference (AICCC 2019), TPC

18. 2019 International Conference on Advanced Information Science and System (AISS 2019), TPC
19. 2019 International Conference on Big Data Engineering (BDE 2019), TPC
20. 2019 International Conference on Information Technology and Computer Communications (ITCC 2019), TPC
21. The 2nd International Conference on Computing and Big Data (ICCBD 2019), TPC
22. 2019 4th International Conference on Big Data and Computing (ICBDC 2019), TPC
23. 2019 International Conference on Big Data and Education (ICBDE 2019), TPC
24. The 4th IEEE International Conference on Cloud Computing and Big Data Analysis (ICCCBDA 2019), TPC
25. The 3rd International Conference on Cloud and Big Data Computing (ICCBDC 2019), TPC
26. The 3rd IEEE International Conference on Cloud Computing and Big Data Analysis (ICCCBDA 2018) , TPC
27. The Fourth International Workshop on Mobile Cloud Computing Systems, Management, and Security (MCSMS 2018), TPC
28. First IEEE International Conference on Artificial for Industries (IEEE AI4I 2018), TPC
29. Tools with Artificial Intelligence (ICTAI), 2018 IEEE 30th International Conference on (IEEE ICTAI 2018), TPC
30. Winter Simulation Conference 2018 (WSC 2018), TPC
31. Annual Simulation Symposium 2018 (ANSS 2018), TPC
32. International Conference on Cloud and Big Data Computing (ICCBDA 2018), TPC
33. Tools with Artificial Intelligence (ICTAI), 2017 IEEE 29th International Conference on (IEEE ICTAI 2017), TPC
34. Winter Simulation Conference 2017 (WSC 2017), TPC
35. The 2nd IEEE International Conference on Cloud Computing and Big Data Analysis (ICCCBDA 2017), TPC
36. International Conference on Cloud and Big Data Computing (ICCBDC 2017), TPC
37. Annual Simulation Symposium (ANSS 2017), TPC
38. Symposium on Theory of Modeling and Simulation 2017 (TMS/DEVS 2017), TPC
39. The 6th IEEE International Conference on Big Data and Cloud Computing (BDCloud 2016), TPC
40. Tools with Artificial Intelligence (ICTAI), 2016 IEEE 28th International Conference on (IEEE ICTAI 2016), TPC
41. 13th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA 2016), TPC
42. The 1st International Workshop on Dew Computing (DEWCOM 2016), TPC
43. Annual Simulation Symposium 2016 (ANSS 2016), TPC
44. Symposium on Theory of Modeling and Simulation 2016 (TMS/DEVS 2016), TPC
45. Winter Simulation Conference 2015 (WSC 2015), TPC
46. 3rd International IMB Cloud Academy Conference 2015 (ICACON 2015), TPC



47. 5th International Conference on Simulation and Modeling Methodologies, Technologies and Applications (SIMULTECH 2015), TPC
48. Symposium on Theory of Modeling and Simulation 2015 (TMS/DEVS 2015), TPC and session chair
49. 4th International Conference on Simulation and Modeling Methodologies, Technologies and Applications (SIMULTECH 2014), TPC
50. Winter Simulation Conference 2014 (WSC 2014), TPC
51. ACM Southeast Conference 2014 (ACMSE 2014), TPC and session chair

## PRESENTATIONS

1. Dynamic data driven application system for wildfire spread simulation, Changsha University of Science & Technology, Changsha, Hunan, China, July 3, 2018.
2. Performance analysis of parallel/distributed particle filters, 2018 Spring Simulation Multi-Conference, Baltimore, MD, April 15-18, 2018.
3. Evaluating the impact of encoding schemes on deep auto-encoders for DNA annotation, 13th International Symposium on Bioinformatics Research and Applications (ISBRA 2017), Honolulu, Hawaii, May 29 to June 2, 2017.
4. Adaptive particle routing in parallel/distributed particle filter, 2017 Spring Simulation Multi-Conference, Virginia Beach, VA, April 23-26, 2017.
5. Towards use of electronic health records: cancer classification, 2017 Spring Simulation Multi-Conference, Virginia Beach, VA, April 23-26, 2017.
6. Geo-referenced image data assimilation for wildfire spread simulation, 2016 Spring Simulation Multi-Conference, Pasadena, CA, April 3-6, 2016.
7. Dynamic data driven application system for wildfire spread simulation, Guangdong University of Petrochemical Technology, Maoming, Guangdong, China, January 8, 2016.
8. Adaptive particle filtering in data assimilation of wildfire spread simulation, 2015 Summer Simulation Multi-Conference, Chicago, IL, July 26-29, 2015.
9. A fine-grained flow control model for cloud-assisted data broadcasting, 2015 Spring Simulation Multi-Conference, Alexandria, VA, April 12-15, 2015.
10. Adaptively perturbing localized state space in data assimilation of wildfire spread simulation, 2015 Spring Simulation Multi-Conference, Alexandria, VA, April 12-15, 2015.
11. Dynamic data driven application system for wildfire spread simulation, Beijing Normal University Zhuhai, Zhuhai, China, June 2014.
12. Dynamic data driven application system for wildfire spread simulation, Civil Aviation University of China, Tianjin, China, June 2014.
13. Dynamic data driven application system for wildfire spread simulation, Tianjin University, Tianjin, China, December 2013.
14. Dynamic data driven event reconstruction for traffic system using sequential Monte Carlo methods, 2013 Winter Simulation Conference (WSC'13), Washington, D.C., December 8-11, 2013.
15. Dynamic data driven application system for wildfire spread simulation, Jiangsu Normal University, Xuzhou, Jiangsu, China, December 2012.
16. A dynamic data driven application system for wildfire spread simulation, 2009 Winter Simulation Conference (WSC'09), Austin, TX, December 13-26, 2009.

17. State estimation using particle filters in wildfire spread simulation, 42nd Annual Simulation Symposium (ANSS), San Diego, CA, March 22-27, 2009
18. Towards applications of particle filter in wildfire spread simulation, 2008 Winter Simulation Conference, Miami, FL, December 7-10, 2008.
19. Towards validation of DEVS-FIRE wildfire simulation model, HPCS 2008, Ottawa, Canada, April 14-16, 2008.

## EXTERNAL GRANTS

- Applying Artificial Intelligence to Person-Based Policing Practices, **National Institute of Justice**, **co-PI**, \$563,411, 2019-2022.
- An Integrated Agent-Based Model with Geographic Information System of Childhood Obesity in the Urban Communities in New York City, CUNY-IRG, **co-PI**, \$40,000, 2018-2019.
- Exploring Introduction of High Performance Computing and Big Data in High Schools, **NSF**, **co-PI**, \$50,000, 2018-2019
- Integrating NSF/IEEE-TCPP Curriculum Initiative on PDC to Software Engineering Course System at Beijing Normal University Zhuhai, NSF/IEEE, **co-PI**, \$2,000, 2014-2015.
- Integrating NSF/TCPP Curriculum Initiative on PDC into Undergraduate Courses at Guangdong University of Petrochemical Technology, NSF/IEEE, **co-PI**, \$2,000, 2014-2015.
- Enhance Parallel and Distributed Computing Teaching by Infusing NSF/IEEE-TCPP Curriculum Initiative into the Existing Courses and Developing a New Course, NSF/IEEE, **co-PI**, \$2,500, 2014-2015.
- Research Initiation Award: Spatial-temporal Information Fusion and Real-time Sensor Data Assimilation Using Sequential Monte Carlo Methods, **NSF**, **PI**, \$199,884, 2013-2015.
- Experimentally Guided In-silico Analysis of Cellular Aggregate Fusion in Bioprinting, Grants for Exploratory Academic Research, South Carolina EPSCoR/IDeA, **co-PI**, \$100,000, 2013-2014.
- Modeling and Simulation of Fusion and Phase Evolution in Biofabrication Processes, Grants for Exploratory Academic Research, South Carolina EPSCoR/IDeA, **co-PI**, \$85,000, 2011-2012.