

Abhishek Parakh

Curriculum Vitae

Contact Information

Position	Director of the Computer Science PhD Program Professor of Computer Science Kennesaw State University
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Education

2008 – 2011	PhD in Computer Science, Oklahoma State University, Stillwater, OK <i>Dissertation Title: New information dispersal techniques for trustworthy computing, Advisor: Subhash Kak</i>
2005 – 2007	MS in Electrical Engineering, Louisiana State University, Baton Rouge, LA
2001 – 2005	BTech in Electronics and Communications Engineering, National Institute of Technology, Jalandhar, Punjab, India

Academic Appointments

2024 –	Professor of Computer Science, Kennesaw State University (KSU)
2022 – 2024	Associate Professor of Computer Science, Kennesaw State University (KSU)
2017 – 2022	Associate Professor of Cybersecurity, University of Nebraska Omaha (UNO) Mutual of Omaha Distinguished Chair of Information Science and Technology (2022)
2011 – 2017	Assistant Professor of Cybersecurity, University of Nebraska Omaha

Leadership Roles

Present	Director of the Computer Science PhD Program at Kennesaw State University I was brought in to set up this new PhD program in 2022. Some of the responsibilities include setting up policies, milestones, curriculum, strategic plan, advertising strategy, etc. The program has experienced a 6x growth from 2022 to 2024 in part due to new sources of student funding put in place. Some of the specific initiatives/activities undertaken at KSU: (1) Increase sources of student support – GTAs in addition to GRAs, (2) Support student success in the program through travel grants and student awards, (3) Implement student and faculty support structures for production of high-quality PhD graduates (e.g. advocate for equipment support/research spaces for PhD students; opportunity for development of student leaders), (4) Coordinate comprehensive (qualifying) examination, (5) Advertise the PhD program and recruit students through regularly held information sessions, (6) Develop new marketing material for the CS PhD program including photoshoots, (7) Coordinate ACC meetings, liaison with graduate college, and other university leadership, (8) Coordinate PhD admissions and application reviews,
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develop rubrics, and process, (9) Coordinate a new strategy with the departments and CCSE for student-faculty match, (10) Address student and faculty complaints and concerns, make recommendations and coordinate resolutions with the administration, (11) Organize new PhD student orientation and reception, (12) Oversee the development of critical milestones for CS PhD program, for example the comprehensive exam model and timeline, annual review criterion, rubrics, and timeline, and (13) started monthly CS PhD student seminars and networking opportunities for internships.

2/2022 – Director of Nebraska University Center for Cybersecurity (NebraskaCYBER).
8/2022 Although, I was officially appointed Director of the Center only in Feb of 2022, I was fulfilling many of the responsibilities as the Chair of the cybersecurity program since 2014.

CAE related responsibilities: (1) Apply for and maintain CAE CD and CO designations - ABET like process - curriculum map, new courses, program assessment, graduate and enrollment rates, organize and encourage extracurricular and outreach activities, continuous improvement plan, add degrees, certificates, concentrations, UNO's security policies and procedures, organize Curriculum Advisory Committee, work with other departments – mathematics, political science, CS and MIS to update their courses, establish transfer of credit agreements with community colleges, prepare and submit annual reports to NSA, (2) Participate in working groups to update CAE CD and CAE CO criterion, (3) Participate in education and cyber-awareness activities at national level through CAE tech talks and forums, CAE principal's meetings – monthly and adhoc, annual CAE community symposium, NICE symposium, NCS summit, and CISSE conference, (6) Regularly communicate with the CAE program manager's office, the CAE community, the CAE regional resource center, (7) Maintain active participation in CAE community through mentorship of other colleges and universities, (8) Participate in CAE application reviews.

2017 – *Director/Founding Principal for the Center for Academic Excellence in Cyber Operations* at UNO. It is most elite designation given by the National Security Agency (NSA) to a program. This has allowed for a fast-track prioritized pathway for our students in jobs and internships at the NSA and other government agencies such as the FBI and DoD. It led to 100% increase in enrollment.
Same responsibilities listed above for NebraskaCYBER Director but pertaining to CAE CO designation.

2014 – *Director/Principal for the Center for Academic Excellence in Cyber Defense Education* at UNO. The most widely applicable designation is aimed at building nations workforce for the government as well as the private sectors. This designation has been instrumental in our Scholarship for Service (SFS) grant from the NSF totaling over \$6 million.
Same responsibilities listed above for NebraskaCYBER Director but pertaining to CAE CO designation.

2014 – *Chair of the Undergraduate Cybersecurity Program* at UNO. I introduced
2022 cybersecurity minor, cyber operations track, cybersecurity concentrations in other

departments, formation of the curriculum advisory board from industry and community partners and created the cybersecurity assessment plan. I started the cybersecurity dual enrollment program at numerous high schools in the Omaha metropolitan area.

Responsibilities included: (1) Conducting monthly UPC meetings, (2) Set strategic direction of the cybersecurity program (adding new courses, gap analysis, new concentrations, etc.), (3) Support summer high-school intern program, (4) Support the cybersecurity dual enrollment program in high-schools, (5) Host open houses for cybersecurity labs, VIP visits and tours, high-school field trips, and engagement with community for capstone projects, (6) Support the cybersecurity hacking club (Nullify), (7) Set up articulation agreement with other universities for student transfer. I led the addition of the online BS in Cybersecurity degree, negotiated course development grants, created a 5-year integrated MS in Cybersecurity degree, and added a minor in cybersecurity.

External Funding

Over \$7 million in funding from federal, state, industry, and private sources. (\$3.5 million pending proposal.)

2023 –	PI, QUINTET: Quantum Internet Education and Training Synthesizer, National Science Foundation (NSF)	\$399,847
2022 –	PI, QUARCEL: Quantum Resistant Cryptography Education Labs (Post-Quantum Cryptography), NSA/Towson	\$105,584
2022 –	PI, Quark: An Intelligent Adaptive Education Platform for Quantum Cybersecurity, University of Nebraska Collaboration Initiative	\$149,397
2018 – 2024	Co-PI, Scholarship for Service (SfS), National Science Foundation	\$2,170,960
2019 – 2022	PI, Indo-US Partnership 2020: Cybersecurity Consortium, US Department of State	\$113,908
2017 – 2019	PI, Quantum Cryptography Laboratories, National Security Agency (NSA)	\$184,085
2016 – 2020	PI, QuaSim: A Virtual Interactive Quantum Cryptography Educator, National Science Foundation	\$306,037
2012 – 2018	Co-PI, Scholarship for Service (SfS), National Science Foundation	\$1,808,585
2016	Co-PI, GenCyber Camp, NSF/NSA	\$63,667
2013	Co-PI, Wearable Wireless Mobility Monitoring System for Fall Prediction and Activity Classification, NASA	\$18,000
2011 – 2013	Researcher, Cybersecurity of Critical Control Networks, DoD/AFOSR	\$1,700,000
2012 – 2013	PI, Assessment of Box.com for Deployment in Enterprise Environment, The Interpublic Group of Companies, Inc. (IPG)	\$8,800

Journal Reviewer (Selected)

Nature, Quantum Information Processing, IEEE Access, Associate Editor: Computer and Electrical Engineering, Elsevier, Managing Guest Editor: Computer and Electrical Engineering, Elsevier, 2016, Managing Guest Editor: International Journal of Security and Networks, Inderscience, 2016, Journal of Ad Hoc and Ubiquitous Computing, EURASIP Journal on Information Security, Springer, Wireless

Personal Communications, Springer, IET Information Security, IEEE Transactions on Circuits and Systems for Video Technology, Journal of Computer Science and Technology, IEEE Transactions on Information Forensics and Security, Cryptologia, Taylor & Francis, International Journal of Computer Mathematics, Taylor & Francis, Information Sciences, Elsevier, Computers and Mathematics with Applications, Elsevier, Security and Communication Networks, Wiley, Journal of Systems and Software, Elsevier, Information Processing Letters, Elsevier.

Other Service to Profession (Selected)

Workshop General Chair ICCCN 2015; Workshop Chair (QuantumCom 2021, MobiSPT 2014, 2016, 2017, 2018, 2019); reviewer for applications for NSA's Center for Academic Excellence in Cyber Operations, 2017 – present; mentor for Universities wishing to join NSA's Cyber Operations program; member of taskforce to revise Knowledge Units and Evaluation criterion for the NSA's Center for Academic Excellence in Cyber Operations and Cyber Defense programs; Associate Editor, The Journal of the Colloquium, CISSE, 2021 – present; ACM SE, PhD Symposium Chair for 2024; Several NSF education, research, and scholarship panels.

Refereed Publications

Quantum Information

1. Jha, N., Parakh, A., and Subramaniam, A ML Based Approach to Quantum Augmented HTTP Protocol, IEEE International Conference on Quantum Computing and Engineering (QCE24), Sep 15-20, 2024.
2. Jha, N., Parakh, A., and Subramaniam, M., Effect of noise and topologies on multi-photon quantum protocols, to appear in SPIE Photonics West, January 2024.
3. Burr, J., Parakh, A. and Subramaniam, M., Quantum Internet, Volume 2022, August (2022), Pages 1-14, ACM Ubiquity, <https://dl.acm.org/doi/10.1145/3547493>.
4. Mishra, S., Thapliyal, K., Parakh, A. et al. Quantum anonymous veto: a set of new protocols. EPJ Quantum Technol. 9, 14 (2022). <https://doi.org/10.1140/epjqt/s40507-022-00133-2> (ARXIV: <https://arxiv.org/abs/2109.06260>).
5. Burr, J., Parakh, A. and Subramaniam, M. Evaluating different topologies for multi-photon quantum key distribution (2022). SPIE Defense + Commercial Sensing, April 6, 2022, Orlando, FL.
6. Parakh, A., Subramaniam, M. Network routing protocols for multi-photon quantum cryptography, Proceedings Volume 11835, Quantum Communications and Quantum Imaging XIX; 118350L, August 2021.
7. Parakh, A., and Subramaniam, M., Bootstrapped QKD: improving key rate and multiphoton resistance, SPIE Security + Defence: Quantum Technologies and Quantum Information Science, Berlin, September 10-13, 2018.
8. Parakh, A., Using fewer qubits to correct errors in three-state QKD protocol, SPIE Security + Defence: Quantum Technologies and Quantum Information Science, Berlin, September 10-13, 2018.
9. Parakh, A., Providing variable levels of security in quantum cryptography, SPIE Conference 10771: Quantum Communications and Quantum Imaging XVI, San Diego, August 20-22, 2018.
10. Noles, S. and Parakh, A., Position-Based Quantum Cryptography for Multi-located Prover and Single Verifier (poster), 7th International Conference on Quantum Cryptography (QCrypt 2017), Cambridge, UK September 18-22, 2017.

11. Joel vanBrandwijk, J. and Parakh, A. (2016) Simulating security of quantum protocols under channel error conditions, Proceedings of 6th International Workshop on Privacy, Security and Trust in Mobile and Wireless Systems, Hawaii, Aug 4, 2016.
12. Parakh, A. and Joel vanBrandwijk, J. (2016) Correcting rotational errors in three stage QKD, 23rd IEEE International Conference on Telecommunication (ICT 2016), Thessaloniki, Greece, May 16-18, 2016.
13. Parakh, A. and Joel vanBrandwijk, J. (2016) Rotational error correction in three stage QKD, Poster at IEEE Communication Theory Workshop (CTW 2016), Nafplio, Greece, May 15-18, 2016.
14. Parakh, A. (2015) A new protocol for quantum public-key cryptography, IEEE International Conference on Advanced Networks and Telecommunications Systems, Dec 15-18, 2015.
15. Parakh, A. (2015) Quantifying the security of a QKD protocol, IEEE International Conference on Advanced Networks and Telecommunications Systems, Kolkata, Dec 15-18, 2015.
16. Parakh, A. (2015) Quantum teleportation for key-less cryptography. Quantum information and computation XIII, 950005, SPIE 9500, DSS 2015.
17. Sayonha, M. and Parakh, A. (2015) Implementing Diffie-Hellman key exchange using quantum EPR pairs. Quantum information and computation XIII, 950006, SPIE 9500, DSS 2015.
18. Subramaniam, P. and Parakh, A. (2014) Limits on detecting eavesdropper in QKD protocols. IEEE ANTS 2014, New Delhi, India.
19. Subramaniam, P. and Parakh, A. (2014) A quantum Diffie-Hellman protocol using commuting transformations. IEEE ANTS 2014, New Delhi, India.
20. Nelson, D. and Parakh, A. (2014) Quantum Cryptography: Opportunities and Challenges. 6th Central Area Networking and Security Workshop, Oct 25-26, 2014, Lawrence, KS.
21. Subramaniam, P. and Parakh, A. (2014). A quantum Diffie-Hellman protocol, In proceedings of the 11th IEEE Conference on Mobile Ad and Sensor Systems, (IEEE MASS 2014).
22. Parakh, A. and Verma, P. (2014) Improving the efficiency of entanglement based quantum key exchange, Proceedings of 23rd IEEE International Conference on Computer Communication and Networks (IEEE ICCCN 2014), pages 1-6, August 4-7, 2014, Shanghai, China.
23. Parakh, A. (2013). A quantum oblivious transfer protocol, Proceedings SPIE 8832, The Nature of Light: What are Photons? V, 883204 (October 1, 2013), San Diego, CA.

Innovating Education Technology

24. Parakh, A. and Subramaniam, M., QUINTET: An Experiential Learning Platform for Quantum Education, Quantum Science and Engineering Education Conference (QSEEC24) track of IEEE International Conference on Quantum Computing and Engineering (QCE24), Sept 15-20, 2024.
25. Bommanapally, V., Subramaniam, M. and Parakh, A., Embedding a Problem Graph into Serious Games for Efficient Traversal Through Game Space, in 2023 IEEE Frontiers in Education Conference (FIE), College Station, TX, USA, pp. 1-5, October 2023.
26. Mallipeddi, R., Schaaf, C., Subramaniam, M., Parakh, A. and Weitz-Harms, S., A Framework for an Intelligent Adaptive Education Platform for Quantum Cybersecurity, 2023 IEEE Frontiers in Education Conference (FIE), College Station, TX, USA, pp. 1-5, Oct 2023.
27. Parakh, A., Subramaniam, M., Chundi, P., A Framework for Incorporating Serious Games into Learning Object Repositories through Experiential Learning, HICSS-55, January 2022 [**Best Paper Award Nominee**].
28. Parakh, A. and Subramaniam, M., Galore: A Platform for Experiential Learning. The Colloquium for Information Systems Security Education, CISSE 2021 [**Innovation Award**].

29. Parakh, A., Bommanapally, V., Chundi, P., and Subramaniam, M. Quantum Cryptography Exercise Schedules with Concept Dependencies. The Colloquium for Information Systems Security Education, 2020 [**Best Paper Award**].
30. Parakh, A., Subramaniam, M., Chundi, P., and Ostler, E. A Novel Approach for Embedding and Traversing Problems in Serious Games, 21st Annual ACM SIGITE Conference on Information Technology Education, October 2020.
31. Bommanapally, A., Subramaniam, M., Parakh, A., Chundi, P. and Puppala, V. M. Learning Objects Based Adaptive Textbooks with Dynamic Traversal for Quantum Cryptography. Second Workshop on Intelligent Textbooks, In conjunction with 21st International Conference on Artificial Intelligence in Education, July 6th, 2020.
32. Vadla, S., Parakh, A., Chundi, P. and Subramaniam, M. QUASIM: A Multi-dimensional Quantum Cryptography Game for Cyber Security, Journal of The Colloquium for Information Systems Security Education, Volume 6, Spring 2019.
33. Parakh, A., Chundi, P. and Subramaniam, M. An Approach Towards Designing Problem Networks in Serious Games. Proceedings of IEEE Conference on Games (IEEE CoG). 20-23 Aug, London, 2019.
34. Dilanga, A., Bommanapally, V., Vadlla, S., Subramaniam, M., Chundi, P. and Parakh, A., Analyzing and Predicting Player Performance in a Quantum Cryptography Serious Game, In proceedings of Games and Learning Alliance conference (GALA 2018), December 2018.
35. Bommanapally, V., Subramaniam, M., Chundi, P. and Parakh, A. (2018), Navigation Hints in Serious Games, Immersive Learning Research Network (iLRN 2018), June 25-29, Missoula, Montana.
36. Vadla, S., Parakh, A., Chundi, P. and Subramaniam, M. (2018) Colloquium for Information Systems Security Education (CISSE 2018), June 11-13, New Orleans, Louisiana.
37. Ostler, E., Parakh, A. and Subramaniam, M. (2018). QuaSim: The development of a virtual simulator for teaching topics in quantum cryptography, Society for Information Technology & Teacher Education International Conference, March 2018, Washington, D.C.
38. Poster and presentation on QuaSim: 3D virtual educator at CISSE 2017, Las Vegas.
39. McDermott, S., Vadla, S., Bommanapally, V., Parakh, A., Subramaniam, M. and Ostler, E. (2017) Teaching quantum cryptography using a virtual 3D educator: QuaSim, Proceedings of National Cyber Summit (NCS'17), Huntsville, AL, June 6-8, 2017.
40. Parakh, A., Subramaniam, M. and Ostler, E. (2017) QuaSim: A virtual quantum cryptography educator, Proceedings of 2017 IEEE International Conference on Electro Information Technology (EIT), Lincoln, NE 2017, pages 600-605.
41. Hefley, M. and Parakh, A. (2016) Cryptography website for education, Poster in The Colloquium of Information Systems Security Education (CISSE), Best Poster Award, Philadelphia.

Classical Information Sciences & Cryptography

42. Parakh, A. (2016) A new metric for understanding social networks, International Conference on CyberCrime and Computer Forensics, ICCCF 2016, Vancouver, 12-14 June, 2016.
43. Leonora, G. and Parakh, A. (2016) Linear cryptanalysis of quasigroup block cipher. 11th Cyber and Information Security Research Conference, Oak Ridge, Tennessee, April 5-4, 2016.
44. Leonora, G. and Parakh, A. (2016) On linear cryptanalytic attack on quasigroup block cipher. Undergraduate Research Expo, University of Texas, Dallas, Feb, 2016.
45. Parakh, A. (2015) Cheating resistant implicit security, In proceedings of 14th IEEE International Symposium on Network Computing and Applications (NCA 2015), Sept 28-30, 2015.

46. Mahoney, W. and Parakh, A. (2015) Towards a new quasigroup block cipher for a single-chip FPGA implementation. In Proceedings of 24th IEEE International Conference on Computer Communication and Networks (IEEE ICCCN 2015), pages 1-6, August 3-6, 2015, Las Vegas, NV.
47. Mahoney, W., Parakh, A. and Battey, M. (2014) Hardware implementation of quasigroup encryption for SCADA networks, In Proceedings of the 13th International Symposium on Network Computing and Applications (IEEE NCA 14), pages 301-305, Aug 21-23, Cambridge, MA.
48. Battey, M. and Parakh, A. (2014) Cryptanalysis of the quasigroup block cipher, Proceedings of the 52nd Annual ACM Southeast Conference, Kennesaw, GA.
49. Parakh, A. and Mahoney, W. (2013). Privacy preserving computations using implicit security, Proceedings of 22nd International Conference on Computer Communication Networks (ICCCN'13), pages 1-6, Nassau, Bahamas.
50. Bonham-Carter, O., Parakh, A. and Bastola, D. (2013). sEncrypt: An encryption algorithm inspired from biological processes, 2013 12th IEEE International Conference on Trust, Security and Privacy in Computing and Communications (TrustCom 2013), Melbourne, VIC, Australia.
51. Battey, M., Parakh, A. and Mahoney, W. (2013). A new quasigroup based random number generator, In 2013 International Conference on Security and Management (SAM'13), Las Vegas, NV.
52. Parakh, A. (2012). Communication efficient oblivious transfer using elliptic curves, IEEE 14th International Symposium on High-Assurance Systems Engineering (IEEE HASE), pages 173-174, Oct 25-27, 2012.
53. Battey, M. and Parakh, A. (2012). Efficient quasigroup block cipher for sensor networks, 21st IEEE International Conference on Computer Communication Networks (IEEE ICCCN), pages 1-5, July 30-Aug 2, 2012.
54. Parakh, A. and Kak, S. (2011). Matrix based key agreement algorithms for sensor networks, 5th IEEE International Conference on Advanced Networks and Telecommunication Systems (IEEE ANTS), pages 1-3, Dec 18-21, 2011.
55. Godavarty, V. and Parakh, A. (2011). Using quasi-groups for encryption, Poster presentation at 2011 Nebraska Research and Innovation Conference, Nebraska EPSCoR, Omaha, NE.
56. Parakh, A. and Kak, S. (2010). Efficient key management in sensor networks, Globecom Workshop, pages 1539-1544.
57. Parakh, A. and Kak, S. (2010). A tree based recursive information hiding scheme, IEEE International Conference on Communications (IEEE ICC), pages 1-5.
58. Parakh, A. and Kak, S. (2009). A secure data storage scheme for sensor networks, Security and Privacy in Mobile Information and Communication Systems, Lecture Notes of the Institute of Computer Science, Social Informatics and Telecommunications Engineering, volume 17, pg 14-22.
59. Parakh, A. and Kak, S. (2009). Recursive secret sharing for distributed storage and information hiding, 3rd International Conference on Advanced Networks and Telecommunication Systems (IEEE ANTS), pages 1-3.
60. Parakh, A. and Kak, S. (2009). (Invited paper) A key distribution scheme for sensor networks using structured graphs, International Conference on Emerging Trends in Electronic and Photonic Devices & Systems, pages 10-13.
61. Parakh, A. and Kak, S. (2009). Space efficient secret sharing, 4th Annual Computer Science Research Conference at the University of Oklahoma, April.
62. Parakh, A. and Kak, S. (2008). Internet voting protocol based on implicit data security, 17th IEEE International Conference on Computer, Communications and Networks (IEEE ICCCN), pages 1-4.

63. Parakh, A. (2006). A d-sequence based recursive random number generator, 8th International Symposium on System and Information Security, pages 1-5.

Journals

64. Parakh, A. Quantum Teleportation with One Classical Bit. *Nature Sci Rep* 12, 3392 (2022).
65. Parakh, A. and Subramaniam, M., Galore: A Platform for Experiential Learning. *The Journal of the 25th Colloquium for Information Systems Security Education*, Winter 2022, pages 62-69.
66. Parakh, A., Bommanapally, V., Chundi, P., and Subramaniam, M. Quantum Cryptography Exercise Schedules with Concept Dependencies. *Journal of The Colloquium for Information Systems Security Education*, 2020.
67. Vadla, S., Parakh, A., Chundi, P. and Subramaniam, M. QUASIM: A Multi-dimensional Quantum Cryptography Game for Cyber Security, *Journal of The Colloquium for Information Systems Security Education*, Volume 6, Spring 2019.
68. Ghersi, D., Parakh, A., and Mezei, M. (2017) Comparison of a quantum random number generator with pseudorandom number generators for their use in molecular Monte Carlo simulations. *Journal of Computational Chemistry*, volume 38, issue 31, pages 2713-2720.
69. Parakh, A., Verma, P. and Subramaniam, M. (2016) Improving efficiency of quantum key distribution with probabilistic measurement, *International Journal of Security and Networks*, volume 11, no. 1/2, pages 37-47.
70. Subramaniam, P. and Parakh, A. (2016) A quantum Diffie-Hellman protocol, *International Journal of Security and Networks*, volume 11, no. 4, pages 213-223.
71. Parakh, A. and Kak, S. (2015) A new key agreement technique for sensor networks, *Infocommunications Journal*, volume VII, number 1, pages 15-21 March 2015.
72. Battey, M., Parakh, A. and Mahoney, W. (2015) Cryptanalysis and improvements of the quasigroup block cipher, *Journal of Information Assurance and Security*, volume 10, issue 1, pages 36-44.
73. Parakh, A. (2013) A probabilistic quantum key transfer protocol, *Security and Communication Networks*, volume 6, issue 11, pages 1389-1395, Wiley.
74. Battey, M. and Parakh, A. (2013) An efficient quasigroup block cipher, *Wireless Personal Communications*, volume 73, issue 1, pages 63-76, Springer.
75. Parakh, A. and Kak, S. (2012) A new small world lattice, *Advanced Computing, Networking and Security, Lecture Notes in Computer Science (LNCS)*, volume 7135, pages 1-8, Springer.
76. Parakh, A. and Kak, S. (2011) Space efficient secret sharing for implicit data security, *Information Sciences*, volume 181, issue 2, pages 334-341.
77. Parakh, A. and Kak, S. (2010) Internet voting protocol based on improved implicit security, *Cryptologia*, volume 34, issue 3, pages 258-268.
78. Parakh, A. and Kak, S. (2010) Challenges facing electronic voting, *Seminar: the Monthly Symposium*, No. 609.
79. Parakh, A. and Kak, S. (2009) Online data storage using implicit security, *Information Science*, volume 179, issue 19, pages 3323-3331.
80. Parakh, A. (2008) Oblivious transfer based on key exchange, *Cryptologia*, vol 32, issue 1, pg 37-44.
81. Parakh, A. and Kak, S. (2007) How to improve security in electronic voting? *ACM Ubiquity*, volume 8, issue 6, February.
82. Parakh, A. (2007) Oblivious transfer using elliptic curves, *Cryptologia*, vol 31, issue 2, pg 125-132.
83. Parakh, A. (2007) Aryabhata's root extraction methods, *Indian Journal of History of Science*, volume 42, issue 2, pages 149-161.

Editorials

- CISSE Journal 2021, 2022, and 2023.
- Parakh, A. and Kwei, S. (2016) Editorial for the Special Issue on Privacy, Security and Trust for Mobile and Wireless Systems, Inderscience, January 2016
- Parakh, A. and Zhiwei Wang. (2017) Editorial for Special Issue on Challenges and Solutions in Mobile Systems Security, Computer and Electrical Engineering, volume 59, pages 201-203, Elsevier.

Other Service to Profession (Selected)

- Reviewer for applications for NSA's Center for Academic Excellence in Cyber Operations, 2017 – present.
- Mentor for Universities wishing to join NSA's Cyber Operations program.
- Member of taskforce to revise Knowledge Units and Evaluation criterion for the NSA's Center for Academic Excellence in Cyber Operations and Cyber Defense programs.
- Associate Editor, The Journal of the Colloquium, CISSE, 2021 – present.
- Several NSF education, research, and scholarship panels.
- Workshop General Chair ICCCN 2015
- 1st Workshop on Quantum Internet and Networking (QuantumCom 2021).
- Workshop Chair for Workshop on Privacy, Security and Trust in Mobile and Wireless Systems, 2014 – 2019.
- Workshop Chair for 9th International Workshop on Security, Privacy, Trust, and Machine Learning for IoT, 2019.

Course Offerings

- Cryptography and its Applications – graduate level
- Cryptography – undergraduate level
- Quantum Computing and Cryptography – graduate level
- Distributed System and Network Security – graduate level
- Introduction to Information Security – undergraduate (freshmen and high-school)
- Network Vulnerability Discovery – seniors and graduate level
- Linux Administration – junior level

Past Service

- Several hiring search committees for faculty and staff.
- At UNO: Chair for the Undergraduate Program Committee Fall 2014-2021 - highlights:
 - Day-to-day running of the program.
 - Led the successful effort for UNO designation as NSA Center for Academic Excellence in *Cyber Operations*.
 - Led the recertification (twice) of Cybersecurity Program at UNO for NSA/DHS Center of Academic Excellence, Cyber Defense.
 - Development of Cybersecurity minor degree program.
 - Realignment of Cybersecurity curriculum for new designations.
- At UNO: Chair for the Cybersecurity Curriculum Advisory Committee (CAC) consisting of industry and community leaders (2015-2022).
- At UNO: Member of the Reappointment, Promotion and Tenure committee (2011-2022).
- At UNO: Member of the Doctoral Program Committee (2018-2022).

- At UNO: Member of the University Committee on Research and Creativity Activity (UCRCA) since Fall 2013 – Spring 2016.

Awards

- KSU Outstanding Scholarship and Creative Activity Award, 2024
- UNO Mutual of Omaha Distinguished Chair of Information Science and Technology, 2022
- UNO Alumni Outstanding Teaching Award, 2017
- Nominated for the ICCCN Workshop Leadership Award for Outstanding Leadership on the workshops at IEEE ICCCN 2014
- UNeMed Innovation Award for filing a patent relating to work done on bioinformatics inspired encryption algorithm
- Ph.D. Fellowship, 2008-2011, Oklahoma State University.
- Graduate College Research Fellowship, 2010, Oklahoma State University.
- Barry Goldwater General Scholarship at Project Vote Smart, Summer 2009 and 2010.

Invited Talks

- Quantum Computing speaker series, Go Studio and InComm Payments, Atlanta, Aug 24, 2024.
- Cryptography and Machine Learning, Panel Current Cybersecurity Trends and Global Threats, Center for International Business Education and Research and UIBS, Georgia Tech, June 2023.
- The future of Quantum Computing, University of North Carolina, Wilmington, April 2022.
- Quantum Networking, East Carolina University, March 2022.
- Quantum Cryptography and Communications, Texas State University, San Marcos, March 2022.
- Quantum Computing and Consciousness, Oklahoma State University, May 2021.
- Writing Innovative Papers, CISSE Writer's Workshop, 2021.
- Quantum blockchains, Jaypee Institute of Technology, Feb 2020.
- Blockchains: a critical look, Nebraska Cybersecurity Summit 2018.
- Cryptography for Managers, Guest lecture for EMIT students, Feb 3rd and 10th, 2018.
- Quantum Implications: Cybersecurity, Mutual of Omaha retreat on Jan 26th, 2018.
- Film Streams, Guest Speaker on History of Cryptography, Jan 2018.
- Quantum Computing and Cryptography: Hype vs Reality, Nebraska CERT, May 17, 2017.
- Quantum Computing and Cryptography: What does the future hold? Physics Department, UNO, March 31, 2017.
- Film Streams, Guest speaker and discussion lead for movie screening: The Imitation Game, Ruth Sokolof Theater, Feb 7, 2017.
- Blockchains, Union Pacific Head Quarters, Dec 14, 2016.
- Cryptographic Engineering: How to Think Like a Cryptographer, 11th Annual Nebraska Cybersecurity Symposium, Sept 29, 2016.
- Quantum Cryptography, FBI / Infraguard meeting, Aug 25, 2016.
- Information Assurance Degree at UNO, International Conference on Advances in Management and Technology in a Global World, IIIT, Noida, India, Dec 2015.
- General talk on Cryptography, G.L. Bajaj Institute of Technology & Management, Noida, India, Dec 2015.
- Cryptography & its Future, 10th Annual Nebraska Cybersecurity Symposium, Lincoln, NE, Sep 2015.
- Discussions on Cybercrime, Panel Member, hosted by Congressman Brad Ashford of Nebraska, Mar 2015.

- Distributed Privacy Preserving Computations, 9th Annual Nebraska Cybersecurity Symposium, Lincoln, NE, June 3rd, 2014.
- Secure Distributed Data Storage, Gallup, Inc., June 2014.
- Distributed Privacy Preserving Computations, ISACA Meeting, May 7, 2014.
- Feeling Safe in your Cyber Space: Policy, Training and Compliance, NACo Cyber Symposium, April 10, 2014.
- Results in Quantum (and Classical) Cryptography, University of Oklahoma – Tulsa, OK, March 25, 2014.
- Target Credit Card Hack, Briefing on Target Hack to Congressman Lee Terry of Nebraska, Jan 2014.
- Distributed Privacy Preserving Computations, SPS University, Udaipur, Rajasthan, India, July 2014.
- Cryptography and Cloud Computing Panel Member, Indian Institute of Technology (IIT) Delhi, India, Feb 2014.
- Cloud Computing and Security Issues, Interviewed by Midland Business Journal, April 2013.
- Discussions on Cybersecurity, Panel member for Community Roundtable organized by Congressman Lee Terry of Nebraska, Summer 2012.
- Data Security in the Cloud, Data Management Association (DAMA) meeting, March 15, 2012.
- Leveraging Distributed Architecture for Cloud Security, Nebraska CERT, October 2011.

References

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