School of Electrical Engineering and Computer Science

OREGON STATE UNIVERSITY

College of Engineering

BOSE, Bella
Interim Head and Professor
School of Electrical Engineering and Computer Science
Oregon State University
Corvallis, OR 97331

DEGREES
B.E., Electrical Engineering, University of Madras, June 1973
M.E., Electrical Engineering, Indian Institute of Science, Bangalore, August 1975
M.S., Computer Science and Engineering, Southern Methodist University, August 1979
Ph.D., Computer Science and Engineering, Southern Methodist University, August 1980

ACADEMIC POSITIONS
Assistant Lecturer, Birla Institute of Technology and Science, Pilani, Rajastan, India, August 1975-December 1976.
Graduate Research Assistant, Computer Science and Engineering Department, Southern Methodist University, June 1977-December 1979.
Assistant Professor, Department of Computer Science, Oregon State University, January 1980-September 1985.
Visiting Associate Professor, Computer Systems Lab., Stanford University, January 1987-September 1987.
Associate Professor, Department of Computer Science, Oregon State University, September 1985-1991.
Professor, School of EECS, Oregon State University, 1991-present.
Visiting Professor, Department of Computer Science, Stanford University, January 1999-June 1999.
Associate Director and Professor, School of EECS, 2003 – 2017.
Interim School Head, School of EECS, 2014-15 and 2017-18.

FIELDS OF SPECIALIZATION
Error Control Codes
Fault Tolerant Computing
Parallel Processing
VLSI Testing
Algorithm Analysis
Computer Networks

HONORS AND AWARDS
IEEE Computing Society Distinguished Visitor, 1988-1991
IEEE Fellow – for contributions to the theory and design of unidirectional codes, (since 1995)
OSU College of Engineering Research Award for Outstanding and Sustained Research Leadership, 1996
ACM Fellow – for contributions to error correcting codes (since 2005)
Academic Achievement Award for the best graduate from the Department of Computer Science and Engineering, Southern Methodist University at the 40th Anniversary, 2008.

PROFESSIONAL ACTIVITIES

Professional Societies
IEEE
ACM

Professional Recognition
IEEE Computer Society distinguished visitor, September 1988-August 1991
Reviewer for
National Science Foundation
IEEE Transactions on Computers
IEEE Transaction on Information Theory
IEEE Transactions on Computer Aided Design
IEEE Computer
International Journal on Computer and Information Science
International Journal on Computers and Mathematics Applications
International Conferences on Fault Tolerant Computing
Consulting Assignments
Intel
IBM
Digital

Committees, Commissions and Boards

IEEE Fellow Selection Committee Member (Computer Society), 2009, 2010,2013, 2014.
Associate editor**,** IEEE Transactions on Computers, May 2003 – December 2007.
Co-Program Chair, 11th International Conference on Advanced Computing and Communication, India, December 2003.
Publicity Chairman, IEEE International Conference on Fault Tolerant Computing, 1987 and 1997
Program Committee Member, Workshop on 'Sequences, Combinatorics, Compression and Transmission,' Amalfi Coast, Salerno, Italy, June 1988 and 1991
Program Committee Member, Pacific Rim Conference on Fault Tolerant Computing, 1991, 1993, 1995, 1997, and 1999
Program Committee Member, IEEE Inter. Symposium on Fault Tolerant Computing, 1992, 1994, and 1996
Program Committee Member, IEEE Int'l On-Line Testing Workshop, Nice, France, July 1995 and July 1996
Program Committee Member, Int'l Conference on Parallel Processing, August 1998
Program Committee Member, International Conference on Advanced Computing and Communication, 1998 , 2000 and 2004.
Program Committee Member, International Symposium on Parallel Architectures, Algorithms and Networks, 2000
Steering Committee Member, Pacific Rim International Symposium on Dependable Computing, 1995-present

Departmental/University Services
Chair, University Faculty Recognition and Award Committee 2005-2006, Member 2003-2006
University Senator 2004-2006, 2007-2009
Hiring Committee Member, Associate Dean of Graduate School 2006-2007

Hiring Committee Member, Director of International Program 2007-2008
Member, Graduate School Strategic Committee, 2011-2012.
Member, Provost Fellowship Selection Committee 2011-2012.
Member, Business Centers Improvement Committee 2011-2012.
Member, Graduate Admission Task Force Committee 2011-2012.
Member, Representing the University in the Graduate Union Bargaining 2013-2014
Member, University Distinguished Professor Selection Committee, 2007-2008, 2008-2009
Chair, COE Award Committee, 2006-2010
Member, COE P&T Committee, 2003-2013
Computer Coordinator, 1981-1982
M.S. Exam Coordinator, 1983-1984
Graduate Curriculum Committee, 1983-1984
Chair, Departmental Tenure and Promotion Committee, 1985-1986
Chair, Faculty Hiring Committee, 1985-1986, 1987-1997, 2003-04
Chair, Departmental Award Committee, 1999-present
Undergraduate Advising, 1980-present
Graduate Student Admission and Advising, 1982-1983, 1983-1984, 1987-1992, 1997-present

PUBLICATIONS

Chapters in Books
1. B. Bose and J. Metzner, "Error Control Coding for Computer Systems," in *Fault Tolerant Computing: Theory and Design Techniques*, D.K. Pradhan (ed.), Prentice Hall, 1986.

Technical Journals
1. B. Bose, "Comments on Multiple Fault Detection in Combinational Networks," *IEEE Transactions on Computers*, Vol. 28, pp. 804-805, October 1979.
2. B. Bose and T.R.N. Rao, "Separately and Completely Separating Systems and Linear Codes," *IEEE Transactions on Computers*, Vol. C-29, pp. 665-668, July 1980.
3. B. Bose and T.R.N. Rao, "Theory and Design of Unidirectional Error Codes," *IEEE Transactions on Computers*, Vol. C-31, pp. 520-530, June 1982.
4. B. Bose and D.K. Pradhan, "Optimal Unidirectional Error Correcting/Detecting Codes," *IEEE Transactions on Computers*, Vol. C-31, pp. 564-568, June 1982.
5. B. Bose and T.R.N. Rao, "Unidirectional Codes for Shift Register Memories," *IEEE Transactions on Computers*, Vol. C-33, pp. 575-578, June 1984.
6. B. Bose and D.J. Lin, "PLA Implementation of k-out-of-n Code TSC Checker," *IEEE Transactions on Computers*, Vol. C-33, pp. 583-588, June 1984.
7. B. Bose and D.J. Lin, "Systematic Unidirectional Error Detecting Codes," *IEEE Transactions on Computers*, Vol. C-34, pp. 1026-1032, November 1985.
8. B. Bose, "Burst Unidirectional Error Detecting Codes," *IEEE Transactions on Computers*, Vol. C-35, No. 5/6, pp. 547-554, 1987.
9. B. Bose, "Two Dimensional ARC Codes," *International Journal of Comput. Math. Applic.*, Vol. 13, No. 5/6, pp. 547-554, 1987.
10. D.J. Lin and B. Bose, "The Theory and Design of t-Error Correcting and d(d>t)-Unidirectional Error Detecting Codes," *IEEE Transactions on Computers*, Vol. C-37, pp. 433-439, April 1988.
11. S. Al-Bassam and B. Bose, "On Balanced Codes," *IEEE Transactions on Information Theory*, Vol. 36, pp. 406-408, March 1990.

12. B. Bose, "Group Theoretic Signature Analysis," *IEEE Transactions on Computers*, Vol. 39, pp. 1398-1403, November 1990.

13. B. Bose, "On Unordered Codes," *IEEE Transactions on Computers*, Vol. C-40, pp. 125-131, February 1991.

14. B. Bose and S. Al-Bassam, "Byte Unidirectional Error Correcting and Detecting Codes," *IEEE Transactions on Computers*, Vol. 41, pp. 1601-1606, December 1992.

15. S. Al-Bassam, R. Venkatesh, and B. Bose, "Codes for Detecting and Correcting Propagation Errors," *International Journal of Comput. Math. Applic.*, Vol. 24, No. 4, pp. 103-109, 1992.

16. S. Al-Bassam, H. El-Rewini, B. Bose, and T. Lewis, "Processor Allocation for Hypercubes," *Journal of Parallel and Distributed Computing*, 16, pp. 394-401, December 1992.

17. S. Al-Bassam and B. Bose, "Design of Efficient Error Correcting Balanced Codes," *IEEE Transactions on Computers*, Vol. C-42, pp. 1261-1266, October 1993.

18. R. Rowley and B. Bose, "Fault Tolerant Ring Embedding in De Bruijn Networks," *IEEE Transactions on Computers*, Vol. C-42, pp. 1480-1486, December 1993.

19. R. Rowley and B. Bose, "On the Number of Arc-Disjoint Hamiltonian Circuits in the De Bruijn Graphs," *Parallel Processing Letters*, Vol. 3, No. 4, pp. 375-382, December 1993.

20. S. Al-Bassam and B. Bose, "Design of Efficient Balanced Codes," *IEEE Transactions on Computers*, Vol. C-43, No. 3, pp. 362-365, March 1994.

21. S. Al-Bassam and B. Bose, "Asymmetric/Unidirectional Error Correcting and Detecting Codes," *IEEE Transactions on Computers*, Vol. C-43, No. 5, pp. 590-597, May 1994.

22. B. Bose and S. Park, "Algorithms for Broadcasting in Faulty Hypercubes," *The Int. Journal of Computers and Their Applications*, Vol. II, No. 1, pp. 2-11, April 1995.

23. B. Bose, B. Broeg, Y. Kwon, and Y. Ashir, "Lee Distance and Topological Properties of k-ary n-cubes," *IEEE Transactions on Computers*, Vol. 44, No. 8, pp. 1021-1030, August 1995.

24. L. Tallini, R. Capocelli, and B. Bose, "Design of Some New Balanced Codes," *IEEE Transactions on Information Theory*, Vol. 42, No. 3, pp. 790-802, May 1996.

25. R. Rowley and B. Bose, "Distributed Rind Embedding in Faulty De Bruijn Networks," *IEEE Transactions on Computers*, Vol. 46, No. 2, pp. 187-190, February 1997.

26. S. Park and B. Bose, "All to All Broadcasting in Faulty Hypercubes," *IEEE Transactions on Computers*, Vol. 46, No. 7, pp. 749-755, July 1997.

27. M. Bae and B. Bose, "Resource Placement in Torus-Based Networks," *IEEE Transactions on Computers*, Vol. 46, No. 10, pp. 1083-1092, October 1997.

28. L.G. Tallini and B. Bose, "Theory and Design of Adjacent Asymmetric Error Masking Codes," *IEEE Transactions on Computers*, Vol. 47, No. 5, pp. 544-555, May 1998.

29. L.G. Tallini and B. Bose, "Design of Balanced and Constant Weight Codes for VLSI Systems," *IEEE Transactions on Computers*, Vol. 47, No. 5, pp. 556-572, May 1998.

30. B. Broeg, B. Bose, and V. Lo, "Lee Distance, Gray Codes and the Torus," *Telecommunication Systems, High Performance Computing and Interconnection Networks*, pp. 21-33, October 1998.

31. L.G. Tallini and B. Bose, "Balanced Codes with Parallel Encoding and Decoding," *IEEE Transactions on Computers*, pp. 794-814, August 1999.

32. B. Al-Mohammad and B. Bose, "Fault-Tolerant Communication Algorithms in Toroidal Networks," *IEEE Transactions on Parallel and Distributed Systems*, pp. 976-983, October 1999.

33. L.G. Tallini and B. Bose, "Efficient High-Order Spectral-Null Codes," *IEEE Transactions on Information Theory*, pp. 2594-2601, November 1999.

34. B. Bose and S. Al-Bassam, "On Systematic Single Asymmetric Error Correcting Codes," *IEEE Transactions on Information Theory*, pp. 669-672, March 2000.

35. M. Bae, R. Venkatesan, and B. Bose, "Data Rearrangement Between radix-k and Lee Distance Gray Codes in k-ary n-Cubes," *Journal of Parallel and Distributed Computing*, 62, pp. 19 - 37, Jan. 2002.

36. L.G.Tallini and B. Bose, "Transmission time analysis for the parallel asynchronous communication scheme," *IEEE Transactions on Computers*, pp. 558-571, May 2003.

37. B. AlBdaiwi and B. Bose, "Quasi-perfect Lee distance codes," *IEEE Transaction on Information Theory*, pp 1535-1539, June 2003.

38. J. H. Youn and B. Bose, "Efficient encoding and decoding schemes for balanced codes," *IEEE Transactions on Computers*, pp.1229 - 1232, September 2003.

39. M. Bae and B. Bose, "Edge disjoint Hamiltonian cycles in k-ary n-cubes and hypercubes," *IEEE Transactions on Computers*, pp. 1271 – 1284, October 2003.

40. B. AlBdaiwi and B. Bose, Ön resource placements in 3D tori," *Journal of Parallel and Distributed Computing*, 63, pp. 838-845, 2003.

41. M. Bae, B. AlBdaiwi and B. Bose, "Edge disjoint Hamiltonian cycles in two dimensional torus," *International Journal of Mathematics and Mathematical Sciences,* Vol. 2004, No. 25, pp. 1299-1308, May 2004.

42. T. Klove, P. Oprisan and B. Bose, "Diversity combining for the Z-channel," *IEEE Transactions on Information Theory*, pp. 1174 – 1178, March 2005.

43. T. Klove, P. Oprisan and B. Bose, "The probability of undetectable errors for a class of asymmetric error detecting codes," *IEEE Transactions on Information Theory*, pp. 1202 - 1205, March 2005.

44. B. AlBdaiwi and B. Bose, "Quasi-perfect resource placements for two-dimensional toroidal networks," *Journal of Parallel and Distributed Computing,* Vol. 65/7, pp. 815-831, 2005.

45. J. H. Youn, B. Bose, and S. Park, "Fault-tolerant routing algorithm in meshes with solid faults," *The Journal of Supercomputing*, 35, 1-17, January 2006.

46. R. Marcella, L.G. Tallini, S. Al-Bassam, and B. Bose, "On efficient balanced codes over the n-th root of unity," *IEEE Transactions on Information Theory*, V. 52, pp. 2214-2217, May 2006.

47. L. Tallini, S. Elmougy, and B. Bose, "Analysis of plain and diversity combining ARQ protocol over the m ($>= 2$)-ary asymmetric channel" *IEEE Transactions on Information Theory,* Vol. 52, pp. 5550-5558, December 2006.

48. M. Flahive and B. Bose, "Balancing cyclic R-ary Gray codes," *Electronic Journal of Combinatorics,* Vol. 14 (1), #R31, April 2007.

49. M. Anantha, B. Bose, and L. Tallini, "ARQ protocols and unidirectional codes," *IEEE Transactions on Computers,* Vol 56, pp. 433-443, April 2007.

50. B. Bose, S. Elmougy, and L. Tallini, "Systematic t-unidirectional error detecting codes over Z_{m}," *IEEE Transactions on Computers*. Vol. 56, pp. 876-880, July 2007.

51. M. Anantha, B. Bose, and B. AlBdaiwi, "Mixed radix Gray codes," *IEEE Transactions on Computers ,* Vol. 56, pp.1297- 1307, October 2007.

52. L. Tallini, S. AlBassam, and B. Bose, "Feedback codes achieving the capacity of the Z-channel," *IEEE Transactions on Information Theory,* Vol. 54, pp. 1357-1362, March 2008 and correction in *IEEE Transactions on Information Theory*, Vol. 55, pp. 4348-4350, September 2009.

53. D. Nguyen, T. Tran, T. Nguyen and B. Bose, "Wireless broadcast using network coding," *IEEE Transactions on Vehicular Technology*, Vol. 58, Issue 2, pp. 914-925, 2009.

54. T. Tran, T. Nguyen, B. Bose and V. Gopal, "A hybrid network coding technique for single-hop wireless networks," *IEEE Journal on Selected Areas in Communications*, Vol. 27, No. 5, pp.685-698 , June 2009.

55. N. Elarief and B. Bose, "Diversity combining ARQ over m-ary unidirectional channel," *IEEE Transactions on Computers*, Vol. 58, pp. 1026-1034, August 2009.

56. L. Tallini and B. Bose, "On decoding some error control codes using the elementary symmetric functions," In *Trends in Incidence and Galois Geometries: A Tribute to Giuseppe Tallini – Quaderni di Matematica,* F. Mazzocca, N. Melone and D. Olanda Ed. Vol. 19, pp. 265-297, Caserta, Departimento di Matematica, Seconda Universita di Napoli, 2010.

57. N. Elarief and B. Bose, "Optimal systematic q-ary codes correcting all asymmetric and symmetric errors of limited magnitude," *IEEE Transactions on Information Theory*, Vol. 56, pp. 979-983, March 2010.

58. M. Flahive and B. Bose, "The topology of Gaussian and Eisenstein-Jacobi Interconnection networks," *IEEE Transactions on Parallel and Distributed Computing,* Vol. 21, pp. 1132- 1142, August 2010.

59. T. Klove, B. Bose and N. Elarief, "Systematic single limited magnitude error correcting codes for flash memories," *IEEE Transactions on Information Theory*, Vol. 57, pp. 4477 – 4487, July 2011.

60. B. AlBader, B. Bose and M. Flahive, "Efficient communication algorithms in hexagonal mesh interconnection networks," *IEEE Transactions on Parallel and Distributed Computing*, Vol. 23, pp. 69-77, January 2012.

61. L. Pezza, L. Tallini and B. Bose, "Variable length unordered codes," *IEEE Transactions on Information Theory*, Vol. 58, pp. 548-569, February 2012.

62. M. Flahive and B. Bose, "On resource placements in Gaussian and EJ networks," *IEEE Transactions on Computers,* Vol. 62, pp. 623-626, March 2013.

63. N. Elarief, B. Bose and S. Elmougy, "Limited magnitude error detecting codes over Z_q," *IEEE Transactions on Computers,* Vol. 62, pp. 984-989, May 2013.

64. S. Yari, T. L. Klove and B. Bose, "Some codes correcting unbalanced errors of limited magnitude for flash memories," *IEEE Transactions on Information Theory*, Vol. 59, pp. 7278-7287, November 2013.

65. O. Alsaleh, B. Bose and B. Hamdaoui, "One-to-many node-disjoint paths routing in dense Gaussian networks," *The Computer Journal 2013*, doi:10.1093/comjnl/bxt142

66. Z. Hussain, B. Bose and A. AlDhelaan, "Generalized hypercubes: Edge disjoint Hamiltonian cycles and Gray codes," *IEEE Transactions on Computers*, Vol. 63, pp. 375-382, February 2014.

67. D. Pelusi, S. Elmougy, L. Tallini and B. Bose, "m-ary balanced codes with parallel decoding," *IEEE Transactions on Information Theory*, Vol. 61, pp. 3251-3264, June 2015.

68. Z. Hussain, B. Bose and A. Al-Dhelaan, "Edge disjoint Hamiltonian cycles in Eisenstein–Jacobi networks," *Journal of Parallel and Distributed Computing*, Vol. 86, pp. 62-70, December 2015.

69. B. Albader and B. Bose, "Edge disjoint Hamiltonian cycles in Gaussian Networks," *IEEE Transactions on Computers*, Vol. 65, pp. 315-321, January 2016.

70. B. Bose, A. Shamaei and M. Flahive, "Higher dimensional Gaussian networks," *IEEE Transactions on Parallel and Distributed Computing*, Vol 27, pp. 2628 – 2638, September 2016.

71. L. Tallini, D. Pelusi, R. Mascella, L. Pezza, S. Elmougy and B. Bose, "Efficient non-recursive design of second-order spectral-null codes," *IEEE Transactions on Information Theory*, Vol. 62, pp. 3084-3102, June 2016.

72. B. Bose, N. Elarief and L. Tallini, "On codes achieving zero error capacities in limited magnitude error channels," *IEEE Transactions on Information Theory*, Vol. 64, pp. 257-273, January 2018.

73. T. Duong-Ba, T. Tran, T. Nguyen, B. Bose, "A Dynamic Virtual Machine Placement and Migration Scheme for Data Centers", *IEEE Transactions on Services Computing*, 2018.

Conference Proceedings

1.[*] B. Bose and T.R.N. Rao, "The Theory and Design of Unidirectional Error Codes," *IEEE International Symposium on Information Theory*, Italy, June 1979.

2.[*] B. Bose and T.R.N. Rao, "Unidirectional Error Codes for Shift Register Memories," *IEEE 10th International Symposium on Fault Tolerant Computing*, pp. 26-28, October 1980.

3.[*] B. Bose, "Systematic Single Error Correcting and Multiple Unidirectional Error Detecting Codes," *IEEE International Symposium on Information Theory*, Los Angeles, February 1981.

4.[*] B. Bose, "On Systematic SEC-MUED Codes," *Digest of Papers*, *11th International Symposium on Fault Tolerant Computing*, pp. 265-267, June 1981.

5.[*] B. Bose and S. Cunningham, "Systematic and Multiple Asymmetric Error Codes," *IEEE International Symposium on Information Theory*, St. Javit, Canada, September 1982.

6.[*] B. Bose and D.J. Lin, "PLA Implementation of k-out-of-n Code TSC Checker," *Proc.*, *21st Annual Allerton Conference on Communication, Control and Computing*, pp. 812-821, October 1983.

7.[*] B. Bose and D.J. Lin, "Two Dimensional ARC Codes," *Digest of Papers*, *14th International Conference on Fault Tolerant Computing*, pp. 324-329, June 1984.

8.[*] B. Bose and D.J. Lin, "Systematic Unidirectional Error Detecting Codes," *Digest of Papers*, *11th International Conference on Fault Tolerant Computing*, pp. 94-99, June 1984.

9.[*] B. Bose, "Burst Unidirectional Error Detecting Codes," *IEEE International Symposium on Information Theory*, Brighton, England, June 1985.

10.[*] B. Bose, "t-Error Correcting and d(d>t)-Unidirectional Error Detecting Codes," *IEEE International Symposium on Information Theory*, Brighton, England, June 1985.

11. B. Bose, "Group Theoretic Signature Analysis," *Workshop of Built-in-Self Testing*, Vail, CO, May 1986.

12.[*] B. Bose, "On Unordered Codes," *Digest of Papers*, *17th International Conference on Fault Tolerant Computing*, pp. 102-107, July 1987.

13. B. Bose, "Open Problems in Unidirectional Error Control Codes," *2nd IBM Workshop on Error Control Codes*, San Jose, CA, September 14-15, 1987.

14.[*] Al-Bassam and B. Bose, "On Balanced Codes," *International Symposium on Information Theory*, Kyoto, Japan, June 1988.

15.[*] A. Al-Dhelaan and B. Bose, "Incomplete Cube Connected Cycles," *Proceedings of the Canadian Conference on Electrical and Computer Engineering*, pp. 573-576, 1988.

16.[*] A. Al-Dhelaan and B. Bose, "Efficient Fault Tolerant Broadcasting Algorithms for Hypercube," *Proceedings of the Fourth Conference on Hypercube Concurrent Computers and Applications*, Monterey, CA, pp. 123-128, March 1989.

17.[*] A. Al-Dhelaan and B. Bose, "New Strategy for Processors Allocation in an N-cube Multiprocessors," *Proceedings of the International Phoenix Conference on Computers and Communications*, pp. 114-118, March 22-24, 1989.

18.[*] A. Al-Dhelaan and B. Bose, "Efficient Fault Tolerant Broadcasting Algorithm for the Cube-Connected Cycles Network," *Proc.*, *IEEE Pacific Rim Conference on Communications, Computers, and Signal Processing*, Victoria, B.C., Canada, pp. 161-164, June 1989.

19.[*] B. Bose, "Byte Unidirectional Error Correcting Codes," *Proc.*, *International Symposium on Fault Tolerant Computing*, pp. 222-227, June 1989.

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[*]Refereed papers

20.[*] S. Al-Bassam and B. Bose, "Design of Efficient Balanced Codes," *Proc.*, *International Symposium on Fault Tolerant Computing*, pp. 229-236, June 1989.

21.[*] S. Al-Bassam, R. Rowley, and B. Bose, "Transition DC-Free Coset Codes," *Proc.*, *International Conference on Applied Algebra and Error Control Codes (AAECC)*, Toulouse, France, pp. 1-4, June 1989.

22.[*] N. Darwish and B. Bose, "Bounds on Unidirectional Error Detecting/Correcting Codes," *International Conference on Applied Algebra and Error Control Codes (AAECC)*, Toulouse, France, June 1989.

23.[*] S. Al-Bassam and B. Bose, "Asymmetric/Unidirectional Error Correcting and Detecting Codes," *International Conference on Applied Algebra and Error Control Codes (AAECC)*, Toulouse, France, June 1989.

24. N. Darwish and B. Bose, "A Note on Decoding BCH Codes for Asymmetric Errors," *Third IBM Workshop on Error Control Codes*, San Jose, CA, pp. 375-382, September 1989.

25.[*] N. Darwish and B. Bose, "An Efficient Double Asymmetric Error Correction Codes," *Proc.*, *International Conference on Computer Design*, pp. 166-171, October 1989.

26.[*] B. Bose, "Asymmetric Error Correcting Codes," *IEEE International Symposium on Information Theory*, San Diego, CA, January 1990.

27.[*] S. Park and B. Bose, "Burst Unidirectional/Asymmetric Error Correcting Codes," *IEEE International Symposium on Information Theory*, San Diego, CA, January 1990.

28. D.J. Lin and B. Bose, "On the Maximality of the Group Theoretic Single Error Correcting and All Unidirectional Error Detecting (SEC-AUED) Codes," *Sequences: Combinatorics, Compression, Security, and Transmission*, R. Capocelli (ed.), Springer-Verlag, pp. 506-529, 1990.

29.[*] S. Al-Bassam, H. El-Rewani, B. Bose, and T.G. Lewis, "Efficient Serial and Parallel Subcube Recognition in Hypercube," *5th International Distributed Memory Computer Conference*, Charleston, SC, April 1990.

30.[*] S. Park and B. Bose, "Burst Unidirectional/Asymmetric Error Correcting and Detecting Codes," *Proc.*, *Symposium on Fault Tolerant Computing*, pp. 273-280, June 1990.

31.[*] R. Rowley and B. Bose, "On Necklaces in Perfect-Shuffle and De Bruijn's Networks," *Proc.*, *International Conference on Parallel Processing*, Vol. 1, pp. 347-351, August 1990.

32.[*] R. Rowley and B. Bose, "Edge Disjoint Hamiltonian Cycles in De Bruijn's Networks," *Proc.*, *6th Distributed Memory Computer Conference*, pp. 707-709, April 1991.

33.[*] S. Al-Bassam, B. Bose, and R. Venkatesh, "Bust and Unidirectional Error Detecting Codes," *Proc.*, *IEEE Int. Symp. on Fault Tolerant Computing*, pp. 378-384, June 1991.

34. B. Bose and S. Cunningham, "Asymmetric Error Correcting Codes," *Sequences II: Combinatorics, Compression, Security, and Transmission*, Springer-Verlag (Editors: R. Capocelli, A. De Santis and U. Vaccaro), pp. 24-35, 1993.

35.[*] R. Rowley and B. Bose, "Fault Tolerant Ring Embedding in De Bruijn Network," *Proc.*, *International Conference on Parallel Processing*, Vol. 1, pp. 710-711, August 1991.

36.[*] S. Al-Bassam, G. Ramanathan, and B. Bose, "Improved Construction Methods for Error Correcting Constant Weight Codes," *Proc.*, *IEEE Int. Symp. on Fault Tolerant Computing*, pp. 510-517, July 1992.

37.[*] S. Park and B. Bose, "Broadcasting in Hypercubes With Faulty Links," *Proc.*, *Frontiers of Massively Parallel Computers*, pp. 286-290, October 1992.

38.[*] L. Tallini, R. Capocelli, and B. Bose, "Design of Some New Balanced Codes," *Proc.*, *Int. Symposium on Information Theory*, p. 7, January 1993.

39.[*] S. Al-Bassam and B. Bose, "Conservative Codes," *Proc.*, *Int. Symposium on Information Theory*, p. 9, January 1993.

40.[*] R. Rowley and B. Bose, "A Distributed Algorithm for Finding a Fault-Free Cycle in a De Bruijn Network," *Proc.*, *ISCA Inter. Conference on Parallel and Distributed Computing Systems*, pp. 263-266, October 1993.

41.[*] S. Park, B. Bose, and B. Broeg, "Algorithms for Broadcasting in Faulty Hepercubes," *Proc.*, *ISCA Inter. Conference on Parallel and Distributed Computing and Systems*, pp. 361-366, October 1993.

42.[*] Y. Kwon and B. Bose, "Fault Tolerant Ring Embedding in K-ary n-cube," *Proc.*, *Pacific Rim Conference on Fault Tolerant Computing*, pp. 20-24, December 1993.

43.   B. Bose and B. Broeg, "Some Communication Algorithms in k-ary n-cube," *IEEE Proc. Indo-US Workshop on Parallel and Distributed Signal and Image Integration Problems*, Pune, India, December 1993.

44.[*] L. Tallini and B. Bose, "Balanced Codes with Parallel Encoding and Decoding," *IEEE International Symposium on Information Theory*, Trondheim, Norway, p. 103, June 1994.

45.[*] S. Al-Bassam and B. Bose, "Efficient Skew Codes Constructions," *IEEE International Symposium on Information Theory*, Trondheim, Norway, p. 69, June 1994.

46.[*] L. Tallini, L. Merani, and B. Bose, "Balanced Codes for Noise Reduction in VLSI Systems," *Proc.*, *IEEE International Symposium on Fault Tolerant Computing*, pp. 212-218, June 1994.

47.[*] B. Bose and B. Broeg, "Lee Distance Gray Codes," *Proc.*, *IEEE Int'l Symposium on Information Theory*, p. 236, September 1995.

48.[*] L. Tallini, S. Al-Bassam, and B. Bose, "On Efficient Higher Order Spectral Null Codes," *Proc.*, *IEEE Inter. Symposium on Information Theory*, p. 144, September 1995.

49.[*] K. Windisch, V. Lo, and B. Bose, "Contiguous and Non-Contiguous Processor Allocation Algorithms for k-ary n-cubes," *Proc.*, *Int'l Conf. on Parallel Processing*, Vol. II, pp. 164-168, August 1995.

50.[*] M. Bae and B. Bose, "Resource Placement in Torus Based Network," *Proc.*, *IEEE Int'l Parallel Processing Symposium*, April 1996.

51.[*] S. Gorshe and B. Bose, "A Self-Checking ALU Design with Efficient Codes," *Proc.*, *IEEE Int'l Test Symposium*, pp. 157-161, April 1996.

52.[*] M. Bae and B. Bose, "Spare Processor Allocation for Fault Tolerance in Torus-Based Networks," *Proc.*, *IEEE Int'l Symposium on Fault Tolerant Computing*, pp. 282-291, June 1996.

53.   L. Tallini and B. Bose, "Adjacent Asymmetric Error Masking Codes and Geometric Spaces," *Combinatorics '96*, Assisi, Italy, September 1996.

54.   B. Almohammad, J.H. Kim, and B. Bose, "I/O Placement and Network Latencies in Toroidal Networks," *Proc., 11th Int'l Conference on Mathematical and Computer Modelling and Scientific Computing*, April 1997.

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56.[*] L. Tallini and B. Bose, "On Adjacent Symmetric Error Masking Codes," *Proc., IEEE Int'l Symposium on Information Theory*, p. 294, June/July 1997.

57.[*] M. Bae and B. Bose, "On Independent Set of Lee Distance Gray Codes," *Proc., IEEE Int'l Symposium on Information Theory*, p. 503, June/July 1997.

58.[*] L. Talini and B. Bose, "On the Design of Constant Weight Codes for VLSI Systems," *Proc., IEEE Int'l Symposium on Fault Tolerant Computing*, pp. 226-235, June 1997.

59.[*] B. Broeg and B. Bose, "Fault-Tolerant Broadcasting in a K-ary N-Cube," Chapter 15 in *Fault Tolerant Parallel and Distributed Systems*, D. Averesky (ed.), pp. 267-288, Norwell, MA, 1998.

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61.[*] B. Almohammad and B. Bose, "Fault Tolerant Broadcasting in Toroidal Networks," *Proc., IEEE Workshop on Fault-Tolerant Parallel and Distributed Systems*, April 1998.

62.[*] B. Almohammad and B. Bose, "Fault Tolerant Communication Algorithms for Toroidal Networks," *Proc., IEEE Int'l Symposium on Fault Tolerant Computing*, pp. 186-194, June 1998.

63.[*] B. Bose and S. Al-Bassam, "On Systematic Single Asymmetric Error Correcting Code," *Proc., IEEE Int'l Symposium on Information Theory*, p. 197, September 1998.

64.[*] L. Tallini and B. Bose, "Some Transmission Time Analysis for the Parallel Asynchronous Communication Scheme," *Proc., IEEE Int'l Symposium on Fault Tolerant Computing*, pp. 192-199, June 1999.

65. L. Tallini and B. Bose, "On Parallel Asynchronous Communication Codes," *IEEE Information Theory Workshop*, Kruger National Park, South Africa, June 1999.

66.[*] M. Bae and B. Bose, "Lee Distance Gray Codes and Edge Disjoint Hamiltonian Cycles in Toroidal Networks," *Proc., IEEE Int'l Parallel Processing Symposium*, pp. 365-370, May 2000.

67.[*] S. Park, J. Youn, and B. Bose, "Fault-Tolerant Wormhole Routing Algorithms in Meshes in the Presence of Concave Faults," *Proc., IEEE Int'l Parallel Processing Symposium*, pp. 633-638, May 2000.

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69.[*] S. Park, J. Youn, and B. Bose, "Wormhole Routing in Faulty Mesh Networks," *International Conference on Parallel and Distributed Processing Techniques and Applications*, pp. 633-638, June 2000.

70.[*] L. Tallini and B. Bose, "Some Low Weight Code Design," *Proc., IEEE Int'l Symposium on Information Theory*, June 2000.

71.[*] J. Youn and B. Bose, "Some Improved Encoding and Decoding Schemes for Balanced Codes," *Proc., Pacific Rim International Symposium on Dependable Computing*, pp. 103-109, December 2000.

72.[*] Bader AlMohammad and Bella Bose, "On Distance-d Placements in 3D Tori," to appear in *Proc., International Conference on Parallel and Distributed Processing Techniques and Applications*, Las Vegas, NV, June 2001.

73.[*] Mung Bae, Bader AlMohammad, and Bella Bose, "Disjoint Hamiltonian Cycles in Two Dimensional Torus," to appear in *Proc., 5th Multiconference on Systematics, Cybernatics and Iformatics (SCI'2001)*, Orlando, FL, July 2001.

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75.[*] J. H. Youn and B. Bose, "An energy conserving medium access control protocol for multihop packet radio networks", Proceedings, IEEE International Conference on Computer Communications and Networks (ICCCN), pp. 470 - 475, Oct. 2001.

76.[*] J. H. Youn and B. Bose, "A topology-independent transmission scheduling in multihop packet radio networks", Proceedings, IEEE GlobeCom, pp. 1918 - 1922, Nov. 2001.

77.* P. Oprisan and B. Bose, "ARQ in optical networks", Proceedings, IEEE Pacific Rim International Symposium on Dependable Computing (PRDC), pp. 251 - 257, Dec. 2001.

78.* J. H. Youn, B. Bose and S. Park, "A scalable transmission scheduling algorithm for mobile ad   hoc network", IEEE Pacific Rim International Symposium on Dependable Computing (on   WARCC2001), pp. 5 - 9, Dec. 2001.

79* P. Orisan and B. Bose, "On asymmetric error detection with feedback", CalTech Workshop in   honor of Bob McEliece's 60th birthday, May 2002.

80* L. G. Tallini, S. AlBassam and B. Bose, "Capacity and codes for Z-channel", Proceedings,   IEEE International Symposium on Information Theory,Kluwer Academic Publishers, pp. 63   - 73, June - July 2002.

81* B. AlMohammad and B. Bose, "Quasi-perfect Lee distance codes", Proceedings, IEEE International Symposium on Information Theory, p. 486, June - July 2002.

82* B. Bose and M. Bae, "Gray codes and disjoint Hamiltonian cycles in torus and hypercubes", Proceedings, IEEE International Symposium on Information Theory, p. 487, June - July 2002.

83*. P. Oprisan and B. Bose, "Z-Channel feedback error control," Proc., IEEE Information Theory Workshop, p.210, October 2002.

84*. R. Mascella, L.G. Tallini, S. Al-Bassam and B. Bose, "On balanced codes over m-th root of unity, $m = 4$," Proc., IEEE International Symposium on Information Theory, p. 133, June-July 2003.

85*. J. P. Park and B. Bose, "On separabilities of binary Gray codes designed over Z_4," Proc., IEEE International Symposium on Information Theory, p. 187, June-July 2003.

86*. P. Oprisan and B. Bose. "On asymmetric error detection performance," Proc., IEEE International Symposium on Information Theory, p. 188, June-July 2003.

87*. A. Negi and B. Bose, "Impact of Nagle Algorithm and jitter buffer in multimedia applications," Proceedings, 5th World Wireless Conference, pp. , May 2004.

88*. J. H. Youn, B. Bose and S. Park, "Position-based topology independent scheduling algorithm for mobile ad-hoc networks," Proc., International Conference on Wireless Networks, June 2004.

89*. B. Bose and T. Klove, "An upper bound on the size of t-EC AUED codes," Proc., IEEE International Symposium on Information Theory, June-July 2004.

90*. T. Klove, P. Oprisan and B. Bose, "Probability of undetectable error for a class of asymmetric error detecting codes," Proc., IEEE International Symposium on Information Theory, June-July 2004.

91*. M. Anantha and B. Bose, "A router architecture for QoS capable cluster," Proc., 9th Asia-Pacific Computer Systems Architecture Conference, September 2004.

92*. L. Tallini and B. Bose, "On decoding some binary error control codes," Proc., Combinatorics 2004, Catania, Italy, September 2004.

93*. B. Bose and T. Klove, "Sperner's Theorem and unidirectional codes," Proceedings, Workshop on Coding and Cryptography, pp. 169-175, March 2005.

94*. P. Oprisian and B. Bose, "Error correction with feedback for asymmetric errors," IEEE International Symposium on Information Theory, September 2005.

95*. L. Tallini, S. Elmougy and B. Bose, "On Hybrid ARQ protocols over the m(>=2)-ary Asymmetric channel," IEEE International Workshop on Information Theory, March 2006.

96*.   M. Anantha, B. Bose and L. Tallini, "ARQ protocols and unidirectional errors," IEEE International Symposium on Information Theory, July 2006.

97*. D. Nguyen, T. Nguyen, B. Bose, "Wireless broadcasting using network coding" Proceedings, Third Workshop on Network Coding, Theory, and Applications, January 2007.

98*. M. Anantha, B. Bose and B. AlBdaiwi, "Mixed radix Gray codes and edge disjoint Hamiltonian cycles in toroidal networks", IEEE International Symposium on Information Theory, June 2007.

99*. X. Liu, J. Zhou and B. Bose, "Study on the MAP-based decoding algorithm of turbo codes over the asymmetric channel", 5th International Institute for General System Studies Workshop, Wuhan, China, June 2007.

100.* T. Tran, T. Nguyen and B. Bose, "A joint network coding technique for single-hop wireless networks," IEEE Netcod, January 2008.

101.* L. Tallini and B. Bose, "On a new class of error control codes and symmetric functions," IEEE International Symposium on Information Theory, July 2008.

102. N. Elarief and B. Bose, "Systematic limited magnitude error detecting codes," International Workshop on Information Theory and Applications, UCSD, February 2009.

103.* N. Elarief and B. Bose, "Optimal systematic q-ary codes correcting all asymmetric errors of limited magnitude," IEEE International Symposium on Information Theory, June 2009.

104.* L. Pezza , L. Tallini and B. Bose, "On systematic variable length unordered codes," IEEE International Symposium on Information Theory, June 2009.

105.* T. Klove, B. Bose and N. Elarief, "Systematic single limited magnitude asymmetric error correcting codes," IEEE Information Theory Workshop, January 2010.

106.* L. Tallini, B. Bose and N. Elarief, "On efficient repetition error correcting codes," IEEE International Symposium on Information Theory, June 2010.

107.* D. Pelusi, L. Tallini and B. Bose, "On m-ary balanced codes with parallel decoding," IEEE International Symposium on Information Theory, June 2010.

108.* L. Tallini and B. Bose, "On L_1 distance error control codes," Proceedings, IEEE International Symposium on Information Theory, pp. 1061-1065, July-August 2011.

109.* L. Tallini and B. Bose, "Reed-Muller codes, elementary symmetric functions and asymmetric error correction," Proceedings, IEEE International Symposium on Information Theory, pp. 1051-1055, July-August 2011.

110.* L. Tallini and B. Bose, "On symmetric L1 distance error control codes and elementary symmetric functions," Proceedings, IEEE International Symposium on Information Theory, pp. 741-745, July 2012.

111.* L. Tallini and B. Bose, "On symmetric/asymmetric Lee distance error control codes and elementary symmetric functions," Proceedings, IEEE International Symposium on Information Theory, pp. 746-750, July 2012.

112. L. Tallini and B. Bose, "Elementary symmetric functions and error correcting codes," Information Theory and Application Workshop, San Diego, February 2013.

113.* A. Shamaei, B. Bose and M. Flahive, "Adaptive routing in hexagonal torus interconnection networks," Proceedings, IEEE High Performance Extreme Computing Conference, pp. 1-6, May 2013.

114. N. Elarief, B. Bose and S. Elmougy, "Limited magnitude error detecting codes for flash memories," Non-Volatile Memory Workshop, UCSD, March 2013.

115.* R. Mascella, D. Pelusi, L. Pezza, S. Elmougy, L. Tallini and B. Bose, "On efficient second order spectral-null codes using sets of m_1- balancing functions," Proceedings, International Symposium on Information Theory, pp. 141-145, July 2013.

116.* L. Tallini and B. Bose, "On L_1 metric asymmetric/unidirectional error control codes, constrained codes and \sigma-codes," Proceedings, International Symposium on Information Theory, pp. 694-698, July 2013.

117.* L. Tallini, B. Bose and C. Varanasi, "Efficient codes for multilevel flash memories," Non-Volatile Memory Workshop, UCSD, San Diego, March 2014.

118. B. Bose, "Gray codes over Gaussian and EJ integers," Information Theory and Applications Workshop, San Diego, March 2014.

119.* A. Shamaei, B. Bose and M. Flahive, "Higher dimensional Gaussian Networks," Proceeding, IEEE International Parallel and Distributed Processing Symposium Workshops, pp. 1438-1447, May 2014.

120. L. Tallini and B. Bose, "On Z_m linear symmetric/asymmetric error control codes and elementary symmetric functions," Information Theory and Applications Workshop, San Diego, February 2015.

121. B. Bose, N. Elarief and L. Tallini, "On codes achieving zero error capacities in limited magnitude error channels," Information Theory and Applications Workshop, San Diego, February 2016.

122.* B. Bose, N. Elarief and L. Tallini, "On codes achieving zero error capacities in limited magnitude error channels," IEEE International Symposium on Information Theory, pp. 1386 – 1390, July 2017.

123. L. Tallini and B. Bose, "On deletion/insertion of zero errors and asymmetric error control codes," Information Theory and Application Workshop, San Diego, February 2018.

124.* L. Tallini and B. Bose, "On some new Z_m linear codes based on elementary symmetric functions," IEEE International Symposium on Information Theory, pp. 1665-1669, June 2018.

Invited/Keynote Lectures at International Conferences

1. B. Bose, "Unidirectional Error Correction/Detection for VLSI Memory," Invited panelist for the panel session on "Computer Organization, Security and Coding," *Digest of Papers*, 11th International Symposium on Computer Architecture, pp. 242-244, June 1984.

2. B. Bose, "Lee Distance and Toroidal Networks," *International Conference on Advanced Computing and Communication (ADCOM)*, Cochin, India, December 2000.

3. B. Bose, "Coding Theory and Applications to Computer Science Problems," International Conference on Computing, Communication and Networking, Karur, India, December 2008.

4. B. Bose, "Some New Classes of Interconnection Networks," International Conference on Computing, Communication and Networking, Karur, India, July 2010.

5. B. Bose, "Coding for Flash Memories," International Conference on Computing, Communication and Networking, Coimbatore, India, July 2012.

6. B. Bose, "Gaussian and EJ Networks- Some Efficient Interconnection Topologies for Parallel Systems," The 17th International Symposium on Computer Architecture and Digital System, Tehran, Iran, October 2013.

7. B. Bose, "Codes achieving zero error capacities in limited magnitude error channel," African Winter School on Information Theory and Communications, Kruger National Park, South Africa, August 2015.

PATENT
1. B. Bose and D.J. Lin, "Method and System for Detecting a Predetermined Number of Unidirectional Errors," U.S. Patent No. 4,691,319, September 1987.
2. B. Bose and N. Elarief, "System and Method having Optimal, Systematic q-Ary Codes for Correcting All Asymmetric and Symmetric Errors of Limited Magnitude," US Patent No. 8,983,921 B2, March 17, 2015.

RESEARCH GRANTS

Current

1. "Some error correcting codes for computer systems", National Science Foundation, CCF-1423656, September 2014 – August 2019, $288, 271.

Prior
1. "Research Initiation: Asymmetric and Unidirectional Error Codes," National Science Foundation, $47,692, June 15, 1983-November 30, 1985.
2. Travel Grant to Attend IEEE Information Theory Workshop at Caesarea, Israel, National Science Foundation, $500, July 1-5, 1984.
3. "Theory and Design of Asymmetric and Unidirectional Error Codes," National Science Foundation, $69,142, July, 1985-December, 1987.
4. "Processors Allocation in N-Cube Multiprocessor," Oregon Advanced Computing Institute, $64,000, October 1988-September 1990.
5. "Balanced Codes," National Science Foundation MIP-9016143, $46,897, January 1991-December 1992.
6. "Algorithms and Abstractions for Mapping Parallel Algorithms to Parallel Architectures," (with V. Lo and S. Rajopadhye), National Science Foundation and Oregon Advanced Computing Institute, $481,275, January 1992-June 1995.
7. "Algorithms and Abstractions for Mapping Parallel Algorithms to Parallel Architectures," (with V. Lo and S. Rajopadhye), National Science Foundation and Oregon Advanced Computing Institute, (Supplement) $48,000, January 1993-June 1995.
8. "Balanced Codes for VLSI Systems," National Science Foundation, $187,805 (plus $5,000 for one REU), September 1994-March 1998.
9. "Some Coding Techniques for VLSI Systems," National Science Foundation, $407,105, September 1997-August 2001.
10. 'Some coding techniques for VLSI and computer systems", National Science Foundation, CCR 0105204, September 2001 - August 2005, $300,319.00.
11. "Some coding techniques for computer applications," National Science Foundation, CCF-0430033, September 2004 – August 2007, $105,969 (plus $6,674 supplement in May 2007).
12. "Coding theory research," Sai Technology, October 2007 – January 2008, $20,000.
13. "Some low cost error control coding techniques for computer systems", National Science Foundation, CCF-0701452, May 2007 – April 2010, $152,624.
14. "Some efficient error control codes designs for various error channel models", National Science Foundation, CCF-0728810, September 2007 – August 2010, $173,362.
15. "Coding theory research," Mozy Inc., June 2009 - , $5,000.

16. "Interconnection networks: Topological properties and communication algorithms", (with Mary Flahive), National Science Foundation, CCF-1015804, September 2010 – August 2015, $200,000 (plus $6,000 for REU).
17. "Some codes applicable to flash memories and computer systems", National Science Foundation, CCF- 1117215, September 2011 – August 2016, $300,000.

GRADUATE STUDENTS SUPERVISED

Ph.D. Students
1. D.J. Lin, "Unidirectional Error Correcting/Detecting Codes," July 1987.
2. A. Al-Dhelaan, "Processor Allocation and Communication in Networks," March 1989.
3. N. Darwish, "New Bounds and Construction for Error Control Codes," March 1989.
4. S. Al-Bassam, "Balanced Codes," January 1990.
5. J. Jang, "Design and Analysis of Robust Algorithms for Fault Tolerant Computing," April 1990.
6. S. Park, "Fault Tolerant Communication Algorithms for Parallel Systems," March 1993.
7. Y. Kwon, "Embedding and Mapping in Parallel Systems," May 1993.
8. B. Rowley, "Fault Tolerant Ring Embedding in De Bruijn Networks," December 1993.
9. B. Broeg, "Topics in k-ary n-cube," June 1995.
10. L. Tallini, "Design of Efficient Balanced Codes," November 1996.
11. M. Bae, "Resource Placement, Data Rearrangement, and Hamiltonian Cycles in Torus Networks," November 1996.
12. B. Almohammad, "On Resource Placements and Fault-Tolerant Broadcasting in Toroidal Networks," November 1997.
13. G. Ramanathan, "Fault Tolerant Techniques: Algorithm-Based Fault Tolerance and Reconfiguration," March 1998.
14. S. Gorshe, "Concurrent Error Detection", April 2002.
15. J. H. Youn, "Topology Independent Transmission Scheduling Algorithms in Mobile Ad hoc Networks", May 2002.
16. P. Oprisan, "Error Control Techniques for the Z-Channel" December 2004
17. O. M. Erdem, "Efficient Key Management Protocols for Mobile Ad Hoc Networks', March 2005.
18. S. Elmougy, "Some Contributions to Asymmetric Error Control Codes", May 2005.
19. M.Anantha, "Gray Codes and Their Applications", June 2007.
20. D. Nguyen, "Network Coding for Multi-user wireless networks", June 2009 (Co-Advisor with Prof. T. Nguyen).
21. B. AlBader, "Some communication algorithms for Gaussian and Eisenstein-Jacobi Networks", June 2009.
22. N. Elarief, "Limited magnitude error control codes," February 2010.
23. T. Tran, "Throughput optimization for single-hop wireless networks using network coding", April 2010 (Co-Advisor with Prof. T. Nguyen).
24. K. Nguyen, "Network coding for sensor networks, distributed storage systems and P@P streaming", December 2010 (Co-Advisor with Prof. T. Nguyen).
25. Z. Hussien, "On shortest disjoint paths and Hamiltonian cycles in some interconnection networks", April 2011.

26. Omar Alsaleh, "One-to-many node disjoint paths in generalized hypercube, dense Gaussian and hexagonal mesh networks," March 2014 (Co-advisor with Prof. B. Hamdaoui)
27. T. Duong, "Resource allocation in large scale distributed systems," May 2014 (Co-advisor with Prof. T. Nguyen).
28. A. Shamaei, "Interconnection networks based on Gaussian and Eisenstein integers," December 2015 (Co-advisor – Prof. M. Flahive).

Current Ph.D. Student

1. Fawaz Alazemi
2. Qiwei Wang
3. Nawaf Alqwaifly

M.S. Students
1. R.S. Cunningham, "On Asymmetric Error-Correcting Codes," June 1982.
2. A. Janbieh, "Binary Unidirectional Error Detecting/Correcting Codes and Error Codes over Zq," September 1984.
3. S. Al-Bassam, "Optimal Fixed Hashing Sequence," February 1985.
4. J. Albert, "Topological Sorting Algorithm," May 1985.
5. G.C. Converse, "Optimal Unidirectional Error-Detecting Codes," December 1985.
6. A. Das, "Encoding/Decoding of Unidirectional Error Detecting Codes," October 1986.
7. M. Prusynski, "Developing True Diagnostic Software," December 1988.
8. S. Zhang, "Optimal Fault Tolerant Routing in De Bruijn's Network," May 1989.
9. S. Malhotra, "Totally Self Checking Checkers for t-Unidirectional Error Detecting Codes," Department of Electrical and Computer Engineering, August 1989.
10. J. Liu, "On Processors Allocations in N-Cube," April 1990.
11. J. Boone, "An Interactive Workbench for Sound Experimenters," March 1991.
12. R. Traylor, "A Token Caching Waiting-Matching Unit for Tagged Token Dataflow Computers," Department of Electrical and Computer Engineering, May 1991.
13. S.G. Krishnapura, "Object-Oriented Simulation Model of a Digital Switching System," October 1991.
14. G. Ramanathan, "Improved Construction Methods for Error Correcting Constant Weight Codes," January 1992.
15. Y.A. Ashir, "Properties and Communication Algorithms for k-ary n-Cube Interconnection Networks," January 1993.
16. S. Lee, "Partitioning and Broadcasting in Faulty Hepercube," December 1993.
17. L. Tallini, "Some Efficient Balanced Codes," April 1994.
18. J. Youn, "Some Efficient Implementations of Balanced Codes," November 1999.
19. N. Kalinati, "Satellite Data Ingestion Tool," October 2002.
20. C. Mukkas, "Simulation of DS3 protection unit for ATM PONS," October 2002.
21. J. P. Park, "Separabilities for a New Class of Gray Codes," November 2002.
22. M. Al-Mutairi, "On Hamiltonian Cycles in Toroidal Networks" May 2003.
23. M. Anantha, "A router architecture for QoS capable clusters," October 2003.

24. A. Negi, "Impact of Nagle algorithm and Jitter buffer in multimedia applications," December 2003.
25. S. Venkatachalapathy, "Signed Digit Representation of Numbers," January 2004.
26. C. Shinde, "Binary Ripcom tool," May 2004.
27. B. Anumolu , "Component Tracking System: A Distributed Platform Independent System for Monitoring a Component End of Life Process," September 2004.
28. S. Anand, "Java-based GUI SAML Editor," January 2005.
29. V. Narendra, "WinTriangle A Scientific Editor for the Visually Impaired," August 2005.
30. S. Kuntala "Database Design and Persistence Using Nhibernate", August 2006.
31. J. Pai, "Load Testing of J2EE Web Application", August 2006.
32. N. Elarief, "Diversity combining ARQ over m-ary unidirectional channel," October 2008.
33. A. Kalyan, "PHP Cloud computing platform," December 2008.
34. Z. Hussien, "Performance evaluation of some classes of balanced codes," December 2008.
35. S. Mohan, "Indexing web 2.0 applications", July 2009.
36. F. Alazemi, "On edge disjoint Hamiltonian cycles in torus and Gaussian networks," June 2015.
37. A. Sarbaziazad, "Shortest node disjoint paths in higher dimensional Gaussian networks," September 2016.