Charles Joseph COLBOURN

January 2020

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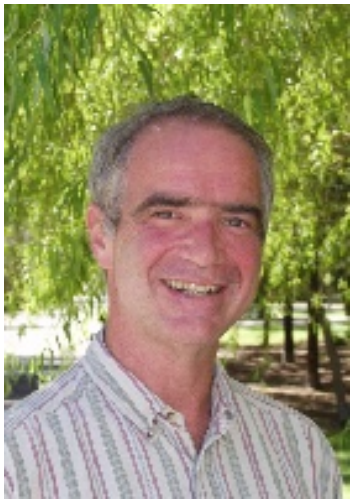

Personal Information

Birthdate: 24 October 1953
Birthplace: Toronto, Ontario, Canada.
Citizenship: Canadian
Status: United States permanent resident

Education

Degree	Date	Institution	Department
Ph.D.	06/1980	University of Toronto	Computer Science
M.Math.	05/1978	University of Waterloo	Computer Science
B.Sc.	06/1976	University of Toronto	Computer Science

Awards

Euler Medal for Lifetime Research Achievement, Institute for Combinatorics and Its Applications, 2003.
A.J. Buckingham Scholar, Mathematics and Statistics, Miami University, Oxford OH, 2003.
University Scholar in Basic and Applied Sciences, University of Vermont, 1997-98.
Instructor of the Year, 1995–96, Faculty of Mathematics, University of Waterloo, awarded by MathSoc, the students' society.

Theses

C.J. Colbourn, "Graph generation", M.Math. Thesis, Department of Computer Science, University of Waterloo, 1977.
C.J. Colbourn, "The complexity of graph isomorphism and related problems", Ph.D. Thesis, Department of Computer Science, University of Toronto, 1980.

Academic Experience

Regular appointments

Position	Period	Institution	Department
Professor	08/01-	Arizona State University	Computer Science and Engineering
(tenured)	08/01-		
Dorothean Professor	08/96-08/01	University of Vermont	Computer Science
(tenured)	08/96-08/01		
Professor	07/89-08/98	University of Waterloo	Combinatorics and Optimization
Associate Professor	09/87-06/89	University of Waterloo	Combinatorics and Optimization
Associate Professor	01/84-08/87	University of Waterloo	Computer Science
(tenured)	07/86-08/98		
Associate Professor	07/82-12/83	University of Saskatchewan	Computational Science
Assistant Professor	07/80-06/82	University of Saskatchewan	Computational Science

Visiting and cross appointments

Position	Period	Institution	Department
Professor	08/96-08/01	University of Vermont	Mathematics and Statistics
Visiting Scientist	08/97	Defence Science and Technology Organization, Salisbury, Australia	Communications Division
University of Auckland Foundation Fellow	03/96-06/96	University of Auckland	Computer Science
Raybould Fellow	07/94-08/94	Univ. Queensland	Mathematics
Visiting Scientist	03/93-04/93	Rutgers University	Dimacs
Senior Research Fellow	08/90-12/90	Curtin University	Mathematics and Statistics
Professor	09/90-08/98	University of Waterloo	Computer Science
Research Professor	04/90-03/93	Carleton University	Computer Science
Senior Fellow	09/89-12/89	Simon Fraser University	Systems Science
Visiting Professor	01/89-03/89	Auburn University	Algebra, Combinatorics, Analysis
Senior Fellow	09/87-10/87	University of Minnesota	Mathematics and Applications
Associate Professor	09/87-08/90	University of Waterloo	Computer Science
Visiting Professor	01/86-05/86	University of Auckland	Computer Science
Visiting Assoc Prof	09/85-12/85	University of Toronto	Computer Science
Associate Professor	01/84-08/87	University of Waterloo	Combinatorics and Optimization

Teaching Experience

Term (F,W,S)	Course	Size	Topic
S20	CSE355	125	Intro Theory of Computation
S20	CSE555	25	Theory of Computation
F19	CSE355	90	Intro Theory of Computation
F19	CSE551	135	Advanced Algorithms
S19	CSE355	90	Intro Theory of Computation
S19	CSE555	20	Theory of Computation
S19	CSE591/494	30	Popularity in Storage Systems
F18	CSE355	75	Intro Theory of Computation
F18	CSE355	70	Intro Theory of Computation
S18	CSE355	65	Intro Theory of Computation
S18	CSE551	80	Advanced Algorithms
S17	CSE355	350	Intro Theory of Computation
S17	CSE555	10	Theory of Computation
F16	CSE355	366	Intro Theory of Computation
F16	CSE691	7	Interaction Testing Theory and Practice
S16	CSE355	275	Intro Theory of Computation
S16	CSE555	25	Theory of Computation
F15	CSE355	110	Intro Theory of Computation
F15	CSE551/591	135	Advanced Algorithms
S15	CSE555	49	Theory of Computation
F14	CSE355	132	Intro Theory of Computation
F14	CSE457/598	35	Formal Languages
F14	CSE550	45	Combinatorial Algorithms and Intractability
S14	CSE 555	46	Advanced Theory of Computation
S14	CSE591/MAT591	40	Combinatorial Design Theory
F13	CSE 355	82	Intro Theory of Computation
F13	CSE 552	32	Randomized and Approximation Algorithms
S13	CSE 555	30	Advanced Theory of Computation
S13	CSE 355	55	Intro Theory of Computation
F12	CSE 420/598	64	Computer Architecture I
F12	CSE 457/598	45	Theory of Formal Languages
S12	CSE355	100	Intro Theory of Computation
S12 (x3)	ASU 101	19	The ASU Experience
F11 (x2)	CSE301	55	Ethics in Computing
S11	CSE355	82	Intro Theory of Computation
S11	CSE591/MAT591	25	Combinatorial Design Theory
F10	CSE 355	43	Intro Theory of Computation
F10	CSE 552	18	Randomized and Approximation Algorithms
S10	CSE 457	8	Theory of Formal Languages
S10	CSE 591	4	Perfect Hashing
F09	CSE 424	20	Systems Capstone 2
S09	CSE 355	60	Intro Theory of Computation
S09	CSE 301	42	Ethics for Computer Science
S08	CSE 591	6	Software Interaction Testing
S08	CSE 420	35	Computer Architecture I
F07	CSE 420/598	68	Computer Architecture I
S07	IEE 598	26	Optimization II
S07	CSE 434	30	Computer Networks
F06	CSE 355	55	Intro Theory of Computation
S06	CSE 591	6	Interaction Testing
S06,F05	CSE 412/598	35	Database Management Systems

Term (F,W,S)	Course	Size	Topic
F05	CSE 534	19	Advanced Computer Networks
F04	CSE 591	8	Network Reliability
F04	CSE 434	28	Computer Networks
F03	CSE 591	14	Genomics: Sequencing and Mapping
F03	CSE 434/598	55	Computer Networks
F02	CSE 310	160	Data Structures
S01	CS 103	30	Programming Languages
F00	CS 201	36	Operating Systems
W00	CS 222	33	Computer Architecture
W00, W99	CS 395	2	Combinatorial Algorithms
F99	CS 101	39	Computer Organization
F98	CS 266	24	Network Security and Cryptography
F98	CS 294	2	Medical Informatics
F97	CS 265	22	Computer Networks
W97	CS 395	10	Applied Cryptography
F96	CS 243	20	Theory of Computation
96(1st)	415(CS).701	15	Network Reliability
F95,F94,F92	C&O438/638	15	Combinatorial Computing
F94,F91	C&O434/634	14	Combinatorial Design
S94	E&CE203	90	Discrete Math for Engineers
W94,F92,S89($\times$2),W88	C&O230	50	Introduction to Combinatorics
W94,S88 ($\times$2)	C&O351	40	Network Flows
F92,F91,S91,S88	C&O454	30	Scheduling Theory
F91	C&O750B/CS756	10	Topics on Network Reliability
S89	MATH 134b	100	Linear Algebra
W89	MH371A	24	Discrete Mathematics 1
W88	C&O380	12	Invention and Discovery in Mathematics
S87	CS766	14	Topics in Network Algorithms
S87,F86,S85	CS466/666	40	Analysis of Algorithms
F86	CS234	150	Programming Principles
F86	C&O739/CS756	15	Combinatorics of Network Reliability
F85	CSC2427F	8	Topics in Graph Theory
S85	CS756	17	Topological Design of Networks
S85,S84	CS450/650	35	Computer Architecture
W85	CS435	30	Computer Applications
F84	CS462/662	20	Formal Languages and Parsing
F84	CS354/554	60	Software Systems
S84	CS766	12	Network Reliability: Algorithms and Complexity
F83	CMPT 419.3	3	Computability and Complexity Theory
F83	CMPT 416.3	12	Combinatorial and Geometric Algorithms
F83,W83	CMPT 230.6	70	Software Design
F83,F82,F81,F80	CMPT 882.3	3	Topics in the Theory of Computing
W83	CMPT 361.3	20	Theory of Computation 2
W83	CMPT 424.3	45	Computer Communication Networks
F82,W82,W81	CMPT 313.3	90	Software Design
W82	CMPT 419B	1	Introduction to Combinatorics
W82	CMPT 326B	70	Theory of Computation 1
F81	CMPT 427A	12	Analysis of Algorithms
F81	CMPT 212A	70	Assembly Language Programming
W81	CMPT 419B	5	Recursive Function Theory and Computability
F80	CMPT 180A	240	Introduction to Computer Science
F80	CMPT 375A	75	Computing for Accounting
W80	CSC 208S	40	Assembly Language Programming
S79	CSC 258H	50	Computer Organization

Graduate Supervision

Ph.D. Theses Supervised

Theses completed

1. Ryan E. Dougherty, Ph.D., "Hash Families and Applications to t-Restrictions", Computer Science, Arizona State University, 2019.
2. Erin Lanus, Ph.D., "Interaction Testing, Fault Location, and Anonymous Attribute-Based Authorization", Computer Science, Arizona State University, 2019.
3. Kaushik Sarkar, Ph.D., "Covering Arrays: Algorithms and Asymptotics", Computer Science, Arizona State University, 2016.
4. Jonathan Lutz, Ph.D., "Scheduled Medium Access Control in Mobile Ad Hoc Networks", Computer Science, Arizona State University, 2013 (co-supervised with Violet R. Syrotiuk).
5. Maurice M. Carey, Ph.D., "The Classification of Domain Concepts in Object-Oriented Systems", Computer Science, Arizona State University, 2013 (co-supervised with James Collofello).
6. Peyman Nayeri, Ph.D., "Post-Optimization: Necessity analysis for combinatorial arrays", Computer Science, Arizona State University, 2011. (co-supervised with Goran Konjevod).
7. Toni R. Farley, Ph.D., "Network reliability and resilience", Computer Science, Arizona State University, 2009.
8. Dean S. Hoskins, Ph.D., "Covering Arrays and Optimal Designs", Computer Science, Arizona State University, 2006.
9. Renée C. Bryce (Turban), Ph.D. "Algorithms for Covering Arrays", Computer Science, Arizona State University, 2006.
10. Robert A. Walker II, Ph.D., "Covering Arrays and Perfect Hash Families", Computer Science, Arizona State University, 2005.
11. Robert P. Gallant, Ph.D., "Tight orthogonal main effect plans", Combinatorics and Optimization, University of Waterloo, 1997.
12. Alan C.H. Ling, Ph.D., "Pairwise balanced designs and related codes", Combinatorics and Optimization, University of Waterloo, 1996.
13. Yeow Meng Chee, Ph.D., "Turan-type problems in group testing, coding theory and cryptography", Computer Science, University of Waterloo, 1996.
14. Zhike Jiang, Ph.D., "Rotational Steiner triple systems", Combinatorics and Optimization, University of Waterloo, 1995.
15. Heidi J. Strayer, Ph.D., "Bounding flows, distances and reliability in probabilistic networks", Computer Science, University of Waterloo, 1995.
16. Doreen L. Erickson (Galli), Ph.D., "Conflict-free access to parallel memory modules", Computer Science, University of Waterloo, 1993.
17. Violet R. Syrotiuk, Ph.D., "Wang tilings and distributed orientation on torus networks", Computer Science, University of Waterloo, 1992 (co-supervised with J.K. Pachl).
18. Daryl D. Harms, Ph.D., "A symbolic algebra environment for research in network reliability", School of Computing Science, Simon Fraser University, 1992 (co-supervised with A.L. Liestman).
19. David C. Bigelow, Ph.D., "Enclosings of latin squares and triple systems", Pure Mathematics, University of Waterloo, 1990.
20. Anthony J. Gahlinger, Ph.D., "Coherence and satisfiability of waveform timing specifications", Computer Science, University of Waterloo, 1990.

21. Louis D. Nel, Ph.D., "Network reliability and facility location in unreliable networks", Computer Science, University of Waterloo, 1988.
22. Hosam M. F. AboElFotoh, Ph.D., "Reliability of radio broadcast networks: a graph theoretic approach", Computer Science, University of Waterloo, 1988.
23. Wendy J. Myrvold, Ph.D., "The ally and adversary reconstruction problems", Computer Science, University of Waterloo, 1988.
24. Ehab S. El Mallah, Ph.D., "Decomposition and embedding problems for restricted networks", Computer Science, University of Waterloo, 1987.
25. Aparna Ramanathan, Ph.D., "Improving bounds for all-terminal network reliability", Computer Science, University of Waterloo, 1986.

Masters Supervised

Theses supervised

1. Rushang Karia, "Covering Arrays: Generation and Post-Optimization", Computer Science and Engineering, Arizona State University, 2015.
2. Devon J. O'Brien, M.S. (CS), "The Design and Analysis of Hash Families for Use in Broadcast Encryption", Computer Science and Engineering, Arizona State University, 2012.
3. Kumaraguru Paramasivam, M.S. (CS), "Correlation Based Tools for Analysis of Dynamic Networks", Computer Science and Engineering, Arizona State University, 2011.
4. Deepa R. Iyer, M.S. (CS), "Identification of Network Communities using Cocitation Analysis and Bibliographic Coupling", Computer Science and Engineering, Arizona State University, 2008.
5. Jamieson French, M.S. (CS), "A Parallel Approach for k-Nearest Neighbor Search in Metric Space", Computer Science and Engineering, Arizona State University, 2008.
6. Akhila Avirneni, M.S. (CS), "Feasibility of interaction testing for web-based forms", Computer Science and Engineering, Arizona State University, 2007.
7. Andreas H. Ronneseth, M.S. (CS), "The Building Block Algorithm: A New Method for Constructing Covering Arrays", Computer Science and Engineering, Arizona State University, 2006.
8. Kylan N. Johnson, M.S.(CS), "Selecting reliable connections in mobile ad hoc networks", Computer Science and Engineering, Arizona State University, 2005.
9. Sandhya Durvasula, M.S.(CS), "Lower bounds for multiple sequence alignment", Computer Science and Engineering, Arizona State University, 2004.
10. Kaushik Srinivasan, M.S.(CS), "Disk recovery in double erasure RAID disk arrays", Computer Science and Engineering, Arizona State University, 2004.
11. Xunshan Ma, M.S.(CS), "Computational method to construct erasure-resilient codes", Computer Science, University of Vermont, 1999.
12. Shanon D. Place, M.S.(CS), "Application of bipartite graph matching algorithms for physical therapy student internship assignments", Computer Science, University of Vermont, 1999.
13. Myra B. Cohen, M.S.(CS), "Performance analysis of triple erasure codes in large disk arrays", Computer Science, University of Vermont, 1999.
14. Lise Arseneau, M.Math., "Optimal testing strategies for s,t-series parallel systems", Combinatorics and Optimization, University of Waterloo, 1996.
15. Alan C.H. Ling, M.Math., "Pairwise balanced designs with consecutive block sizes", Combinatorics and Optimization, University of Waterloo, 1995.
16. Doreen L. Erickson (Galli), M.Math., "Threshold schemes", Computer Science, University of Waterloo, 1990.
17. Yeow Meng Chee, M.Math., "The basis reduction algorithm and the existence of combinatorial designs", Computer Science, University of Waterloo, 1989.

18. H.M. Kenneth Warkentyne, M.Math., "Δ-Y-Δ reducible graphs", Computer Science, University of Waterloo, 1988.
19. Peter B. Channen, M.Math., "A performance evaluation of distributed discrete event simulation", Computer Science, University of Waterloo, 1988 (co-supervised with Jan K. Pachl).
20. Brent N. Clark, M.Math. "Unit disk graphs", Computer Science, University of Waterloo, 1985.
21. Timothy B. Brecht, M.Math. "Lower bounds for two-terminal network reliability", Computer Science, University of Waterloo, 1985.
22. Ehab S. El-Mallah, M.Sc. "Recursive graph structure and the optimum communication spanning tree problem", Computational Science, University of Saskatchewan, 1983.
23. Daryl D. Harms, M.Sc. "An investigation into bounds on network reliability", Computational Science, University of Saskatchewan, 1983.
24. Eric M. Neufeld, M.Sc. "Construction of reliable series-parallel networks: a combinatorial approach", Computational Science, University of Saskatchewan, 1983.
25. Judith B. Peachey, M.Sc. "The Bradford-Zipf distribution and program behaviour", Computational Science, University of Saskatchewan, 1981 (co-supervised with R.B. Bunt).

Essays Supervised

1. Adithya Raghavendra, MCS, "Interaction Testing of Web Services", Computer Science and Engineering, Arizona State University, 2006.
2. Robin L. Wilcox, MCS, "In Parameter Order Test Generation Strategies", Computer Science and Engineering, Arizona State University, 2006.
3. Ron Castelletto, M.Math., "A comparison and implementation of Monte Carlo methods for estimating the probability of s, t connectedness", Computer Science, University of Waterloo, 1991.
4. F. David Fracchia, M.Math., "F-factors and single processor scheduling", Computer Science, University of Waterloo, 1987.
5. Bradley M. Debroni, M.Math., "Monte Carlo algorithms for estimating the coefficients of the network reliability polynomial", Computer Science, University of Waterloo, 1987.
6. Katherine E. Stewart, M.Math., "Computing the all-terminal reliability exactly", Computer Science, University of Waterloo, 1987.
7. Andrea R. Chappell, M.Math. "The terminal layout problem", Computer Science, University of Waterloo, 1986.
8. Louis D. Nel, M.Math. "The design and complexity of VideoTex cycles", Computer Science, University of Waterloo, 1985.
9. Eddy H. Carrasco, M.Math., "An implementation of a first order and second order method for network reliability", Computer Science, University of Waterloo, 1984.

Current Research Interests

My research concentrates on areas in which combinatorics and computer science interact in an elegant way. Two main directions are:

- combinatorial design theory
  - applications in computer science: erasure correction, error correction, combinatorial cryptography, computational biology.

  - triple systems, block designs, pairwise balanced designs, group-divisible designs, transversal designs, latin squares, orthogonal arrays.
  - algorithms and computational methods; combinatorial search techniques.
  - applications of designs to lotteries.

- network algorithms and network design
  - network reliability: efficiently computable bounds, combinatorial structure from matroids, polyhedral and shellable complexes; exact algorithms; most probable state methods.
  - network design and analysis: graph algorithms, heuristics, search techniques.
  - network diagnosis and testing.

Research Publications

Refereed Journal Papers

1. R. Gabrys, H. S. Dau, C. J. Colbourn and O. Milenkovic, Set-Codes with Small Intersections and Small Discrepancies, *SIAM J. Discrete Mathematics*, to appear (acc Dec19).
2. M.J. Mellott, D. Garlisi, C.J. Colbourn, V.R. Syrotiuk, and I. Tinnirello, Realizing airtime allocations in multi-hop Wi-Fi networks: A stability and convergence study with testbed evaluation, *Computer Communications* 145 (2019), 273-283.
3. K. Sarkar and C.J. Colbourn, Two-stage algorithms for covering array construction, *Journal of Combinatorial Designs* 27 (2019), 475-505.
4. C.J. Colbourn, D.R. Stinson, and S. Veitch, Constructions of optimal orthogonal arrays with repeated rows, *Discrete Mathematics* 342 (2019), 2455-2466.
5. C.J. Colbourn and E. Lanus, Subspace Restrictions and Affine Composition for Covering Perfect Hash Families, *Art of Discrete and Applied Mathematics* 1 (2018), #P02.03.
6. C.J. Colbourn and V.R. Syrotiuk, On a Combinatorial Framework for Fault Characterization, *Mathematics in Computer Science* 12 (2018), 429-451.
7. C.J. Colbourn, R.E. Dougherty, and D, Horsley, Distributing Hash Families with Few Rows, *Theoretical Computer Science* 800 (2019), 31-41.
8. C.J. Colbourn, On a latin square problem of Fuchs, *Australasian Journal of Combinatorics* 71 (2018), 501-536.
9. Hengjia Wei, Gennian Ge, and C.J. Colbourn, Group divisible covering designs with block size four, *Journal of Combinatorial Designs* 26 (2018), 101-118.
10. C.J. Colbourn, D. Horsley, and V.R. Syrotiuk, A Hierarchical Framework for Recovery in Compressive Sensing, *Discrete Applied Mathematics* 236 (2018), 96-107.
11. Guanqiu Qi, Wei-Tek Tsai, Charles J. Colbourn, Jie Luo, Zhiqin Zhu, Test-Algebra-Based Fault Location Analysis for the Concurrent Combinatorial Testing. *IEEE Trans. Reliability* 67(3) (2018), 802-831.
12. S. Maity, Y. Akhtar, R.C. Chandrasekharan, and C.J. Colbourn, Improved Strength Four Covering Arrays with Three Symbols, *Graphs and Combinatorics* 34 (2018), 223-239.
13. C.J. Colbourn, E. Lanus, and K. Sarkar, Asymptotic and constructive methods for covering perfect hash families and covering arrays, *Designs, Codes and Cryptography* 86 (2018), 907-937.
14. K. Sarkar, C.J. Colbourn, A. De Bonis, and U. Vaccaro, Partial Covering Arrays: Algorithms and Asymptotics, *Theory of Computing Systems* 62 (2018) 1470-1489.

15. D. Bryant, C.J. Colbourn, D. Horsley, and I.M. Wanless, Steiner triple systems with high chromatic index, *SIAM Journal on Discrete Mathematics* 31 (2017), 2603-2611.
16. J. Lutz, C.J. Colbourn, and V.R. Syrotiuk, Variable-Weight Topology-Transparent Scheduling, *Computer Networks* 122 (2017), 16-28.
17. D. Bryant, C.J. Colbourn, D. Horsley, and P. Ó Catháin, Compressed sensing with combinatorial designs: theory and simulations, *IEEE Transactions on Information Theory* 63 (2017), 4850-4859.
18. K. Sarkar and C.J. Colbourn, Upper bounds on the size of covering arrays, *SIAM Journal on Discrete Mathematics* 31 (2017), 1277-1293.
19. C.J. Colbourn, B.L. Fan, and D. Horsley, Disjoint Spread Systems and Fault Location, *SIAM Journal on Discrete Mathematics* 30 (2016), 2011-2016.
20. C.J. Colbourn and B.L. Fan, Locating One Pairwise Interaction: Three Recursive Constructions, *Journal of Algebra Combinatorics Discrete Structures and Applications* 3 (2016) 125-134.
21. C.J. Colbourn, M.S. Keranen, and D.L. Kreher, The 3-GDDS of type g^3u^2, *Journal of Algebra Combinatorics Discrete Structures and Applications* 3 (2016), 135-144.
22. M. De Lourdes Merlini Giuliani, G. Souza dos Anjos, and C.J. Colbourn, Steiner loops satisfying the statement of Moufang's theorem, *Quasigroups Related Systems* 24 (2016) 103-108.
23. Hengjia Wei, Gennian Ge, and C.J. Colbourn, The existence of well balanced triple systems, *Journal of Combinatorial Designs* 24 (2016), 53-100.
24. Shi-Wei Gao, Jiang-Hun Lv, Bing-Lei Du, C.J. Colbourn, and Shi-Long Ma, Balancing Frequencies and Fault Detection in the In-Parameter-Order Algorithm, *Journal of Computer Science and Technology* 12 (2015), 957-968.
25. C.J. Colbourn, M. De Lourdes Merlini Giuliani, A. Rosa, and I. Stuhl, Steiner Loops Satisfying Moufang's Theorem, *Australasian Journal of Combinatorics* 61 (2015), 161-171.
26. Y.M. Chee, C.J. Colbourn, A.C.H. Ling, H. Zhang, and X. Zhang, Optimal Low-Power Coding for Error Correction and Crosstalk Avoidance in On-Chip Data Buses, *Designs Codes Cryptography* 77 (2015), 479-491.
27. C. Nie, H. Wu, X. Niu, F.-C. Kuo, H. Leung, and C.J. Colbourn, Combinatorial testing, random testing, and adaptive random testing for detecting interaction triggered failures, *Information and Software Technology* 62 (2015), 198–213.
28. C.J. Colbourn, Augmentation of Covering Arrays of Strength Two, *Graphs and Combinatorics* 31 (2015), 2137-2147.
29. A.N. Aldaco, C.J. Colbourn, and V.R. Syrotiuk, Locating Arrays for Screening Engineered Systems, *Operating Systems Review* 49,1 (2015), 31–40.
30. H. Wu, C. Nie, F.-C. Kuo, H. Leung, and C.J. Colbourn, A Discrete Particle Swarm Optimization for Covering Array Generation, *IEEE Transactions on Evolutionary Computation* 19,4 (2015), 575-591.
31. C.J. Colbourn, Covering Arrays, Augmentation, and Quilting Arrays, *Discrete Mathematics, Algorithms and Applications* 6 (2014), #1450034.
32. J. Lutz, C.J. Colbourn, and V.R. Syrotiuk, ATLAS: Adaptive Topology- and Load-Aware Scheduling, *IEEE Transactions on Mobile Computing* 13,10 (2014), 2255-2268.
33. C.J. Colbourn, M.S. Keranen, and D.L. Kreher, F-Vectors of Pure Complexes and Pure Multicomplexes of Rank Three, *Discrete Mathematics* 420 (2014), 26–39.
34. C.J. Colbourn and J. Torres-Jimenez, Profiles of Covering Arrays of Strength Two, *Journal of Algorithms and Computation* 44 (2013), 31–59.
35. Y.M. Chee, C.J. Colbourn, D. Horsley, and J. Zhou, Sequence covering arrays, *SIAM Journal on Discrete Mathematics* 27 (2013), 1844–1861.
36. Y.M. Chee, C.J. Colbourn, A.C.H. Ling, and R.M. Wilson, Covering and packing for pairs, *Journal of Combinatorial Theory (A)* 120 (2013), 1440–1449.

37. C.J. Colbourn, Conditional expectation algorithms for covering arrays, *Journal of Combinatorial Mathematics and Combinatorial Computing* 86 (2013), 87–110.
38. R.C. Bryce and C.J. Colbourn, Expected time to detection of interaction faults, *Journal of Combinatorial Mathematics and Combinatorial Computing* 90 (2014), 97–115.
39. R.J.R. Abel, N. Chan, C.J. Colbourn, E.R. Lamken, C. Wang, and J. Wang, Doubly resolvable nearly Kirkman triple systems, *Journal of Combinatorial Designs* 21 (2013), 342–358.
40. C. J. Colbourn, Resolvable covering arrays, *Journal of Statistical Theory and Practice* 7 (2013), 630–649.
41. T. Farley, J. Kiefer, P. Lee, D. Von Hoff, J. M. Trent, C. Colbourn, and S. Mousses, The BioIntelligence Framework: a new computational platform for biomedical knowledge computing, *Journal of the American Medical Informatics Association* 20 (2013), 128-133.
42. J. Lutz, C.J. Colbourn, and V.R. Syrotiuk, Topological Persistence for Medium Access Control, *IEEE Transactions on Mobile Computing* 12 (2013), 1598–1612.
43. C. Wang and C.J. Colbourn, The Existence of $(K_2 \times K_6)$-Designs, *Graphs and Combinatorics* 29 (2013), 1557–1567.
44. C.J. Colbourn, D. Horsley, and V.R. Syrotiuk, Strengthening Hash Families and Compressive Sensing, *Journal of Discrete Algorithms* 16 (2012), 170–186.
45. J.R. Lobb, C.J. Colbourn, P. Danziger, B. Stevens, and J. Torres-Jimenez, Cover starters for covering arrays of strength two, *Discrete Mathematics* 312 (2012) 943–956.
46. C.J. Colbourn, Constructing heterogeneous hash families by puncturing linear transversal designs, *Journal of Geometry* 101 (2011) 99–113.
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I.2	Design Theory: Antiquity to 1950	Ian Anderson, C.J. Colbourn, J.H. Dinitz, T.S. Griggs	11-22
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12. C.J. Colbourn and J.H. Dinitz, N(n) and $\nu(n)$: similarities and differences, in *Combinatorics, Complexity and Logic* (D.S. Bridges, et al, eds.), Springer, 1996, pp. 35-46.
13. chapters in the *CRC Handbook of Combinatorial Designs* (C.J. Colbourn and J.H. Dinitz, editors), CRC Press, 1996:

Sect	Authors	Title	Pages
I.4	C.J. Colbourn, R. Mathon	Steiner systems	66-75
II.1	C.J. Colbourn, J.H. Dinitz	Latin squares	97-110
II.2	R.J.R. Abel, A.E. Brouwer, C.J. Colbourn, J.H. Dinitz	Mutually orthogonal latin squares (MOLS)	111-142
II.3	R.J.R. Abel, C.J. Colbourn, J.H. Dinitz	Incomplete MOLS	142-172
II.4	C.J. Colbourn	Orthogonal arrays of index more than one	172-178
II.5	J. Bierbrauer, C.J. Colbourn	Orthogonal arrays of strength more than two	179-182
IV.11	C.J. Colbourn, W. de Launey	Difference matrices	287-297
IV.14	C.J. Colbourn	Difference triangle sets	312-317
IV.47	C.J. Colbourn	(t,m,s)-nets in base b	478-480
IV.54	C.J. Colbourn	Youden designs, generalized	508-514
V.2	C.J. Colbourn	Computer science: selected applications	543-549
V.6	C.J. Colbourn	Group testing	564-565
V.8	C.J. Colbourn	Winning the lottery	578-584

14. C.J. Colbourn and J.H. Dinitz, Making the MOLS table, in: *Computational and Constructive Design Theory* (W.D.Wallis, ed.) Kluwer Academic Press, 1996, pp. 67-134.
15. C.J. Colbourn, Construction techniques for mutually orthogonal latin squares, in: *Combinatorics Advances* (C.J. Colbourn and E.S. Mahmoodian, eds.) Kluwer Academic Press, 1995, 27-48.
16. C.J. Colbourn and L. Zhu, The spectrum of r-orthogonal latin squares, in: *Combinatorics Advances* (C.J. Colbourn and E.S. Mahmoodian, eds.) Kluwer Academic Press, 1995, 49-75.
17. D.L. Erickson and C.J. Colbourn, Conflict-free access to rectangular subarrays of constant perimeter, *Interconnection Networks and Mapping and Scheduling Parallel Computations*, ACM/DIMACS, 1995, pp. 105-124.
18. M.O. Ball, C.J. Colbourn and J.S. Provan, Network reliability, Chapter 11 of *Handbook of Operations Research: Network Models*, Elsevier North-Holland, 1995, 673-762.
19. D.D. Harms, J.S. Devitt and C.J. Colbourn, Networks and reliability in MAPLE, *Computational Support for Discrete Mathematics* (N. Dean and G.E. Shannon, eds.) AMS/DIMACS, 1994, pp. 223-243.
20. D.C. Bigelow and C.J. Colbourn, Faithful enclosing of triple systems: a generalization of a theorem of Stern, in: *Graphs, Matrices and Designs* (R. Rees, editor) Dekker, 1992, pp. 31-42.
21. J.S. Devitt and C.J. Colbourn, On implementing an environment for investigating network reliability, in: *Computer Science and Operations Research: New Developments in their Interfaces*, Pergamon Press, 1992, pp. 159-173.
22. C.J. Colbourn and A. Rosa, Directed and Mendelsohn triple systems, *Contemporary Design Theory*, Chapter 4, 1992, pp. 97-136.
23. A. Rosa and C.J. Colbourn, Colorings of block designs, *Contemporary Design Theory*, Chapter 10, 1992, pp. 401-430.
24. C.J. Colbourn and E.I. Litvak, Bounding network parameters by approximating graphs, *Reliability of Computer and Communications Networks*, AMS/ACM, 1991, pp. 91-104.

Other publications (non-refereed)

1. C.J. Colbourn, Separations of Steiner triple systems: some questions, *Bulletin of the ICA* 6 (1992) 53-56.
2. C.J. Colbourn and J.S. Devitt, Notes on some computations for reliability polynomials, Mathematics and Statistics Technical Report 7-90, Curtin University of Technology, 1990.
3. C.J. Colbourn and A. Rosa, Bibliography on triple systems, Research Report 90-14, Department of Combinatorics and Optimization, University of Waterloo, 1990.

4. C.J. Colbourn, Network reliability: numbers or insight?, Annals of Operations Research 33 (1991) 87-93.
5. C.J. Colbourn and A. Rosa, Maximal partial Steiner triple systems of order $v \leq 11$ and their embedding, immersion and enclosing, Preprint Series 1988/89 No. 1, McMaster University, 1988.
6. C.J. Colbourn, Directing and orienting triple systems, Proc. Research Institute in Mathematical Sciences, Kyoto University, Volume 607, 1987, pp. 33-38.
7. C.J. Colbourn and E. Mendelsohn, The rainbow highways of OZ, *J. Recreational Mathematics* 13 (1981) 246-249.
8. K.S. Booth and C.J. Colbourn, Problems polynomially equivalent to graph isomorphism, Technical Report CS-77/04, Department of Computer Science, University of Waterloo, 1979.
9. C.J. Colbourn, A bibliography of the graph isomorphism problem, Technical Report 123/78, Department of Computer Science, University of Toronto, 1978.
10. M.J. Colbourn and C.J. Colbourn, Graph isomorphism and self-complementary graphs, ACM SIGACT News 10 (1978) 25-29.

Invited Conference Presentations

1. C.J. Colbourn, "TBA", El Congreso Latinoamericano de Matemáticos (CLAM) , Montevideo, Uruguay, July 2020.
2. C.J. Colbourn, "TBA", Combinatorial Designs and Codes, Rijeka, Croatia, July 2020.
3. C.J. Colbourn, "TBA", Minisymposium on Design Theory, European Congress of Mathematics, Portorož, Slovenia, July 2020.
4. C.J. Colbourn, "Popularity and Steiner Systems", Tenth Shanghai Conference on Combinatorics (9SHCC), Shanghai, China, May 2020.
5. C.J. Colbourn, "Locating Interactions: Separation and Constraints", Conference on Combinatorics and its Applications, Singapore, July. 2018.
6. C.J. Colbourn, "Concerning covering perfect hash families from affine planes", Difference Sets Workshop Zhejiang University, Hangzhou, China, May 2018.
7. C.J. Colbourn, "Asymptotic and Constructive Bounds for Sequence Covering Arrays", Thirtieth Cumberland Conference, Huntingdon WV, May 2018.
8. C.J. Colbourn, "Asymptotic and Constructive Bounds for Hash Families", 5th International Combinatorics Conference (5ICC), Monash University, Australia, December 2017.
9. C.J. Colbourn, "Why Can't They Just Work Together?", University of Manitoba Faculty of Science Public Lecture Series, Winnipeg, Manitoba, Canada, November 2017.
10. C.J. Colbourn, "Asymptotic and Constructive Bounds for Covering Arrays", Real and Complex Hadamard Matrices and Applications, Budapest, Hungary, July 2017.
11. C.J. Colbourn, "Fervour with Measure: The Mathematics of Alex Rosa", RosaFest: Alex Rosa is 80, Mikulov, Czech Republic, June 2017.
12. C.J. Colbourn, "Computational and Recursive Constructions of Perfect Hash Families", Seventh International Conference on Algebraic Informatics (CAI2017), Kalamata, Greece, June 2017.
13. C.J. Colbourn, "Asymptotic Sizes of Covering Arrays", HyGraDe: Hypergraphs, Graphs, and Designs, Sant'Alessio Siculo, Italy, June 2017.
14. C.J. Colbourn, "Covering Perfect Hash Families", Ninth Shanghai Conference on Combinatorics (9SHCC), Shanghai, China, May 2017.
15. C.J. Colbourn, "Disjoint Spread Systems and Fault Location", National Conference on Combinatorial Designs 2016, Hangzhou, China, July 2016.

16. C.J. Colbourn, "Covering arrays: Asymptotics and construction algorithms", Nordic Combinatorial Conference 2016, Levi, Kittilä, Finland, June 13–15 2016.
17. C.J. Colbourn, "Coverage, Location, Detection, and Measurement", Ottawa-Carleton Discrete Math Days 2016, Ottawa Canada, May 2016.
18. C.J. Colbourn, "Coverage, Location, Detection, and Measurement", 2016 IEEE International Workshop on Combinatorial Testing, Chicago IL, March 2016.
19. C.J. Colbourn, "Disjoint Spread Systems and Fault Location", Auburn Conference on Designs, Graphs, and Codes, Auburn AL, January 2016.
20. C.J. Colbourn, "The Construction of Locating Arrays", 29th Midwestern Conference on Combinatorics and Combinatorial Computing, Charleston SC, October 2015.
21. C.J. Colbourn, "Fault Location and Resolvable Set Systems", Algebraic Combinatorics and Applications (The first annual Kliakhandler Conference), Houghton MI, August 2015.
22. C.J. Colbourn, "Column Replacement of Covering Arrays", Design and Analysis of Experiments (DAE), Cary NC, March 2015.
23. C.J. Colbourn, "Suitable Permutations and Covering Arrays", 22nd Coast Combinatorics Conference, Kona HI, February 2015.
24. C.J. Colbourn, "Optimal Low-Power Coding for Error Correction and Crosstalk Avoidance in On-Chip Data Buses", Mathematics of Communications: Sequences, Codes and Designs, Banff, Canada, January 2015.
25. C.J. Colbourn, "Suitable Permutations and Covering Arrays", Atlanta Lectures Series in Combinatorics and Graph Theory, Atlanta GA, November 2014.
26. C.J. Colbourn, "Permutation Coverings", Workshop on Hadamard Matrices, Banff AB, July 2014.
27. C.J. Colbourn, "Hadamard Matrices and Covering Arrays", Algebraic Design Theory and Hadamard Matrices, Lethbridge AB, July 2014.
28. C.J. Colbourn, "Linear Extensions and Sequence Covering Arrays", 14th Haifa Workshop on Interdisciplinary Applications of Graph Theory, Combinatorics and Algorithms, Haifa, Israel, June 2014.
29. C.J. Colbourn, "Combinatorial Sequence Testing and Scrambling Permutations", Combinatorics 2014, Gaeta, Italy, June 2014.
30. C.J. Colbourn, "Permutation Covers", Workshop on Graphs and Algorithms, Toronto ON, May 2014.
31. C.J. Colbourn, "Steiner Loops and Moufang's Theorem", Tenth Graduate Student Combinatorics Conference, Auburn AL, April 2014.
32. C.J. Colbourn, "F-Vectors of Pure Complexes and Pure Multicomplexes of Rank Three", Forty-Fifth Southeastern Conference on Combinatorics, Graph Theory, and Computing, March 2014.
33. C.J. Colbourn, "Mutually Orthogonal Latin Squares: Packing and Covering Analogues", Third Mile High Conference on Nonassociative Mathematics, Denver Colorado, August 2013.
34. C.J. Colbourn, "Covering Arrays" (ten lecture short course), Beihang University, Beijing, China, June-July, 2013.
35. C.J. Colbourn, "F-Vectors of Pure Complexes and Pure Multicomplexes of Rank Three", East Coast Combinatorics Conferenbce, Corner Brook, Newfoundland, May 2013.
36. C.J. Colbourn, "Sequence covering arrays", Clemson MiniConference on Discrete Mathematics, Clemson SC, October 2012.
37. C.J. Colbourn, "Resolvable covering arrays and their applications", Fourth Workshop on Combinatorial Designs, Hangzhou, China, June 2012.
38. C.J. Colbourn, "Variable Weight Schedules for Adaptive Scheduled Access in MANETs", SETA2012, Waterloo, June 2012.
39. C.J. Colbourn, "Sublinear Time Recovery of Sparse Signals", Network Mapping and Measurement Conference, Arizona State University, March 2012.

40. C.J. Colbourn, "Strengthening hash families", Winter Meeting, Canadian Mathematical Society, Toronto, Ontario, December 2011.
41. C.J. Colbourn, "Combinatorial t-Restrictions", Second International Conference on Design Theory, Istanbul, Turkey, July 2011.
42. C.J. Colbourn, "Column replacement for covering arrays", Seventh Shanghai Conference on Combinatorics, Shanghai, China, June 2011.
43. C.J. Colbourn, "Measurement matrices for compressive sensing via column replacement", Workshop on Coding Theory, Singapore, May 2011.
44. C.J. Colbourn, "A handful of sparse testing problems", Workshop on Linear Algebra and Combinatorics, Banff International Research Station, Banff, Canada, January 2011.
45. C.J. Colbourn, "Combinatorial restriction problems" (keynote), Workshop on Combinatorial Search, ZiF, Bielefeld, Germany, October 2010.
46. C.J. Colbourn, "A handful of sparse testing problems", Network Mapping and Measurement Conference, McGill University, Montréal, Canada, August 2010.
47. C.J. Colbourn, "Applications of Designs: Covering Arrays, and Optical Grooming", 10 lecture short course, AMSI 2010 Australian Graduate Theme Program in Mathematical Sciences, Brisbane, Australia, July 2010.
48. C.J. Colbourn, "Hash Families and Covering Arrays", Combinatorics 2010, Verbania, Italy, July 2010.
49. C.J. Colbourn, "Perfect hash families and covering arrays", 3 lecture series, NATO Advanced Study Institute on Information Security and Related Combinatorics, Opatija, Croatia, June 2010.
50. C.J. Colbourn, "Interaction testing", Computer Science Research Day, University of Vermont, Burlington VT, December 2009.
51. C.J. Colbourn, "Grooming to minimize load", Workshop on Combinatorics in Memory of Lucia Gionfriddo, Catania, Italy, December 2009.
52. C.J. Colbourn, "Balanced grooming in optical networks", Combinatorial Configurations and Their Applications, Houghton MI, August 2009.
53. C.J. Colbourn, "Network reliability and resilience", Combinatorial Configurations and Their Applications, Houghton MI, August 2009.
54. C.J. Colbourn, "Finding an interaction fault", Dagstuhl Workshop on Search Theory, Dagstuhl, Germany, July 2009.
55. C.J. Colbourn, "Combinatorial Aspects of Compressive Sensing Matrices", Network Mapping and Measurement, College Park MD, June 2009.
56. C.J. Colbourn, "Binary covering arrays", International Workshop on Coding and Cryptology (IWCC2009), Zhangjiajie, China, June 2009.
57. C.J. Colbourn, "The Combinatorics at the Heart of the Problem", Inaugural Peter Gibbons Lecture, University of Auckland, Auckland, New Zealand, May 2009.
58. C.J. Colbourn, "Distributing hash families and covering arrays", Canadian Mathematics Society Winter Meeting, Ottawa, Canada, December 2008.
59. C.J. Colbourn, "Linear hash families", Combinatorial Design Theory Workshop, BIRS, Banff, Canada, November 2008.
60. C.J. Colbourn, "Covering arrays", Workshop on Combinatorial Designs, Nanyang Technological University, Singapore, June 2008.
61. C.J. Colbourn, "Graph decompositions and optical grooming", Sixth Shanghai Conference on Combinatorics and Coding, Shanghai, China, May 2008.
62. C.J. Colbourn, "Graph decompositions and optical grooming", Ottawa-Carleton Graph Theory Workshop, Fields Institute, Ottawa, Canada, May 2008.
63. C.J. Colbourn, "Locating and Detecting Arrays for Interaction Faults", Network Mapping and Measurement, College Park MD, June 2008.

64. C.J. Colbourn, "Locating Interaction Faults", Miniconference on Discrete Mathematics With An Emphasis on Search Theory, University of South Carolina, Columbia SC, October 2007.
65. C.J. Colbourn, "Combinatorial Aspects of Network Reliability", DRCN2007, the 6th International Workshop on Design and Reliable Communication Networks, La Rochelle, France, October 2007.
66. C.J. Colbourn, "Configurations in Steiner triple systems", Design Theory of Alex Rosa, Bratislava, Slovakia, July 2007.
67. C.J. Colbourn, "Grooming in Optical Networks", Workshop on Combinatorial Designs, Hangzhou, China, June 2007.
68. C.J. Colbourn, "A Density Algorithm for Perfect Hash Families", International Workshop on Coding and Cyrptography, Fujian, China, June 2007.
69. C.J. Colbourn, "Grooming in Optical Networks", Workshop on Combinatorial Designs, Kyoto, Japan, June 2007.
70. C.J. Colbourn, "Covering Arrays for Interaction Testing", Workshop on Combinatorics, Yokohama, Japan, June 2007.
71. C.J. Colbourn, Graph Decompositions and Grooming in Optical Networks, 5th Cracow Conference on Graph Theory, Ustron, Poland, September 2006.
72. C.J. Colbourn, Locating and Detecting Interaction Faults, Conference on Optimal Discrete Structures and Algorithms, Rostock, Germany, September 2006.
73. C.J. Colbourn, Perfect hash families, Dry and Discrete Workshop, Yulara, Australia, July 2006.
74. C.J. Colbourn, Screening to Locate Interaction Faults, Workshop on Combinatorial Algorithms, Kings Canyon, Australia, July 2006.
75. C.J. Colbourn, Graph Decompositions and Grooming in Optical Networks, 31st Australasian Conference on Combinatorial Mathematics and Computing, Alice Springs, Australia, July 2006.
76. C.J. Colbourn, "Screening to Locate Interactions", DIMACS Workshop on Combinatorial Group Testing, New Brunswick NJ, May 2006.
77. C.J. Colbourn, "Construction Techniques for Covering Arrays", Fields Institute Workshop on Covering Arrays, Ottawa, Canada, May 2006.
78. C.J. Colbourn, "Graph Decompositions and Grooming in Optical Networks", Colloque en l'honneur de Jean-Claude Bermond, Sophia-Antipolis, France, December 2005.
79. C.J. Colbourn, "Combinatorial Designs for Software Interaction Testing", International Conference on Statistics, Combinatorics, Mathematics and Applications, Auburn AL, December 2005 (Presidential Invited Plenary Lecture).
80. C.J. Colbourn, "Cover-free families and topology-transparent communication", CTS Conference on Combinatorics and Its Applications, Hsinchu, Taiwan, May 2005.
81. C.J. Colbourn, "Two-period optical grooming and graph decompositions", Fifth Shanghai Conference on Combinatorics, Shanghai, China, May 2005.
82. C.J. Colbourn, "Cover-free families and topology-transparent communication", ALOCOMA 2005, Bayreuth, Germany, April 2005.
83. C.J. Colbourn, "Software testing and covering arrays", 36th Southeastern Conference on Combinatorics, Graph Theory, and Computing, Boca Raton FL, March 2005.
84. C.J. Colbourn, "Covering Arrays and the Power of Apathy", 36th Southeastern Conference on Combinatorics, Graph Theory, and Computing, Boca Raton FL, March 2005.
85. C.J. Colbourn, "Covering arrays", ACCOTA 2004, San Miguel de Allende, Mexico, November 2004.
86. C.J. Colbourn, "Combinatorial aspects of covering arrays", Combinatorics 2004, Capomulini, Italy, September 2004.
87. C.J. Colbourn, "Grooming in optical networks", Workshop on Working Applications of Discrete Mathematics, University of Queensland, Brisbane, Australia, January 2004.

88. C.J. Colbourn, "Combinatorial Techniques for Interaction Software Testing", Workshop on Working Applications of Discrete Mathematics, University of Queensland, Brisbane, Australia, January 2004.
89. C.J. Colbourn, "Software Interaction Testing and Covering Arrays", Thirty-First Miami University Conference on Mathematics, Oxford OH, October 2003.
90. C.J. Colbourn, "Topology-Transparent Communication in Mobile Ad Hoc Networks Using Orthogonal Arrays", Thirty-First Miami University Conference on Mathematics, Oxford OH, October 2003.
91. C.J. Colbourn, "Erasure Coding for RAID Disk Arrays", Andrew J. Buckingham Lecture, Thirty-First Miami University Conference on Mathematics, Oxford OH, October 2003.
92. C.J. Colbourn, "Life is like a box of smarties", Computer Science Alumni Reunion Conference, University of Saskatchewan, Saskatoon SK, September 2003.
93. C.J. Colbourn, "Permutation Codes for Powerline Communications", International Conference on Designs and Finite Geometries, Rhodes, Greece, June 2003.
94. C.J. Colbourn, "Software interaction testing", BIRS Workshop on Constraint Programming, Belief Revision, and Combinatorial Optimization, Banff, Alberta, Canada, May 2003.
95. C.J. Colbourn, "Cluttered Orderings of the Complete Graph", Clemson Miniconference on Discrete Mathematics, Clemson SC, October 2002.
96. C.J. Colbourn, "Testing for defectives using combinatorial designs", Workshop on Frontiers of Applied and Theoretical Combinatorics, Richmond VA, September 2002.
97. C.J. Colbourn, "Fully gated graphs", Shanghai Conference on Combinatorics, Shanghai, China, May 2002.
98. C.J. Colbourn, "Testing for consecutive defectives and ordering a binary code", COSSAC 2001, Ischia Island, Italy, September 2001.
99. C.J. Colbourn, "Graph decompositions and SONET networks", ACCOTA 2000, Mérida, Yucatan, Mexico, November 2000.
100. C.J. Colbourn, "Applications of combinatorial designs in communications and networking", Workshop on Emerging Applications of Combinatorial Designs, Berkeley CA, November 2000.
101. C.J. Colbourn, "Erasure codes and configurations in designs", Optimal Discrete Structures and Algorithms 2000, Rostock, Germany, September 2000.
102. C.J. Colbourn, "Multiple access communications and combinatorial designs", First Workshop on Theoretical Computer Science, Tehran, Iran, July 2000.
103. C.J. Colbourn, "Group testing and computational molecular biology", Combinatorics 2000, Gaeta, Italy, June 2000.
104. C.J. Colbourn, "Applications of combinatorial designs to communications, cryptography, and networking", British Combinatorial Conference, Canterbury, England, July 1999.
105. C.J. Colbourn, "Combinatorial embeddings in the classical designs", Second Pythagorean Conference on Geometry and Combinatorial Designs, Pythagorion, Samos, Greece, June 1999.
106. C.J. Colbourn, "A graph decomposition problem for SONET/WADM networks", Third Shanghai Conference on Designs, Codes, and Finite Geometries, Shanghai, China, May 1999.
107. C.J. Colbourn, "Combinatorial designs and cryptography" (series of three lectures), Workshop on Codes, Designs, and Cryptography, POSTECH, Pohang, South Korea, January 1999.
108. C.J. Colbourn, "Codes for MT-MFSK signalling, and configurations in designs", ACCOTA 98, Oaxaca, Mexico, December 1998.
109. C.J. Colbourn, "Cryptography and combinatorial designs" (five one hour lectures), Workshop on Coding Theory, Cryptography, and Computer Security, Lethbridge, Canada, August 1998.
110. C.J. Colbourn, "Weakly union-free designs and packings", Frontiers of Combinatorics, Los Alamos National Laboratory, New Mexico, July 1998.
111. C.J. Colbourn, "Group testing and weakly union-free designs", Combinatorists of New England (CONE) 27, Smith College, Northampton MA, December 1997.

112. C.J. Colbourn, "Applications of transversal designs in design theory", Workshop on Transversal Designs and Orthogonal Arrays, Kitchener, Ontario, April, 1997.
113. C.J. Colbourn, "Erasure codes", Combinatorial aspects of optimization, topology and algebra (ACOTA), Taxco, Mexico, Nov 1996.
114. C.J. Colbourn, "Network diagnosis", Second ALIO/EURO Workshop on Practical Combinatorial Optimization, Valparaiso, Chile, Nov 1996.
115. C.J. Colbourn, "Bounds on H-vectors", AMS Mathfest (Session on Algorithms on Graphs and Matroids), Burlington VT, August 1995.
116. C.J. Colbourn, "Pairwise balanced designs with block sizes five, seven and eight", R.C. Bose Memorial Conference on Statistical Design and Related Combinatorics, Fort Collins CO, June 1995.
117. C.J. Colbourn, "Transversal designs of higher index", Twentieth Australasian Conference on Combinatorial Mathematics and Combinatorial Computing, Auckland, NZ, December 1994.
118. C.J. Colbourn, "Performability of networks", II Seminario Internacional Diseño y Gestión Estratégica de las Redes, Viña del Mar, Chile, November 1994.
119. C.J. Colbourn, "Puncturing projective planes and making more MOLS", Twentyfourth Manitoba Conference on Combinatorial Mathematics and Computing, Winnipeg MB, October 1994.
120. C.J. Colbourn, "Making a difference (matrix)", Second Upper Michigan Conference on Designs and Finite Geometries, Houghton MI, August 1994.
121. C.J. Colbourn, "Constructing the MOLS table", Sixth Vermont Summer Workshop on Combinatorics, Burlington VT, June 1994.
122. C.J. Colbourn, "Constructions of mutually orthogonal latin squares", Session on Combinatorics, Canadian Mathematical Society Summer Meeting, Edmonton, June 1994.
123. C.J. Colbourn, "Construction techniques for mutually orthogonal latin squares", Twenty-fifth Annual Iranian Mathematics Conference, Tehran, Iran, March 1994.
124. C.J. Colbourn, "Orthogonal group divisible designs", Shanghai Conference on Designs, Codes and Finite Geometries, Shanghai, China, May 1993.
125. C.J. Colbourn, "Reliability polynomials", Twenty-fourth Southeastern Conference on Combinatorics, Graph Theory and Computing, Boca Raton FL, February 1993.
126. C.J. Colbourn, "Edge-partitioning multigraphs into triangles", Twenty-fourth Southeastern Conference on Combinatorics, Graph Theory and Computing, Boca Raton FL, February 1993.
127. C.J. Colbourn, "Enclosing triple systems and latin squares", Kombinatorik, Mathematisches Institut Oberwolfach, November 1992.
128. C.J. Colbourn, "Intersections and support sizes of triple systems", Sixth Midwest Conference on Combinatorics, Cryptography and Computing, Lincoln NE, November 1991.
129. C.J. Colbourn, "Subgraph counting bounds for network reliability", TIMS XXX — SOBRAPO XXIII, Rio de Janeiro, Brazil, July 1991.
130. C.J. Colbourn, "The combinatorics of network reliability", XIV Taller de Ingenieria de Sistemas, Santiago, Chile, July 1991.
131. C.J. Colbourn, "Conflict-free latin squares", Fourth Auburn Design Theory Conference, Auburn, Alabama, March 1991.
132. C.J. Colbourn, "Faithful enclosings of triple systems", AMS Special Session on Combinatorial Design Theory, San Francisco CA, January 1991.
133. C.J. Colbourn, "Leaves and neighbourhoods in triple systems", Sixteenth Australasian Conference on Combinatorial Mathematics and Computing, Palmerston North, New Zealand, December 1990.
134. C.J. Colbourn, "Intersections and supports of designs", Combinatorial Potlatch, Seattle, December 1989.
135. C.J. Colbourn, "Bounding network reliability by approximating graphs", DIMACS Workshop on Network Relliability, New Brunswick NJ, December 1989.

136. C.J. Colbourn, "Bounding network reliability efficiently", WOBCATS Meeting, Portland OR, October 1989.
137. C.J. Colbourn, "Leaves and neighbourhoods", Fourth Clemson Conference On Discrete Mathematics, September 1989.
138. C.J. Colbourn, "Support sizes of designs", Second International Catania Conference on Designs and Combinatorial Geometries, September 1989.
139. C.J. Colbourn, "Series-parallel bounds for two-terminal reliability", 1989 SIAM Annual Meeting, San Diego CA, July 1989.
140. (keynote lecture) C.J. Colbourn, "Combinatorial aspects of network reliability", NATO Advanced Research Workshop, Copenhagen, Denmark, June 1989.
141. C.J. Colbourn, "Intersections of quadruple systems", Vermont Summer Workshop on Design Theory, Stowe, Vermont, June 1989.
142. C.J. Colbourn, "Support sizes of designs", AMS Special Session on Codes and Designs, Chicago, May 1989.
143. C.J. Colbourn, "Combinatorial designs: their role in computer science", The Toronto Exxperience, Toronto, May 1988.
144. C.J. Colbourn, "Probabilistic single processor scheduling", Workshop on Computational Combinatorics, Burnaby, BC, July 1987.
145. C.J. Colbourn, "Leaves, excesses, and neighbourhoods", Fifteenth Winter School on Abstract Analysis and Topology, Srní, Czechoslovakia, January 1987.
146. C.J. Colbourn, "Bounding network reliability efficiently", Fifteenth Winter School on Abstract Analysis and Topology, Srní, Czechoslovakia, January 1987.
147. C.J. Colbourn, "Directing and orienting triple systems", Conference on Geometry and Combinatorial Designs, Kyoto Japan, June 1986.
148. C.J. Colbourn, "Edge-packings of graphs and network reliability", First Japan Conference on Graph Theory and Applications, Hakone Japan, June 1986.
149. C.J. Colbourn, "Exact algorithms for network reliability", Fifteenth Manitoba Conference on Numerical Mathematics and Computing, Winnipeg Manitoba, October 1985.
150. C.J. Colbourn, "The reliability polynomial", Thirteenth Australasian Conference on Combinatorial Mathematics and Computing, Sydney Australia, August 1985.

External Service

I served as Chair of the Medals Committee of the Institute for Combinatorics and its Applications (ICA) from 2016 until 2019. We recommended medal awards for the ten year period from 2010 until 2019 for the Kirkman, Hall, Euler, and Stanton Medals, along with ICA Honorary Fellowships.

I serve on the Steering Committee of the International Workshop on Combinatorial Algorithms (IWOCA), 2017-present.

Editorial Work

I serve(d) in following editorial capacities:

- Editor-in-Chief, *Journal of Combinatorial Designs*, 1992-
- Associate Editor, *Networks*, 1986-
- Associate Editor, *Designs, Codes, and Cryptography*, 1996-

- Associate Editor, *Journal of Combinatorial Theory, Series A*, 2002-
- Associate Editor, *Discrete Mathematics*, 2002-
- Associate Editor, *Journal of Statistical Planning and Inference*, 2004-15.
- Associate Editor, *Journal of Statistical Theory and Practice*, 2006-14.
- Associate Editor, *Discrete Mathematics, Algorithms, and Applications*, 2007-
- Associate Editor, *IEEE Transactions on Reliability*, 1992-1998.
- Member, Editorial Board, *Aequationes Mathematicae*, 1993-2000.
- Associate Editor, *Combinatorial Optimization: Theory and Practice*, 1994-1999.
- Advisory Editor, *Handbook of Discrete and Combinatorial Mathematics*, 1993-1999.
- Member, Editorial Board, *Journal of Combinatorics, Information and System Sciences*, 1990-
- Member, Editorial Board, *Journal of Combinatorial Mathematics and Combinatorial Computing*, 1987-1993.

Administrative Experience

Position	Period	Department/Organization/Committee
Senator	2010-13	Arizona State University Senate
Senator	2003-08	Arizona State University Senate
Chair	2001-02	Computer Science and Engineering
Chair	2000-01	Computer Science
Chair	1997-99	Computer Science
Associate Chair, CS	1996-97	Computer Science and Electrical Engineering
Chair	1993-95	Combinatorics and Optimization
Senator, Mathematics	1992-95	University of Waterloo Senate
Associate Chair, C&O	1991-93	Undergraduate Studies
Associate Chairman, CS	1984-85	Undergraduate Studies
Member	2012-	Dean's Faculty Advisory Committee
Member	2014-17	Limited Submissions Committee
Member	2012-14	Senate Personnel Committee
Member	2010-12	Senate Committee on Committees
Member	2008-09	School of Mathematics Planning Committee
Member	2006-08	University Personnel Committee
Member	2006-07	IEE Search Committee
Member	2005-06	CSE/AME Search Committee
Member	2005-08	Dean's Advisory Personnel Committee
Member	2004-	Steering Committee for Computational Biosciences Program
Member	2003-05	CSE Personnel Committee
Member	2003-04	Recruiting Committee for Evolutionary Functional Genomics
Member	2003-04	Ad Hoc Committee for MCS Online
Chair	2003-04	Graduate Programs Committee
Member	2002-04	Graduate Programs Committee
Member	2001-02	Proposition 301 Information Technology Committee
Member	1999-2001	Instructional Incentive Grants Committee
Member	1999-2001	Kroepsch-Maurice Teaching Awards Committee
Member	1999-2000	College Standards Committee
Member	1999-2001	IDX Workforce Training Committee
Member	1998-2001	Working Group for the Study of Media, Culture, and Society
Chair	1998	UVM CLIO Search Committee
Chairman	1984-85	CS Curriculum Committee

Member	1996-99	College Board of Advisors
Chair	1996-97	CS Curriculum Committee
Member	1996-97	College Standards Committee
Member	1996-97	College Curriculum Committee
Member	1996-97	College Computing Task Force
Member	1993-94	Senate Finance Committee
Member	1993-95	Academic Policy Committee
Member	1991-93	Undergraduate Affairs Committee
Member	1991-93	Standings and Promotions Committee
Library Representative	1988-89	Combinatorics and Optimization
Member	1986-88	Board of Directors, Institute for Computer Research
Chairman	1986-88	CS Ph.D. Comprehensives Committee
Chairman	1986	CS M.Math. Review Committee
Member	1986	CS Recruiting Committee
Chairman	1985	CS Ph.D. Comprehensives Committee
Member	1985	CS Ph.D. Comprehensives Committee
Member	1984-85	CS Admissions Committee
Member	1984-86	CS Advisory Committee
Member	1984-87	CS Graduate Committee
Chairman	1981-83	CMPT Graduate Advisory Committee
Member	1980-82	University Subcommittee on Computers in Education
Library Representative	1980-81	Computational Science

I served on the Scientific Advisory Panel to the Ontario Technology Fund, reporting to the Management Board of the Cabinet of the Government of Ontario, from 1986-1989.

I serve on the Advisory Board for the Department of Mathematical Sciences, Michigan Technological University, Houghton MI, 1993-2001.

I serve on the Advisory Board for the Centre for Discrete Mathematics and Theoretical Computer Science at the University of Auckland, New Zealand, 1994-2000.

I served on the Council of the Institute for Combinatorics and Its Applications, 1999-2002.

I was the lead UVM representative in negotiating an articulation agreement with the IDX Institute of Technology, 1998-99.

Major Administrative Initiatives

2006	served on external review committee for Mathematics and Statistics, Auburn University
2005	served on external review committee for Mathematics and Statistics, Simon Fraser University
1999-2000	coordinated computer science role in the introduction of a major research and educational initiative in structural and computational biology, jointly with six life science departments in Medicine, Agriculture, and Arts and Sciences; funded with $3 million from the Department of Energy.
1998-99	developed cooperative relationship with IDX Systems Corporation, a health care software provider, for education and training.
1998	served on an external review committee for the School of Mathematical and Information Sciences, University of Auckland
1997-99	introduced a dual reporting structure for the Department of Computer Science through the College of Arts and Sciences as well as through the College of Engineering and Mathematics, in order to introduce a new Bachelor of Arts (Computer Science) degree.
1996-98	developed a new joint program with the School of Business Administration, the Bachelor of Science (Computer Science and Information Systems).
1996-97	led major revision of Bachelor of Science (Computer Science) degree to meet the standards of the Computer Science Accreditation Board.
1996-97	was the principal in presenting the case for the separation of the CS program from the Electrical Engineering department, resulting in the formation of the Department of Computer Science. Enrollments then doubled within two years, and tripled within three.
1993-94	served as chair during dismissal for cause of tenured professor, including extensive involvement in legal proceedings. The University won the case and the appeal outright.
1991-92	as Associate Chair for Undergraduate Affairs, coordinated the transfer of Mathematics/Business programs to the department.
1984-85	extensive redesign of comprehensive examination procedures for the Ph.D. program in Computer Science.

Industrial Experience

Ministry of Industry, Trade and Technology, Government of Ontario, Science Monitor (consultant), 10/88-06/90.

Bulldog Holdings, Burlington VT, Consultant on Ecommerce Business, 4/99-12/99.

Speedfam/Ipec, Chandler AZ, Consultant on Flexible Manufacturing Opportunities, 7/02-12/02