

CONTACT INFORMATION

University of Connecticut
Computer Science and Engineering Department
371 Fairfield Way, Unit 2155
Storrs, CT 06269-2155
Tel: 860-486-3784
Fax: 860-486-4817
E-mail: ion@engr.uconn.edu
<http://www.engr.uconn.edu/~ion>

EDUCATION

- Ph.D. in Computer Science, Georgia Institute of Technology (12/2000)
Advisor: Vijay V. Vazirani
 - M.S. in Computer Science, University of Bucharest (6/1992, B.S. included)
Advisor: Cristian Calude
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EMPLOYMENT

University of Connecticut

- Associate Professor (8/2008–present)
- Assistant Professor (8/2003–8/2008)

University of California at San Diego

- Assistant Research Scientist (5/2002–8/2003)
- Visiting Postgraduate Researcher (8/2001–4/2002), Advisor: Andrew B. Kahng

University of California at Los Angeles

- Postdoctoral Researcher (8/2000–7/2001), Advisor: Andrew B. Kahng

Georgia Institute of Technology

- Part-time Instructor (8/2000–5/2001)
- Graduate Research/Teaching Assistant (1/1995–7/2000)

University of Bucharest

- Research Assistant (10/1992–12/1994)
-

AWARDS

- NSF Faculty Early Career Development (CAREER) Award, 2006-2010

PUBLICATIONS

Edited Books and Proceedings

- [B1] I.I. Măndoiu, Giri Narasimhan, and Yanqing Zhang (Eds.). *Proc. 5th International Symposium on Bioinformatics Research and Applications*, volume 5542 of *Lecture Notes in Bioinformatics*. Springer-Verlag, Berlin, 2009.
- [B2] I.I. Măndoiu, R. Sunderraman, and A.Z. Zelikovsky (Eds.). *Proc. 4th International Symposium on Bioinformatics Research and Applications*, volume 4983 of *Lecture Notes in Bioinformatics*. Springer-Verlag, Berlin, 2008.
- [B3] I.I. Măndoiu and A.Z. Zelikovsky (Eds.). *Bioinformatics Algorithms: Techniques and Applications*. Wiley Book Series on Bioinformatics. John Wiley & Sons, 2008.
- [B4] I.I. Măndoiu and A.Z. Zelikovsky (Eds.). *Proc. 3rd International Symposium on Bioinformatics Research and Applications*, volume 4463 of *Lecture Notes in Bioinformatics*. Springer-Verlag, Berlin, 2007.
- [B5] X. Hu, I.I. Măndoiu, Z. Obradovic, and J. Xia (Eds.). *Proc. 2007 IEEE International Conference on Bioinformatics and Biomedicine*. IEEE Computer Society Press, 2007.

Book Chapters

- [BC1] K. Konwar, I.I. Măndoiu, A. Russell, and A. Shvartsman. Exact and approximation algorithms for multiplex PCR primer set selection with amplification length constraints. In I.I. Măndoiu and A.Z. Zelikovsky, editors, *Bioinformatics Algorithms: Techniques and Applications*, pages 241–258. Wiley, 2008.
- [BC2] A.B. Kahng, I.I. Măndoiu, and A.Z. Zelikovsky. Practical approximations of Steiner trees in uniform orientation metrics. In T.E. Gonzalez, editor, *Approximation Algorithms and Metaheuristics*. Chapman & Hall/CRC, 2007.
- [BC3] I.I. Măndoiu, A. Olshevsky, and A.Z. Zelikovsky. QoS multimedia multicast routing. In T.E. Gonzalez, editor, *Approximation Algorithms and Metaheuristics*. Chapman & Hall/CRC, 2007.
- [BC4] C. Albrecht, A.B. Kahng, I.I. Măndoiu, and A.Z. Zelikovsky. Multicommodity flow algorithms for buffered global routing. In T.E. Gonzalez, editor, *Approximation Algorithms and Metaheuristics*. Chapman & Hall/CRC, 2007.
- [BC5] A.B. Kahng, I.I. Măndoiu, S. Reda, X. Xu, and A.Z. Zelikovsky. Computer-aided optimization of DNA array design and manufacturing. In K. Chakrabarty and J. Zeng, editors, *Design Automation Methods and Tools for Microfluidics-Based Biochips*, pages 235–269. Springer Verlag, 2006.

Articles in Refereed Journals

- [J1] J. Duitama, D.M. Kumar, E. Hemphill, M. Kahn, I.I. Măndoiu, and C.E. Nelson. PrimerHunter: A primer design tool for PCR-based virus subtype identification. *Nucleic Acids Research*, 2009 (to appear).
- [J2] K. Apichonbancha, B. Dasgupta, J. Jun, I.I. Măndoiu, , and E. Mendonca. A review of the primer approximation multiplex PCR (PAMP) technique for detecting large scale cancer genomic lesions. *Current Bioinformatics*, 4(1):1–7, 2009.
- [J3] J. Kennedy, I.I. Măndoiu, and B. Paşaniuc. Genotype error detection using hidden markov models of haplotype diversity. *Journal of Computational Biology*, 15(9):1155–1171, 2008.
- [J4] A. Gusev, I.I. Măndoiu, and B. Paşaniuc. Highly scalable genotype phasing by entropy minimization. *IEEE/ACM Trans. on Computational Biology and Bioinformatics*, 5(2):252–261, 2008.
- [J5] S. Balla, S. Rajasekaran, and I.I. Măndoiu. Efficient algorithms for degenerate primer search. *International Journal of Foundations of Computer Science*, 18(4):899–910, 2007.
- [J6] I.I. Măndoiu and C. Prăjescu. High-throughput SNP genotyping by SBE/SBH. *IEEE Transactions on NanoBioscience*, 6(1):28–35, 2007.
- [J7] A.B. Kahng, I.I. Măndoiu, X. Xu, and A. Zelikovsky. Enhanced design flow and optimizations for multi-project wafers. *IEEE Transactions on Computer-Aided Design*, 26(2):301–311, 2007.

- [J8] I.I. Măndoiu and D. Trincă. Exact and approximation algorithms for DNA tag set design. *Journal of Computational Biology*, 13(3):732–744, 2006.
- [J9] A.B. Kahng, I.I. Măndoiu, S. Reda, X. Xu, and A. Zelikovsky. Computer-aided optimization of DNA array design and manufacturing. *IEEE Transactions on Computer-Aided Design*, 25(2):305–320, 2006.
- [J10] E. Althaus, G. Călinescu, I.I. Măndoiu, S. Prasad, N. Tchervenski, and A.Z. Zelikovsky. Power efficient range assignment for symmetric connectivity in static ad hoc wireless networks. *Wireless Networks*, 12(3):287–299, 2006.
- [J11] S.V. Babin, A.B. Kahng, I.I. Măndoiu, and S. Muddu. Improving CD accuracy and throughput by subfield scheduling in electron beam mask writing. *Journal of Vacuum Science & Technology B: Microelectronics and Nanometer Structures*, 23(6):3094–3100, 2005.
- [J12] B. DasGupta, K.M. Konwar, I.I. Măndoiu, and A.A. Shvartsman. DNA-BAR: distinguisher selection for DNA barcoding. *Bioinformatics*, 21(16):3424–3426, 2005.
- [J13] I.I. Măndoiu, C. Prăjescu, and D. Trincă. Improved tag set design and multiplexing algorithms for universal arrays. *LNCS Transactions on Computational Systems Biology*, II(LNBI 3680):124–137, 2005.
- [J14] P. Gupta, A.B. Kahng, I.I. Măndoiu, and P. Sharma. Layout-aware scan chain synthesis for improved path delay fault coverage. *IEEE Transactions on Computer-Aided Design*, 24(7):1104–1114, 2005.
- [J15] B. DasGupta, K.M. Konwar, I.I. Măndoiu, and A.A. Shvartsman. Highly scalable algorithms for robust string barcoding. *International Journal of Bioinformatics Research and Applications*, 1(2):145–161, 2005.
- [J16] M. Karpinski, I.I. Măndoiu, A. Olshevsky, and A. Zelikovsky. Improved approximation algorithms for the quality of service multicast tree problem. *Algorithmica*, 42(2):109–120, 2005.
- [J17] H. Chen, C.-K. Cheng, A.B. Kahng, I.I. Măndoiu, Q. Wang, and B. Yao. The Y-architecture for on-chip interconnect: Analysis and methodology. *IEEE Transactions on Computer-Aided Design*, 24(4):588–599, 2005.
- [J18] A.B. Kahng, I.I. Măndoiu, P. Pevzner, S. Reda, and A. Zelikovsky. Scalable heuristics for design of DNA probe arrays. *Journal of Computational Biology*, 11(2–3):429–447, 2004.
- [J19] A.B. Kahng, B. Liu, and I.I. Măndoiu. Non-tree routing for reliability and yield improvement. *IEEE Transactions on Computer-Aided Design*, 23(1):148–157, 2004.
- [J20] G. Călinescu, I.I. Măndoiu, P.-J. Wan, and A.Z. Zelikovsky. Selecting forwarding neighbors in wireless ad hoc networks. *ACM Mobile Networks and Applications*, 9(2):101–111, 2004.
- [J21] C. Albrecht, A.B. Kahng, B. Liu, I.I. Măndoiu, and A.Z. Zelikovsky. On the skew-bounded minimum-buffer routing tree problem. *IEEE Transactions on Computer-Aided Design*, 22(7):937–945, 2003.
- [J22] C. Alpert, A.B. Kahng, B. Liu, I.I. Măndoiu, and A.Z. Zelikovsky. Minimum buffered routing with bounded capacitive load for slew rate and reliability control. *IEEE Transactions on Computer-Aided Design*, 22(3):241–253, 2003.
- [J23] K. Jain, I.I. Măndoiu, V.V. Vazirani, and D.P. Williamson. A primal-dual schema based approximation algorithm for the element connectivity problem. *Journal of Algorithms*, 45:1–15, 2002.
- [J24] F.F. Drăgan, A.B. Kahng, I.I. Măndoiu, S. Muddu, and A.Z. Zelikovsky. Provably good global buffering by generalized multiterminal multicommodity flow approximation. *IEEE Transactions on Computer-Aided Design*, 21(3):263–274, 2002.
- [J25] A.Z. Zelikovsky and I.I. Măndoiu. Practical approximation algorithms for zero- and bounded-skew trees. *SIAM Journal on Discrete Mathematics*, 15:97–111, 2002.
- [J26] I.I. Măndoiu and A.Z. Zelikovsky. A note on the MST heuristic for bounded edge-length Steiner trees with minimum number of Steiner points. *Information Processing Letters*, 75:165–167, 2000.
- [J27] I.I. Măndoiu, V.V. Vazirani, and J.L. Ganley. A new heuristic for rectilinear Steiner trees. *IEEE Transactions on Computer-Aided Design*, 19(10):1129–1139, 2000.
- [J28] K. Jain, I.I. Măndoiu, and V.V. Vazirani. "The art of trellis decoding" is computationally hard—for large fields. *IEEE Transactions on Information Theory*, 44:1211–1214, 1998.

- [J29] I.I. Măndoiu. Optimum extensions of prefix codes. *Information Processing Letters*, 66:35–40, 1998.
- [J30] I.I. Măndoiu. On a theorem of Gács. *International Journal of Computer Mathematics*, 48:157–169, 1993.
- [J31] I.I. Măndoiu. Kraft-Chaitin’s theorem for free-extensible codes. *Mathematical Reports (Studii și Cercetări Matematice)*, 44:497–501, 1992.

Articles in Refereed Conference Proceedings

- [C1] B. Pașaniuc, J. Kennedy, and I.I. Măndoiu. Imputation-based local ancestry inference in admixed populations. In *Proc. 5th International Symposium on Bioinformatics Research and Applications/2nd Workshop on Computational Issues in Genetic Epidemiology*, volume 5542 of *Lecture Notes in Computer Science*, 2009 (to appear).
- [C2] S. Balla, S. Rajasekaran, and I.I. Măndoiu. Faster greedy algorithms for multiple degenerate primer selection. In *Proc. 8th IEEE International Conference on Bioinformatics and Bioengineering*, pages 1–4, 2008.
- [C3] J. Jun, P. Ryvkin, E. Hemphill, I.I. Măndoiu, and C.E. Nelson. Estimating the relative contributions of new genes from retrotransposition and segmental duplication events during mammalian evolution. In *Proc. 6th Annual RECOMB Satellite Workshop on Comparative Genomics*, pages 40–54, 2008.
- [C4] B. Dasgupta, J. Jun, and I.I. Măndoiu. Primer selection methods for detection of genomic inversions and deletions via PAMP. In A. Brazma, S. Miyano, and T. Akutsu, editors, *Proc. 6th Asia-Pacific Bioinformatics Conference (APBC)*, *Advances in Bioinformatics and Computational Biology*, pages 353–362, 2008.
- [C5] J. Kennedy, I.I. Măndoiu, and B. Pașaniuc. Genotype error detection using Hidden Markov Models of haplotype diversity. In *Proc. 7th Workshop on Algorithms in Bioinformatics (WABI)*, *Lecture Notes in Computer Science*, pages 73–84, 2007.
- [C6] B. Pașaniuc and I.I. Măndoiu. Highly scalable genotype phasing by entropy minimization. In *Proc. 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, pages 3482–3486, 2006.
- [C7] I.I. Măndoiu and C. Prăjescu. High-throughput SNP genotyping by SBE/SBH. In *Proc. 6th International Conference on Computational Science (ICCS 2006), Part II*, volume 3992 of *Lecture Notes in Computer Science*, pages 742–749, 2006.
- [C8] M.T. Hajiaghayi, K. Jain, L.C. Lau, I.I. Măndoiu, A.C. Russell, and V.V. Vazirani. The minimum multicolored subgraph problem in haplotyping and PCR primer set selection. In *Proc. 6th International Conference on Computational Science (ICCS 2006), Part II*, volume 3992 of *Lecture Notes in Computer Science*, pages 758–766, 2006.
- [C9] I.I. Măndoiu and D. Trincă. Exact and approximation algorithms for DNA tag set design. In *Proc. 16th Annual Symposium on Combinatorial Pattern Matching (CPM)*, volume 3537 of *Lecture Notes in Computer Science*, pages 383–393, 2005.
- [C10] I.I. Măndoiu, C. Prăjescu, and D. Trincă. Improved tag set design and multiplexing algorithms for universal arrays. In *Proc. 5th International Conference on Computational Science (ICCS), Part II*, volume 3515 of *Lecture Notes in Computer Science*, pages 994–1002, 2005.
- [C11] B. DasGupta, K.M. Konwar, I.I. Măndoiu, and A.A. Shvartsman. Highly scalable algorithms for robust string barcoding. In *Proc. 5th International Conference on Computational Science (ICCS), Part II*, volume 3515 of *Lecture Notes in Computer Science*, pages 1020–1028, 2005.
- [C12] K.M. Konwar, I.I. Măndoiu, A.C. Russell, and A.A. Shvartsman. Improved algorithms for multiplex PCR primer set selection with amplification length constraints. In *Proc. 3rd Asia-Pacific Bioinformatics Conference (APBC)*, pages 41–50, 2005.
- [C13] A.B. Kahng, I.I. Măndoiu, Q. Wang, X. Xu, and A.Z. Zelikovsky. Multi-project reticle floorplanning and wafer dicing. In *Proc. ACM/SIGDA International Symposium on Physical Design*, pages 70–77, 2004.
- [C14] G. Călinescu, C.G. Fernandes, I.I. Măndoiu, A. Olshevsky, K. Yang, and A. Zelikovsky. Primal-dual algorithms for QoS multimedia multicast. In *Proc. IEEE Global Communications Conference (GLOBECOM)*, pages 3631–3635, 2003.

- [C15] P. Gupta, A.B. Kahng, I.I. Măndoiu, and P. Sharma. Layout-aware scan chain synthesis for improved path delay fault coverage. In *Proc. IEEE-ACM International Conference on Computer-Aided Design*, pages 754–759, 2003.
- [C16] A.B. Kahng, I.I. Măndoiu, S. Reda, X. Xu, and A. Zelikovskiy. Evaluation of placement techniques for DNA probe array layout. In *Proc. IEEE-ACM International Conference on Computer-Aided Design*, pages 262–269, 2003.
- [C17] H. Chen, C.-K. Cheng, A.B. Kahng, I.I. Măndoiu, Q. Wang, and B. Yao. The Y-architecture for on-chip interconnect: Analysis and methodology. In *Proc. IEEE-ACM International Conference on Computer-Aided Design*, pages 13–19, 2003.
- [C18] I.I. Măndoiu. Recent advances in multicommodity flow algorithms for global routing. In *Proc. 5th International Conference on ASIC (ASICON)*, pages 160–165, 2003.
- [C19] A.B. Kahng, I.I. Măndoiu, S. Reda, X. Xu, and A. Zelikovskiy. Design flow enhancements for DNA arrays. In *Proc. IEEE International Conference on Computer Design (ICCD)*, pages 116–123, 2003.
- [C20] M. Karpinski, I.I. Măndoiu, A. Olshevsky, and A. Zelikovskiy. Improved approximation algorithms for the Quality of Service Steiner tree problem. In *Proc. 8th International Workshop on Algorithms and Data Structures*, volume 2748 of *Lecture Notes in Computer Science*, pages 401–411, 2003.
- [C21] H. Chen, C.K. Cheng, A.B. Kahng, I.I. Măndoiu, and Q. Wang. Estimation of wirelength reduction for λ -geometry vs. Manhattan placement and routing. In *Proc. ACM International Workshop on System-Level Interconnect Prediction (SLIP)*, pages 71–76, 2003.
- [C22] A.B. Kahng, I.I. Măndoiu, P. Pevzner, S. Reda, and A. Zelikovskiy. Engineering a scalable placement heuristic for DNA probe arrays. In *Proc. 7th Annual International Conference on Research in Computational Molecular Biology (RECOMB)*, pages 148–156, 2003.
- [C23] E. Althaus, G. Călinescu, I.I. Măndoiu, S. Prasad, N. Tchervenski, and A.Z. Zelikovskiy. Power efficient range assignment in ad-hoc wireless networks. In *Proc. IEEE Wireless Communications and Networking Conference (WCNC)*, pages 1889–1894, 2003.
- [C24] A.B. Kahng, I.I. Măndoiu, and A.Z. Zelikovskiy. Highly scalable algorithms for rectilinear and octilinear Steiner trees. In *Proc. Asia and South Pacific Design Automation Conference*, pages 827–833, 2003.
- [C25] A.B. Kahng, B. Liu, and I.I. Măndoiu. Non-tree routing for reliability and yield improvement. In *Proc. IEEE-ACM International Conference on Computer-Aided Design*, pages 260–266, 2002.
- [C26] A.B. Kahng, I. Măndoiu, P. Pevzner, S. Reda, and A. Zelikovskiy. Border length minimization in DNA array design. In *Proc. 2nd Workshop on Algorithms in Bioinformatics (WABI)*, volume 2452 of *Lecture Notes in Computer Science*, pages 435–448, 2002.
- [C27] C. Bandela, Y. Chen, A.B. Kahng, I.I. Măndoiu, and A.Z. Zelikovskiy. Auctions with buyer preferences. In *Information Systems: The e-Business Challenge – Proc. 17th IFIP World Computer Congress, Stream TC8*, pages 221–238, 2002.
- [C28] G. Călinescu, I.I. Măndoiu, and A.Z. Zelikovskiy. Symmetric connectivity with minimum power consumption in radio networks. In *Foundations of information technology in the era of network and mobile computing – Proc. 17th IFIP World Computer Congress, Stream TC1/ 2nd IFIP International Conference on Theoretical Computer Science (TCS)*, pages 119–130, 2002.
- [C29] C. Albrecht, A.B. Kahng, I.I. Măndoiu, and A.Z. Zelikovskiy. Floorplan evaluation with timing-driven global wireplanning, pin assignment, and buffer/wire sizing. In *Proc. 7th Asia and South Pacific Design Automation Conference and 15th International Conference on VLSI Design*, pages 580–587, 2002.
- [C30] C. Alpert, A.B. Kahng, B. Liu, I.I. Măndoiu, and A.Z. Zelikovskiy. Minimum-buffered routing for slew and reliability control. In *Proc. IEEE-ACM International Conference on Computer-Aided Design*, pages 408–415, 2001.
- [C31] C. Albrecht, A.B. Kahng, B. Liu, I.I. Măndoiu, and A.Z. Zelikovskiy. On the skew-bounded minimum-buffer routing tree problem. In *Proc. 10th Workshop on Synthesis and System Integration of Mixed Technologies*, pages 250–256, 2001.

- [C32] F.F. Drăgan, A.B. Kahng, I.I. Măndoiu, S. Muddu, and A.Z. Zelikovsky. Practical approximation algorithms for separable packing linear programs. In *Proc. 7th International Workshop on Algorithms and Data Structures*, volume 2125 of *Lecture Notes in Computer Science*, pages 325–337, 2001.
- [C33] G. Călinescu, I.I. Măndoiu, P.-J. Wan, and A.Z. Zelikovsky. Selecting forwarding neighbors in wireless ad hoc networks. In *Proc. 5th International Workshop on Discrete Algorithms and Methods for Mobile Computing and Communications*, pages 34–43, 2001.
- [C34] F.F. Drăgan, A.B. Kahng, I.I. Măndoiu, S. Muddu, and A.Z. Zelikovsky. Provably good global buffering by multiterminal multicommodity flow approximation. In *Proc. 6th Asia and South Pacific Design Automation Conference*, pages 120–125, 2001.
- [C35] A.Z. Zelikovsky and I.I. Măndoiu. Practical approximation algorithms for zero- and bounded-skew trees. In *Proc. 12th ACM-SIAM Annual Symposium on Discrete Algorithms*, pages 407–416, 2001.
- [C36] F.F. Drăgan, A.B. Kahng, I.I. Măndoiu, S. Muddu, and A.Z. Zelikovsky. Provably good global buffering using an available buffer block plan. In *Proc. IEEE-ACM International Conference on Computer-Aided Design*, pages 104–109, 2000.
- [C37] I.I. Măndoiu, V.V. Vazirani, and J.L. Ganley. A new heuristic for rectilinear Steiner trees. In *Proc. IEEE-ACM International Conference on Computer-Aided Design*, pages 157–162, 1999.
- [C38] K. Jain, I.I. Măndoiu, V.V. Vazirani, and D.P. Williamson. A primal-dual schema based approximation algorithm for the element connectivity problem. In *Proc. 10th ACM-SIAM Annual Symposium on Discrete Algorithms*, pages 484–489, 1999.
- [C39] K. Jain, I.I. Măndoiu, and V.V. Vazirani. “The art of trellis decoding” is computationally hard—for large fields. In *Proc. IEEE International Symp. on Information Theory*, page 13, 1998.

Unrefereed Conference Articles

- [U1] A.B. Kahng, I.I. Măndoiu, X. Xu, and A. Zelikovsky. Multi-project reticle design and wafer dicing under uncertain demand. In *Proc. 22nd European Mask and Lithography Conference (EMLC 2006)*, pages 45–54, 2006.
- [U2] A.B. Kahng, I.I. Măndoiu, X. Xu, and A. Zelikovsky. Yield-driven multi-project reticle design and wafer dicing. In *Proc. 25th Annual BACUS Symposium on Photomask Technology*, volume 5992 of *Proceedings of SPIE*, pages 1247–1257, 2005.
- [U3] S.V. Babin, A.B. Kahng, I.I. Măndoiu, and S. Muddu. Resist heating dependence on subfield scheduling in 50kV electron beam maskmaking. In *Photomask and Next-Generation Lithography Mask Technology X*, volume 5130 of *Proceedings of SPIE*, pages 718–726, 2003.
- [U4] S.V. Babin, A.B. Kahng, I.I. Măndoiu, and S. Muddu. Subfield scheduling for throughput maximization in electron-beam photomask fabrication. In *Emerging Lithographic Technologies VII*, volume 5037 of *Proceedings of SPIE*, pages 934–942, 2003.
- [U5] I.I. Măndoiu. Kraft-Chaitin’s theorem for free-extensible codes. In *Proc. SALODAYS Symposium on Logic and Theoretical Computer Science*, Bucharest, Romania, 1993. Hyperion XXI Press.

Patents

- [P1] C. Albrecht, A.B. Kahng, I.I. Măndoiu, and A.Z. Zelikovsky. Floorplan evaluation, global routing, and buffer insertion for integrated circuits. *US Patent #7,062,743*, 2006.

SOFTWARE PACKAGES

- S. Dinakar, J. Duitama, Y. Hernández, J. Kennedy, I.I. Măndoiu, and Y. Wu. GeneSeq: Ld-based snp genotype calling from shotgun sequencing reads. Available at <http://dna.engr.uconn.edu/~software/GeneSeq/>.
- J. Kennedy, I.I. Măndoiu, and B. Paşaniuc. GEDI-ADMX: Genotype error detection and imputation for admixed populations. Available at <http://dna.engr.uconn.edu/~software/GEDI-ADMX/>.

- J. Kennedy, I.I. Măndoiu, and B. Paşaniuc. GEDI: Genotype error detection and imputation. Available at <http://dna.engr.uconn.edu/~software/GEDI/>.
- A. Gusev, I.I. Măndoiu, and B. Paşaniuc. ENT: Genotype phasing by entropy minimization. Available at <http://dna.engr.uconn.edu/~software/ent/>.
- K.M. Konwar, I.I. Măndoiu, A.C. Russell, and A.A. Shvartsman. G-POT and PRIMER-ILP: Software tools for multiplex-PCR primer set selection. Available at <http://dna.engr.uconn.edu/~software/G-POT/>.
- B. DasGupta, K.M. Konwar, I.I. Mandoiu, and A.A. Shvartsman. DNA-BAR: Distinguisher selection for robust DNA barcoding. Available at <http://dna.engr.uconn.edu/~software/DNA-BAR/>.
- A.B. Kahng, I.I. Măndoiu, S. Reda, and A. Zelikovsky. CHIP: probe placement and embedding for DNA arrays. Available at <http://vlsicad.ucsd.edu/Downloads/chip.tar.gz>.
- C. Albrecht, A.B. Kahng, I.I. Măndoiu, and A. Zelikovsky. MCF: Multicommodity flow based congestion- and timing-driven global routing and buffer insertion. Available at http://www.engr.uconn.edu/~ion/FILES/software/mcf_floorplan.tar.gz.
- A.B. Kahng, I.I. Măndoiu, and A. Zelikovsky. FastSteiner: Highly scalable rectilinear and octilinear minimum Steiner tree algorithms. Available at <http://vlsicad.ucsd.edu/GSRC/bookshelf/Slots/RSMT/FastSteiner/>.
- A.B. Kahng and I.I. Măndoiu. RMST-Pack: rectilinear minimum spanning tree algorithms. Available at <http://vlsicad.ucsd.edu/GSRC/bookshelf/Slots/RSMT/RMST/>.

INVITED TALKS AND COLLOQUIA

- Genotype and Haplotype Reconstruction from Low-Coverage Short Sequencing Reads, 1st International Conference on Bioinformatics and Computational Biology (BICoB 2009), New Orleans, LA, Apr. 8-10, 2009
- Algorithms for Genotype and Haplotype Inference from Low-Coverage Short Sequencing Reads, 11th INFORMS Computing Society Conference, Charleston, SC, Jan. 11-13, 2009
- LD-Based Genotype and Haplotype Inference from Low-Coverage Short Sequencing Reads, UCLA bioinformatics seminar series, Nov. 3, 2008
- Linkage Disequilibrium Based SNP Genotype Calling from Short Sequencing Reads, SoE-UCHC Bioengineering Research Forum, UCONN Health Center, Farmington, CT, Oct. 29, 2008
- Hidden Markov Models of Haplotype Diversity and Applications in Genetic Epidemiology, INFORMS Annual Meeting, Oct. 12-15, 2008
- Computational Challenges in Whole-Genome Association Studies, SoE-UCHC Bioengineering Research Forum, University of Connecticut, Storrs, CT, April 22, 2008
- Rational DNA sequence design for molecular nanotechnology, SoE Nanotechnology Research Forum, University of Connecticut, Storrs, CT, March 5, 2008
- Algorithms for Biochip Design and Optimization, Cadence Berkeley Labs, Berkeley, CA, Nov. 01, 2007
- Scalable Algorithms for Genotype and Haplotype Analysis (invited tutorial), 3rd International Symposium on Bioinformatics Research and Applications (ISBRA), Atlanta, Georgia, May 7-10, 2007
- Genotype Error Detection using Hidden Markov Models of Haplotype Diversity, 21st New England Statistics Symposium, University of Connecticut (NESS), Storrs, CT, April 21, 2007
- Algorithms for SNP Data Collection and Analysis, Department of Computer Science, University of Rhode Island, Nov. 10, 2006
- Design and Optimization of Universal DNA Arrays, Affymetrix Inc., Santa Clara, CA, July 26, 2006
- Combinatorial Algorithms for Maximum Likelihood Tag SNP Selection and Haplotype Inference, *3rd International Workshop on Applied Probability (IWAP)*, Storrs, CT, May 15-18, 2006

- Panel: What Should be the Technology Platform of Choice for Biochips and is this the Right Time to Talk About CAD for Biochips? IEEE/ACM Design, Automation and Test in Europe (DATE) Workshop on Emerging CAD Challenges for Biochip Design, München, Germany, March 10, 2006
 - Design and Optimization of Universal DNA Arrays, IEEE/ACM Design, Automation and Test in Europe (DATE) Workshop on Emerging CAD Challenges for Biochip Design, München, Germany, March 10, 2006
 - Multi-project reticle design and wafer dicing under uncertain demand, 22nd European Mask and Lithography Conference (EMLC), Dresden, Germany, Jan. 24, 2006
 - Design and Optimization of Universal DNA Arrays, 2nd SECABC Fall Workshop on Biocomputing, Atlanta, GA, Oct. 27, 2005
 - Algorithms for universal DNA tag array design and optimization, Computer Science Colloquium, Kent State University, Kent, Feb. 25, 2005
 - Greedy Approximation Algorithms for Covering Problems in Computational Biology, Operations and Information Management Department, University of Connecticut, Storrs, Oct. 22, 2004
 - Combinatorial Optimization Methods for Reliable Genomic-Based Pathogen Detection Systems, Comparative Pathology Seminar, Department of Pathobiology and Veterinary Science, University of Connecticut, Storrs, Sept. 30, 2004
 - Minimum PCR Primer Set Selection with Amplification Length and Uniqueness Constraints, 2nd Georgia State Biotech Symposium, Atlanta, GA, May 25, 2004
 - Combinatorial optimization problems in computational biology, Mathematics Department Colloquium, University of Connecticut, Storrs, Apr. 22, 2004
 - Non-tree routing for reliability and yield improvement, Fujitsu Laboratories, Kawasaki, Japan, Jan. 20, 2003.
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PROFESSIONAL SERVICE

Editorial Board Member and Guest Editor for Journals

- Editorial Board Member, *International Journal of Bioinformatics Research and Applications*, 06/2006–present
- Guest editor, *IEEE/ACM Transaction on Computational Biology and Bioinformatics* 6(2), April-June 2009, special section devoted to *4th International Symposium on Bioinformatics Research and Applications*
- Guest editor, *IEEE/ACM Transaction on Computational Biology and Bioinformatics* 5(3), July-September 2008, special section devoted to *3rd International Symposium on Bioinformatics Research and Applications*
- Guest editor, *IEEE/ACM Transaction on Computational Biology and Bioinformatics* 4(4), October-December 2007, special section devoted to *2nd International Workshop on Bioinformatics Research and Applications*
- Guest editor, *International Journal of Sensor Networks*, special issue devoted to *2nd ACIS Workshop on Self-Assembling Wireless Networks*, to appear
- Guest editor, *IEEE Transactions on NanoBioscience* 6(1), March 2007, special section on Computational NanoBioscience
- Guest editor, *Journal of Universal Computer Science* 13(1), March 2007, special issue devoted to *1st ACIS Workshop on Self-Assembling Wireless Networks*

Chair of International Workshops and Conferences

- Program committee co-chair, *5th International Symposium on Bioinformatics Research and Applications*, Ft. Lauderdale, FL, May 13-16, 2009
- Program committee co-chair, *4th International Symposium on Bioinformatics Research and Applications*, Atlanta, GA, May 6-8, 2008
- Chair, *10th International Workshop on System Level Interconnect Prediction*, Newcastle, UK, April 5-6, 2008

- Program committee co-chair, *2007 IEEE International Conference on Bioinformatics and Biomedicine*, San Jose, CA, Nov. 2-4, 2007
- Co-chair, *3rd ACIS International Workshop on Self-Assembling Wireless Networks*, Qingdao, China, July 30-Aug 1, 2007
- Program committee co-chair, *3rd International Symposium on Bioinformatics Research and Applications*, Atlanta, GA, May 7-10, 2007
- Program committee chair, *9th International Workshop on System Level Interconnect Prediction*, Austin, TX, March 17-18, 2007
- Publicity chair, *9th SIGDA Ph.D. Forum at the Design Automation Conference*, San Francisco, CA, July 25, 2006
- Co-chair, *2nd ACIS International Workshop on Self-Assembling Wireless Networks*, Las Vegas, June 20, 2006
- Program committee chair, *2nd International Workshop on Bioinformatics Research and Applications*, Reading, UK, May 28-31, 2006
- Publicity chair, *8th International Workshop on System Level Interconnect Prediction*, Munich, Germany, March 4-5, 2006
- Publicity chair, *8th SIGDA Ph.D. Forum at the Design Automation Conference*, Anaheim, CA, June 14, 2005
- Co-chair, *1st ACIS International Workshop on Self-Assembling Wireless Networks*, Towson, MD, May 24, 2005
- Publicity chair, *7th International Workshop on System Level Interconnect Prediction*, San Francisco, CA, April 2-3, 2005
- Publicity chair, *6th International Workshop on System Level Interconnect Prediction*, Paris, France, Feb. 14-15, 2004

Member of Program Committees

- *2009 Brazilian Symposium on Bioinformatics*, Porto Alegre, RS, Brazil, July 29-31, 2009
- *17th Annual International Conference on Intelligent Systems for Molecular Biology & 8th European Conference on Computational Biology*, Stockholm, Sweden, June 27 - July 2, 2009
- *9th IEEE International Symposium on Bioinformatics & Bioengineering*, Taichung, Taiwan, June 22-24, 2009
- *1st International Conference on Bioinformatics and Computational Biology*, New Orleans, LA, Apr. 8-10, 2009
- *International Conference on Wireless Algorithms, Systems and Applications*, Dallas, TX, Oct. 26-28, 2008
- *3rd International Multi-Conference on Computing in the Global Information Technology*, Athens, Greece, July 27 - August 1, 2008
- *7th IEEE International Symposium on Bioinformatics & Bioengineering*, Boston, MA, Oct. 14-17, 2007
- *2nd VLDB Workshop on Data Mining in Bioinformatics*, Vienna, Austria, Sept. 23, 2007
- *10th SIGDA Ph.D. Forum at the Design Automation Conference*, San Diego, CA, June 5, 2007
- *2nd International Conference on Computing in the Global Information Technology*, Guadeloupe, French Caribbean, March 4-9, 2007
- *1st International Conference on Computing in the Global Information Technology*, Bucharest, Romania, August 1-3, 2006
- *7th ACIS International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing*, Las Vegas, June 19-20, 2006
- *8th Int. Conf. on Computer Science and Informatics*, Salt Lake City, Utah, July 21-26, 2005
- *6th ACIS International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing*, Towson, MD, May 23-25, 2005

- *1st International Workshop on Bioinformatics Research and Applications*, Atlanta, GA, May 22-25, 2005
- *7th SIGDA Ph.D. Forum at the Design Automation Conference*, San Diego, CA, June 8, 2004
- *5th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems*, Rome, Italy, Sept. 17-21, 2002

Referee

- NSF panelist, CISE/IIS
- Expert assessor for the *Australian Research Council (ARC)*
- Reviewer for the *Israel Science Foundation*
- Reviewer for *Computing Reviews*
- Technical referee for *ACM Transactions on Design Automation of Electronic Systems*, *Advances in Bioinformatics*, *Algorithmica*, *Bioinformatics*, *Combinatorica*, *Discrete Applied Mathematics*, *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, *IEEE Transactions on Computers*, *IEEE Proceedings - Circuits, Devices and Systems*, *Information Processing Letters*, *Integration*, *the VLSI Journal*, *International Journal of Sensor Networks*, *International Journal of Bioinformatics Research and Applications*, *Journal of Bioinformatics and Computational Biology*, *Journal of Computational Biology*, *Journal of Combinatorial Optimization*, *SIAM Journal on Computing*, *Theoretical Computer Science*, *ACM-IEEE Design Automation Conference (DAC)*, *European Symposium on Algorithms (ESA)*, *ACM-SIAM Symposium on Discrete Algorithms (SODA)*, *ACM/IEEE International Workshop on Timing Issues in the Specification and Synthesis of Digital Systems*, *Asia and South Pacific Design Automation Conference (ASP-DAC)*, *IEEE-ACM International Conference on Computer-Aided Design (ICCAD)*, *International Conference on Intelligent Systems for Molecular Biology (ISMB)*, *International Conference on Research in Computational Molecular Biology (RECOMB)*

Professional Societies

- American Society of Human Genetics (ASHG)
- Association for Computing Machinery (ACM)
- ACM Special Interest Group on Algorithms and Computation Theory (SIGACT)
- International Society for Computational Biology (ISCB)
- Institute for Operations Research and the Management Sciences (INFORMS)

FUNDING

Competitive Extramural Research Grants

- *Bioinformatics Tools Enabling Large-Scale DNA Barcoding*, National Science Foundation award DBI-0543365, PI (with Co-PIs: Bhaskar DasGupta, UIC, and Mazhar I. Khan, UCONN), \$400k, 07/2006–06/2010
- *Combinatorial Algorithms for High-Throughput Collection and Analysis of Genomic Diversity Data*, National Science Foundation CAREER award IIS-0546457, PI, \$555k, 01/2006–12/2010

Competitive Intramural Research and Curriculum Development Grants

- *The Mechanism of Phenotypic Drift in hES Cells*, UCHC/Storrs and Regional Campus Incentive Grants ("UCIG") Award, Co-PI (with PI Rachel O'Neill and co-PIs Brenton Graveley, Theodore Rasmussen, and Yufeng Wu, Computer), \$50k, 9/2009–8/2010
- *Computational Biomedical Science*, UCONN Honors Interdisciplinary Course Development Grant, \$8k, 06/2006–05/2009
- *Primer Selection Algorithms for Cost-Effective DNA Amplification by Multiplex PCR*, University of Connecticut Research Foundation, Large Faculty Research Grant Program, PI, \$18k, 06/2004–05/2005

TEACHING AND ADVISING

Courses Taught

University of Connecticut

- BME1401/CSE1401/MCB1401, *Honors Core: Computational Molecular Biology* (Fall 2008, Spring 2009)
- BME 4985/6160 & CSE 4095/6800, *Computational Genomics* (Spring 2007, Spring 2008, Spring 2009)
- BME4800 & CSE3800/5800, *Bioinformatics* (Spring 2005, Spring 2006, Fall 2006, Fall 2007, Fall 2008)
- BME 295/300 & CSE 298/300: *Computational Molecular Biology* (Fall 2005)
- CSE134: *Data Structures and Introduction to Algorithms* (Spring 2006, Fall 2006, Spring 2008)
- CSE243: *Computer Architecture and Hardware/Software Interface* (Spring 2004, Fall 2004)
- CSE300: *Algorithms in Bioinformatics* (Fall 2003)
- INTD198: *Freshman Honors Seminar – Bioinformatics and Molecular Evolution* (Fall 2006)

Georgia Institute of Technology

- CS1050: *Understanding and constructing proofs* (Spring 2001)
- CS3500: *Theory I* (Spring 2000, Fall 2000)
- CS1155: *Understanding and constructing proofs* (Summer 1999)
- CS3156: *Introduction to automata theory* (Fall 1998)

University of Bucharest

- *Introduction to numerical methods* (Fall 1992–Fall 1994)
- *Formal languages and automata theory seminar* (Fall 1991–Spring 1992)

Student Advising

Major Advisor – Ph.D. Students

- Bogdan Paşaniuc (5/2008, thesis: “Scalable Algorithms for Analysis of Genomic Diversity Data”, post-doctoral scholar at the International Computer Science Institute, Berkeley, CA)
- Current advisees: Jorge Duitama, Jin Jun, Justin Kennedy

Major Advisor – M.S. Students

- Claudia Prajescu (12/2005, thesis: “Multiplexing Algorithms for High-Throughput Genomic Based Assays”, Software Developer with Siemens VDO Automotive, Iaşi, Romania)
- Dragos Trinca (12/2005, thesis: “Exact and Approximation Algorithms for DNA Tag Set Design”, PhD student at UCONN)
- Current advisees: James Lindsay, Stephen Thompson, Xiguang Yan