Curriculum Vitae

Bhubaneswar Mishra
Professor of Computer Science, Mathematics, and Cell Biology
September 29, 2011

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Personal

Date of Birth	5th of May, 1958
Marital Status	Married to Jane Mishra, January 22, 1989.
	Sons: Samuel Andrew Mishra, December 10, 1990,
	and Thomas Oliver Mishra, May 13, 1993.
	Daughter: Kimberly Indira Mishra, September 23, 1998.
Nationality	Indian National & American Citizen

Scholastic Record

1985	Ph.D.	Carnegie-Mellon University, (Computer Science)
		Some Graph Theoretic Issues in VLSI Design,
		Thesis Committee: *Prof. E.M. Clarke* (advisor),
		Profs. R. Kannan, R. Statman and R.E. Tarjan.
1982	M.S.	Carnegie-Mellon University, (Computer Science)
		Area Committee: *Prof. E.M. Clarke* (advisor),
		Profs. D. Siewiorek and Wm. A. Wulf.
1980	B.Tech.(Hons.)	Indian Institute of Technology, Kharagpur, India,
		(Electronics and Electrical Communication Engg.)
		Advisor: *Prof. S.C. DeSarkar.*
1975	I.Sc.(Hons.)	Utkal University, Bhubaneswar, India.

Employment

Sept. 2004–present	**Professor of Cell Biology**.
	School of Medicine, New York University.
Apr. 1999–present	**Professor of Computer Science and Mathematics**.
	Courant Institute of Mathematical Sciences, New York University.
Sept. 2001–Aug. 2004	**Professor**.
	Cold Spring Harbor Laboratory.
Jan. 2001–Aug. 2004	**Co-director**.
	Center for Comparative Functional Genomics, New York University.
Jan. 1995–Mar. 1999	**Professor of Computer Science**.
	Courant Institute of Mathematical Sciences, New York University.
Sep. 1994–Sep. 1996	**Deputy Chair**.
	Computer Science, Courant Institute of Mathematical Sciences,
	New York University.
Sep. 1991–Jan. 1995	**Associate Professor Computer Science**.
	Courant Institute of Mathematical Sciences, New York University.
Sep. 1985–Sep. 1991	**Assistant Professor of Computer Science**.
	Courant Institute of Mathematical Sciences, New York University.

Other Academic Employment

2008–Present	**Visting Scholar**.
	Quantitative Biology Center, Cold Spring Harbor Laboratory, Long Island, New York.
2003–Present	**Adjunct Professor**.
	Tata Institute of Fundamental Research, Colaba, Mumbai, India.
2000–Present	**Adjunct Professor, Department of Human Genetics**.
	Mt. Sinai School of Medicine, NYU.
2007–Present	**Advisory Board** (VisANT, Boston University).
	Boston, MA. (`visant.bu.edu`)
2007–Present	**Advisory Board** (Biotech/Medical, Information Science & Nanotechnology).
	Lifeboat Foundation. (`www.lifeboat.com`)
2007–Present	**Scientific Advisory Board**.
	Istituto di Genomica Applicata (IGA),
	Udine, Italy.
2007–Present	**External Scientific Advisory Board**.
	Arizona Cancer Center (AZCC),
	P01 (Targets to Therapeutics in Pancreatic Cancer).
	Phoenix, AZ.
2004–2007	**Scientific Advisory Board**.
	Center for Biological Language Modeling,
	CMU, MIT, U. Pitt, NRC (Canada), Mathworks, & Medstory.
	Pittsburgh, PA.

2004–2005	**Member of the Steering Committee**.
	International School on Biomedicine and Bioinformatics, Lipari, Italy
1999–2003	**Professor (Courtesy)**.
	Taub Urban Research Center, Wagner School of Public Policy, NYU.
Summer of 2002	**Visiting Professor**.
	Universitá degli Studi di Udine, Udine, Italy.
2000–2001	**Adjunct Professor of Bioinformatics**.
	Cold Spring Harbor Laboratory.
October–November, 1999	**Visiting Professor**.
	Tata Institute of Fundamental Research, Colaba, Mumbai, India.
Summer of 1999	**Visiting Professor**.
	Universitá di Catania, Catania, Sicily.
Summer of 1996	**Visiting Professor**.
	Universitá Degli Studi di Milano, Milan, Italy and
	Consorzio Milano Ricerche, Milan, Italy.
Summer of 1991	**Visiting Professor**.
	Universitá di Catania, Catania, Sicily.
Oct. 1989–Sep. 1990	**Joint-Study Researcher**.
	International Business Machine, York Town Heights, New York.
Summer of 1981	**Researcher**.
	Mobile Robots Lab, Robotics Institute, CMU, Pittsburgh. .
Sep. 1980–Sep. 1985	**Research Assistant**.
	Carnegie-Mellon University, Dept. of Computer Science.

Non-Academic Employment

Jan. 2008–Present	**Co-Founder & Member, S.A.B.**. [*Nanotech*]
	Molecular Morse Code: MMC, LLC, CA.
Oct. 2008–Aug. 2011	**Consultant**. [*Pharmacogenomics and Personalized Medicine*]
	Abraxis Bioscience, Inc.
Mar. 2006–Present	**Member, Board of Advisors**. [*E-Commerce*]
	ATTAP, Inc. (riffs.com, LifeIO.com & personaldna.com)
June. 2001–Present	**Member, Advisory Board**. [*Internet*]
	Mindfire Solutions: mindfiresolutions.com, New Delhi, India.
Jan. 2001–Present	**Founder & Member, S.A.B.**. [*Biotech*]
	OpGen, Wisconsin.
	(Formerly: eDNA Genomics).
June. 2001–Jun. 2010	**Member, Scientific Advisory Board**. [*Biotech*]
	BioArray Solutions, New Jersey, USA.
Aug. 2004–Jun. 2006	**Consultant**. [*E-Commerce*]
	ATTAP, Inc. (riffs.com, LifeIO.com & personaldna.com)
Jun. 2002–Jun. 2005	**Member, Scientific Advisory Board**. [*Internet*]
	AssistClick.com, Inc., New York, USA.
Jul. 2001–Jun. 2004	**Member, Scientific Advisory Board**. [*Internet*]
	ez-ways.com, Inc., New York, USA.

Jan. 2000–Jun. 2003	**Member, Technical Advisory Board.** [*Internet*] `pmetrics.com`, California.
Dec. 1997–Dec. 1999	**Consultant.** [*Finance*] Gerard, Klauer & Mattison, Inc. and Pattern Recognition Fund, L.P. New York
Nov. 1996–Jul. 1997	**Consultant.** [*Finance*] Market Methodology, Inc., California.
Jan. 1996–Jul. 1997	**Consultant.** [*Finance*] Lawrence, O'Donell & Marcus, Inc. and Gerard, Klauer & Mattison, Inc., New York.
Sep. 1995–Jan. 1996	**Consultant.** [*Finance*] Cornerstone Asset Management, New York.
May 1994–Jun. 1994	**Consultant.** [*Cryptanalysis*] Bush-Ross Design Inc., New York
May. 1991–Oct. 1994	**Consultant.** [*Finance*] Tudor Investments Corporation, New York.
May 1982–Sep. 1983	**Consultant.** [*Compiler*] Tartan Laboratories Inc., Pittsburgh. (with Bill Wulf, Guy Steele, John Nestor and Joe Newcomer).
Summer of 1979	**Designer.** [*Communication*] Electronics and Radar Development Center(LRDC), Bangalore, India.

Honors and Achievements

Society Fellows

(December 2010:) *AAAS Fellow*. (For contributions to engineering sciences.)

(January 2009:) *IEEE Fellow*. (For contributions to mathematical models of robotic grasping.)

(June 2008:) *ACM Fellow*. (For contributions to symbolic computation and computational biology.)

Distinguished Professor, Scientist, Alumnus, etc.

(May 2011:) *Distinuished Alumnus Award (2011)*, Indian Institute of Technology (Kharagpur), India.

(January 2009:) *Invited Guest*, Kavli Future Symposium: Envisioning the Extreme Machine, Muelle, Costa Rica.

(January 2003) *NYSTAR Distinguished Professor of 2001*, New York State Office of Science, Technology & Academic Research, Albany, NY.

(October 2003) *Distinguished Biotechnologists*, *Cutting Edge Science in New York City*, New York Academy of Sciences, NY.

Distinguished/Plenary Lecture, etc.

(July 2011:) *Keynote Speaker*, 9th International Workshop on Satisfiability Modulo Theories (SMT-CAV 2011), Snow Bird, Utah.

(July 2011:) *Invited Guest Speaker*, Lipari School on Computational Complex Systems – Jacob T. Schwartz International School for Scientific Research, Lipari, Italy.

(July 2011:) *Invited Lecturer*, Lipari School on BioInformatics and Computational Biology – Jacob T. Schwartz International School for Scientific Research, Lipari, Italy.

(June 2011:) *Keynote Speaker*, Eighth Annual Meeting of the Bioinformatics Italian Society (BITS 2011), Pisa, Italy.

(February 2011:) *Keynote Speaker*, Bhabha Centenary Conference, Tata Institute of Fundamental Research, Mumbai, India.

(January 2011:) *Keynote Speaker*, Supercomputing: The Imperative and the Path Forward, Abu Dhabi, UAE.

(November 2010:) *Distinguished Lecturer*, Distinguished Lecture Series, College of Engineering and Computer Science, University of Central Florida, Orlando, Florida.

(September 2010) *Invited Lecturer*, Sixth International School on Biology, Computation and Information (BCI 2010), Dobbiaco (BZ), ItalyLipari, Italy.

(September 2008:) *Distinguished Lecturer*, Distinguished Lecture Series, Iowa State University, Ames, Iowa.

(July 2008) *Invited Lecturer*, The International Summer School of Functional Genomics, Baia Samuele Conference Centre, Scicli-Sicily, Italy, July 5th-19th 2008.

(July 2007:) *Keynote Speaker*, *Algebraic Biology 2007*, RISC, Castle of Hagenberg, Austria.

(May 2007:) *Invited Speaker*, *Interface 2007*, 39th Symposium on the interface of statistics, computing science, and applications, Philadelphia, PA.

(March 2007:) *Invited Speaker*, Applications of Algebraic Geometry at the Institute for Mathematics and its Applications (IMA), Minneapolis, MN.

(December 2006:) *Keynote Speaker*, 9th International Conference on Information Technology (CIT 2006), Bhubaneswar, Orissa, India.

(September 2006:) *Distinguished Lecturer*, Distinguished Lecture Series, Department of Computer Science, Dwight Look College of Engineering, Texas A&M University, College Station, TX.

(July 2006) *Invited Lecturer*, The International School of Advanced BioMedicine and BioInformatics and The Lipari International School for Computer Science Researchers, Lipari, Italy.

(September 2005:) *Keynote Speaker*, 8$^{\text{th}}$ Intl. Meeting of the Microarray Gene Expression Data Society, MGED8, Bergen Norway.

(July 2005:) *Keynote Speaker*, 17$^{\text{th}}$ Int. Conference on Computer Aided Verification, CAV '05, Edinburgh, Scotland.

(June 2005:) *Invited Plenary Speaker*, Detecting and Processing Regularities in High Throughput Biological Data, DIMACS, Rutgers University, New Jersey.

(November 2004) *Distinguished Speaker*, Distinguished Lecture Series, Institute for Systems Research, University of Maryland, College Park. MA.

(October 2004) *Distinguished Lecturer*, Distinguished Seminar Series, Drexel University, Philadelphia, PA.

(May 2004) *Plenary Speaker*, International Conference on Complex Systems, NECSI, Boston, MA.

(April 2004) *ECE/CS Distinguished Lecturer*, ECE/CS Distinguished Lecture, Carnegie-Mellon University, Pittsburgh, PA.

(December 2003) *Keynote Speaker*, Conference On High Performance Computing, HiPC 2003, Hyderabad, India.

(November 2003) *Distinguished Speaker at Delaware*, Computer Science Department, University of Delaware, Newark, DE.

(October 2003) *Distinguished Lecturer At Rutgers*, Electrical & Computer Engineering, Rutgers University New Brunswick, NJ.

(October 2002) *2002-2003 Columbia Distinguished Lectures in Computer Science*, Columbia University, New York, NY.

(May 2000) *Distinguished Lecturer*, Distinguished Computer Scientists Symposium, *Frontiers of Research in the New York Area*, New York Academy of Sciences, NY.

(June 1999) *Invited Lecturer*, 11th International School in Computer Science: *Computational Biology*, Lipari, Italy.

(February 1997) *The Gaschnig/Oakley Memorial Lecture*, Distinguished Lecturer, School of Computer Science, Carnegie-Mellon Univ., Pittsburgh, PA.

Academic Awards

(July 1980) Second Position (over all grade points), Department of Electronics and Electrical Communication Engineering, Indian Institute of Technology, Kharagpur.

(February 1980) First Prize, Eleventh All India Design Competition for Engineering Students, Electronics & Telecommunication Engineering, (National Research Development Corporation Award), 1979.

(June 1975) First in the state-wide I.Sc. Exam. Senior College Merit Scholarship, Utkal University.

Others: *Invited addressee*:
• Invited Session, International Conference On High Performance Computing, Bangalore, India; • Biological Language Modeling Workshop, School of Computer Science, Carnegie-Mellon University, Pittsburgh, PA; • SIAM Symposium on Computational Models and Simulation for Intra-Celul Bioinformatics Program Seminar, Boston University, Boston, MA, May 20, 2004. lar Processes, Washington, DC; • International Conference on Complex Systems (ICCS2002), Nashua, NH; • 1st Geometry Workshop, Brooklyn Polytechnic, Brooklyn, New York; • Annual SIAM Meeting, San Diego, CA; • ABRF 2001, San Diego, Ca; • IPAM (Institute for Pure and Applied Mathematics), UCLA, LA; • New York Academy of Science, Manhattan, NY; • NECSI (New England Complex Systems Institute), NH; • AMS Meeting, Charlotte, NC; • DIMACS Workshop on Robotics and Computer Vision, DIMACS, Rutgers University, NJ; • Workshop on Grasping, Fixturing, and Manipulation: Towards a Common Language, ICRA 98, Leuven, Belgium; • Workshop on Lie Groups

and Lie algebra for Robotics, ICRA 98, Leuven, Belgium; • 1998 CSHL Genome Mapping, Sequencing & Biology Conference, Cold Spring Harbor, NY; • 2nd Research Conference on Computational Biology, RECOMB 98, New York, NY; • 9th International Genome Sequencing and Analysis Conference, Hilton Head, SC; • World Automation Congress, WAC'96. Montpellier, France; • The Second European Workshop on Real-time and Hybrid systems. Grenoble, France; • Workshop MEDICIS-SMF of Differential Algebra, Marseilles, France; • Workshop on the Algorithmic Foundations of Robotics (WAFR'94), San Francisco; • 1994 NSF Design and Manufacturing Conference, M.I.T.; • 4th Int'l conf. on CIM and Automation Technology, RPI; • NSF Workshop on Manufacturing and Computational Geometry, New York; • SIAM Mini symposium on Robotics, San Diego, CA. • POSSO (POlynomial System SOlving) Workshop, Sophia-Antipolis & Nice, France; • Workshop on Geometric Algorithms for Manufacturing, International Conference on Robotics and Automation: (ICRA 93), Atlanta; • NSF Workshop on Geometric Uncertainty in Motion Planning, Catalina Island; • IROS'91: The 1991 IEEE International Workshop on Intelligent Robots and Systems, Osaka, Japan; • Robotics and Mathematics session of AAAS-91, Washington, DC; • 2nd International Workshop on Advances in Robot Kinematics, Research Institute for Symbolic Computation (RISC), Linz, Austria; and • DIMACS workshop on Real Geometry and Applications, Discrete Mathematics and Computer Science CeTalkn. ECE/CS Distinguished Lecture, Carnegie-Mellon University, Pittsburgh, PA, April 30, 2004. ter, Rutgers University, NJ.

Honors:

• Elected Senior Member, IEEE; • Elected Member, $\Sigma \ \Xi$, The Scientific Research Society.

Editorial Duties

(2006–Present) Member, Editorial Board, *Nanotechnology, Science and Applications*, Dove Medical Press Ltd.

(2003–Present) Member, Editorial Board, *Computational Systems Biology*, Springer Verlag.

(2002–Present) Member, Editorial Board, *AMRX: Applied Mathematics Research Exchange*, Oxford Journals.

(2003–2010) Senior Editor, *Molecular Cancer Therapeutics*, American Association for Cancer Research, Stanford University Library.

Inventions

Patents Granted

[1] **Computer-Based Methods and Systems for Sequencing of Individual Nucleic Acid Molecules**, (Co-Inventors: D.C. Schwartz), United States Patent, Patent Number: US06221592, Date of Patent: April 24 2001.

[2] **Genomics via Optical Mapping with Ordered Restrictions Maps**, (Co-Inventors: T.S. Anantharaman and D.C. Schwartz), United States Patent, Patent Number: US06174671, Date of Patent: January 16 2001.

[3] System and Method for Surface Rendering of Internal Structures within the Interior of a Solid Object, (Co-Inventors: D. Karron and J. Cox), United States Patent, Patent Number: `US5898793`, Date of Patent: April, 27 1999.

[4] Reactive Robotic Gripper, (Co-Inventor: M. Teichmann), United States Patent, Patent Number: `US005541485`, Date of Patent: Jul. 30, 1996.

Patents Pending

[5] Method and System for Data Classification in the Presence of Temporal Non-Stationarity, (Co-Inventor: G. Berger), United States Patent.

[6] System and Method for Sequence Validation via Optical Map Matching, (Co-Inventors: M. Antoniotti, T.S. Anantharaman and S. Paxia), United States Patent. [aka System and Process for Validating, Aligning, and Reordering One or More Genetic Sequence Maps using at least One Ordered Restriction Map, Co-Inventor: D.C. Schwartz added by WARF, Wisconsin.]

[7] Automatic Validation, Alignment and Reordering of Sequences via Optical Mapping, (Co-Inventors: M. Antoniotti, T.S. Anantharaman and S. Paxia), United States Patent

[8] Systems, Processes and Software Arrangements Providing a Shrinkage-Based Similarity Metric for Cluster Analysis of Micro-array Data, (Co-Inventors: V. Cherepinsky et al.), United States Patent.

[9] Mathematical Methods for HLA Typing, [aka Methods, Software Arrangements, Storage Media, and Systems for Genotyping or Haplotyping Polymorphic Genetic Loci or Strain Identification], (Co-Inventors: V. Cherepinsky et al.), United States Patent.

[10] Disease Detection using Genome Wide Haplotype Maps, (Co-Inventors: T.S. Anantharaman et al.), United States Patent.

[11] Shot Gun Optical Maps of the Whole *E. coli 0157:H7* **Genome**, (Co-Inventors: D.C. Schwartz et al.), United States Patent.

[12] System, Method and Software Arrangement for Bi-Allele Haplotype Phasing, (Co-Inventors: W. Casey et al.), United States Patent.

[13] System, Method and Software Arrangement Utilizing a Multi-Strip Algorithm that can be Applied to Gene Characterization Using DNA-Array Data, (Co-Inventors: G. Lerman et al.), United States Patent.

[14] A Versatile Statistical Analysis Algorithm to Detect Genome Copy Number Variation, (Co-Inventors: R.S. Daruwala et al.), United States Patent.

[15] Aligning Sequences with Non-Affine Gap Penalty: PLAINS Algorithm a Practical Implementation, and Its Biological Applications in Comparative Genomics, (Co-Inventors: O. Gill et al.), United States Patent.

[16] Method, System and Software Arrangement for Detecting or Determining Similarity Regions Between Datasets, (Co-Inventors: S. Paxia et al.), United States Patent.

[17] Methods, Systems and Software Arrangement for Reconstructing Formal Descriptive Models of Processes from Functional/Modal Data using Suitable Ontology (GOALIE), (Co-Inventors: M. Antoniotti et al.), United States Patent.

[18] **Compositions and Methods for Analyzing Immobilized Nucleic Acids**, (Co-Inventors: J. Reed et al.), United States Patent.

[19] **Method, System, and Software Arrangement for Organization and Analysis of Multiple Sets of Data**, (Co-Inventor: S. Kleinberg), United States Patent.

[20] **System, Method, Processing Arrangement and Computer-Accessible Medium for Providing a Multi-Objective Evolutionary Optimization of Agent-Based Models**, (Co-Inventors: G. Narzisi and M.P. Venkatesh), United States Patent.

[21] **System and Method for Rapid Searching of Highly Similar Protein-Coding Sequences using Bipartite Graph Matching**, (Co-Inventors: B. Sun, J.T. SChwartz, and O. Gill), United States Patent.

[22] **System, Method, Processing Arrangement and Computer-Accessible Medium for Comparative Analysis and Phylogeny using Optical Maps**, (Co-Inventors: B. Sun, A. Briska and J.T. SChwartz), United States Patent.

[23] **Method, System and Software Arrangement for Haplotypic Sequencing of Whole Genomes using Single Nucleic Acid Molecules**, (Co-Inventors: T. Anantharaman, and A. Lim), United States Patent.

Video

[1] **Alchemy of Genomics: Optical Mapping**, ≈ 70 minutes, SCS Distinguished Lecture, *School of Computer Science, Video Collection*, Carnegie Mellon, 20 February, 1997.

Also appears on The Universal Library Project [`www.ul.cs.cmu.edu`] at Carnegie Mellon University.

[2] **Cell Talk**, ≈ 55 minutes, ISR Distinguished Lecture, *2004 ISR Video Archive*, the Institute for Systems Research, A. James Clark School of Engineering, University of Maryland, November 16 2004.

[`http://www.isr.umd.edu/VideoReports/2004/mishra.html`]

Publications

Books and Monographs (Authored & Coauthored)

[1] **Genomics: The Science and Technology Beyond the Human Genome Project**, (with C. Cantor), 2010 (Tentative).

[2] **Algorithmic Algebra**, In *Texts and Monographs in Computer Science Series*, Springer-Verlag, New York, 1993. XIV, 416 pp., 9 illus.

[3] **Design of Waveguide, Cavity and a Coupling Arrangement Using Centered Circular Aperture to Operate at a Fixed Frequency of 8GHz.**,
National Design and Research Forum, Institute of Engineers, India, 1979. 55 pp.

Theses

[4] **Some Graph Theoretic Issues in VLSI Design**,
Ph.D. Thesis, Computer Science Department, Carnegie-Mellon University, September, 1985. 138 pp. + Appendix.

Also appears as No. 8702899, University Microfilms International, Ann Arbor, Michigan, 1986.

[5] **Code Generation;**
Part I: Cross-Assembler for MC6800,
Part II: Code Optimizer for a PL/M Compiler,
B.Tech. Thesis, Dept. of Electronics and Electrical Engineering, I.I.T., Kharagpur, May, 1980. 67 pp. + Appendix.

Papers in Books and Handbooks

[6] "Mathematics' Mortua Manus: Discovering Dexterity," In **Jacob T. Schwartz Memorial Volume**, 2011.

[7] "Focus on Personalized Molecular based Medicine," (with LHT. Van der Ploeg, C. Eitner, J. Burrows, T. Tombler, V. Poponin, D. Knauer, I. Ichetovkin, R. Pinnola, G. Endress and P. Soon-Shiong), In **Biomarkers in Oncology**, (edited by Heinz-Josef Lenz, MD), Springer-Verlag, NY, 2011.

[8] "Sarve Santu Niramaya: Computational Biology's Promises for India," In **Homi Bhabha and the Computer Revolution**, (Ed. R.K. Shyamasundar and M.A. Pai), pp. 295–315, Oxford University Press, Oxford, 2011.

[9] "Genomics via Optical Mapping I: 0-1 Laws for Single Molecules," (with T.S. Anantharaman), To appear in a volume on Advances in Computational Biology (Ed. S. Yancopoulous), 2008.

[9 A] Also appears as "Genomics via Optical Mapping I: Probabilistic Analysis of Optical Mapping Models," Courant Technical Report, No. TR # 1998-770, August, 1998.

[9 B] Also appears as "Some Results Based on a Simple Model for Optical Mapping," December, 1997. Unpublished Manuscript, NYU, 18 pp.

[10] "Transposable Element-driven Duplications during Hominoid Genome Evolution," In **Encyclopedia of Life Sciences (ELS)**, John Wiley, 2008.

[11] "Stability of Hybrid Systems and Related Questions from Systems Biology," (In honor of Professor Pravin Varaiya on his 65th birthday), (with C. Piazza), In Advances in Control, Communication Networks, and Transportation Systems: In Honor of Pravin Varaiya, E.H. Abed (Ed.), **Systems and Control: Foundations and Applications Series**, Birkhauser, Boston, 2005.

[12] "Simpathica: A Computational Systems Biology Tool within the Valis Bioinformatics Environment," (with M. Antoniotti, S. Paxia and N. Ugel), **Computational Systems Biology**, E. Eiles and A. Kriete(Eds.), Elsevier, 2005.

[13] "Models of Genome Evolution," (with Y. Zhou), In *Modeling in Molecular Biology*, G. Ciobanu, and G. Rozenberg (Eds.), **Natural Computing Series**, pages 287–304, Lecture Notes in Computer Science, Springer-Verlag, 2004.

   Invited Contribution.

[14] "Computational Real Algebraic Geometry," [Revised and updated] **CRC Handbook of Discrete and Computational Geometry**, (Edited by J.E. Goodman and J. O'Rourke), pp. 740–764, CRC Series, Discrete and Combinatorial Mathematics, Second Edition, 2004. **[14 A]** Also see, "Computational Real Algebraic Geometry," **CRC Handbook of Discrete and Computational Geometry**, pp. 537–558, CRC Press, Boca Raton, Florida, July, 1997.

   Invited Contribution.

[15] "Optical Mapping," **Encyclopedia of the Human Genome**, *Nature Publishing Group*, **4**:448-451, Macmillan Publishers Limited, London, UK, 2003.

   Invited Contribution.

[16] "On the Other Hands: Geometric Ideas in Robotics," **Geometry at Work: Papers in Applied Geometry,**, (Edited by C.A. Gorini), Mathematical Association of America, **53**:105–117, MAA, 2000.

   Invited Contribution.

[17] "Computational Differential Algebra," In *Geometrical Foundations of Robotics*, (Ed. Jon Selig), **Lecture 8**: 111–145, World-Scientific, Singapore, 2000.
   [17 A] Also appears in *Proc. of the Workshop on Lie Groups and Lie algebra for Robotics*, ICRA '98, Leuven, Belgium, 1998.

[18] "The Power of Friction: Quantifying the "Goodness" of Frictional Grasps." (with M. Teichmann), **Algorithms for Robotic Motion and Manipulation**, (Edited by J.P. Laumond and M. Overmars), pp. 311–320, A.K. Peters, Wellesley, Massachusetts, 1997.

[19] "Grasp Metrics: Optimality and Complexity," **Algorithmic Foundations of Robotics**, (Edited by K. Goldberg, D. Halperin, J.-C. Latombe and R. Wilson), pp. 137–166, A.K. Peters, Wellesley, Massachusetts, 1995.
   [19 A] Reprinted in the Proc. of the Workshop on *Grasping, Fixturing, and Manipulation: Towards a Common Language*, ICRA '98, Leuven, Belgium, 1998.

[20] "Techniques for Calibration with Applications to Telemanipulation," (with J.-W. Hong and X. Tan), **Progress in Robotics and Intelligent Systems**, Vol. **5**, (Edited by C.Y. (Pete) Ho and George W. Zobrist), Ablex Publishing Corporation, Norwood, New Jersey, 1993.

   Invited Contribution.

[21] "Wu-Ritt Characteristic Sets and Their Complexity," (with G. Gallo), **Discrete and Computational Geometry: Papers from the DIMACS Special Year**, *Dimacs Series in Discrete Mathematics and Theoretical Computer Science*, pp. 111–136, Vol. **6**, (Edited by

J.E. Goodman, R. Pollack and W. Steiger), American Mathematical Society and Association for Computing Machinery, 1991.

[22] "Efficient Algorithms and Bounds for Wu-Ritt Characteristic Sets," (with G. Gallo), **Effective Methods in Algebraic Geometry**, (Edited by F. Mora and C. Traverso), pp. 119–142, *Progress in Mathematics*, Volume **94**, Birkhäuser Boston, Inc., 1991.

[23] "Automatic Verification of Sequential Circuits Using Temporal Logic," (with M. Browne, E.M. Clarke and D. Dill), **IEEE tutorial on Formal Verification of Hardware Designs**, Editor: M. Yoeli, pp. 166–175, IEEE Computer Society Press, Institute of Electrical and Electronics Engineers, Inc., January 1991.
Reprint.

Papers in Journals

[24] "TotalReCaller: Improved Accuracy and Performance via Integrated Alignment & Base-Calling," (with F. Menges and G. Narzisi), *Bioinformatics*, **27**(17):2330–7. (Epub 2011 Jun 30), Sept. 2011.

[25] "Comparing De Novo Genome Assembly: The Long and Short of It," (with G. Narzisi), *PLoS One*, **6**(4): e19175, April 2011.

[26] "Scoring-and-Unfolding Trimmed Tree Assembler: Concepts, Constructs and Comparisons," (with G. Narzisi), *Bioinformatics*, **27**(2): 153–60, Jan 2011. `doi:10.1093/bioinformatics/btq646`, November, 2010.

[27] "Prediction of Protein Functions with Gene Ontology and Inter-Species Protein Homology Data," (with A. Mitrofanova and V. Pavlovic) *IEEE/ACM Transaction on Computational Biology and Bioinformatics*, **8**(3): 775–784 May/June, 2011.

[28] "Competitive Hybridization Models," (with V. Cherepinsky, and G. Hashmi), *Phys. Rev. E*, **82**, 051914 (17 pages) 2010.
[**28 A**] Also highlighted in the November 15, 2010 issue of Virtual Journal of Biological Physics Research. Published by the American Physical Society and the American Institute of Physics in cooperation with numerous other societies and publishers, VJBio is an edited compilation of links, covering a focused area of frontier research. `http://www.vjbio.org/`

[29] "On a Novel Coalescent Model for Genome-Wide Evolution of Copy Number Variations," (with A. Mitrofanova), (Invited Paper), *International Journal of Data Mining and Bioinformatics (IJDMB)*, **4**(3): 300–315, 2010.
[**29 A**] Also appears in **SAC 2008**, *The Twenty-Third Annual ACM Symposium on Applied Computing*, Ceara, Brazil, 16-20 March 2008.

[30] "Predicting Malaria Interactome Classifications from Time-Course Transcriptomic Data along the Intra-Erythrocytic Developmental Cycle," (with A. Mitrofanova, S. Kleinberg, J. Carlton and S. Kasif), *Artificial Intelligence in Medicine, AIIM*, **49**(3):167–76, 2010.

[31] "Reverse Engineering Dynamic Temporal Models of Biological Processes and their Relationships," (with N. Ramakrishnan, S. Tadepalli, L.T. Watson, R.F. Helm, and M. Antoniotti), *Proc Natl Acad Sci U S A*, **107**(28):12511–6, 2010.

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Post-Doctoral Fellows

Post-Doctoral Fellows (Current)

[1] **Andreas Witzel:** (CWI, University of Amsterdam), 2009–2011. Expedition (NSF), Cancer Models and odel Checking.

[2] **Eric Aslakson:** (CalTech), 2009–2010. CFIDS, Personalized Medicine.

Post-Doctoral Fellows (Past)

[3] **Salvatore Paxia:** (New York University), 2004–2007. NYSTAR, Bioinformatics Environment.

[4] **Raoul-Sam Daruwala:** (New York University), 2002–2005. NYSTAR & CCPR, Tumor Genome Analysis, Homeland Security..

[5] **Archisman Rudra:** (New York University), 2000–2005. DOE & NIH, Tumor Genome Analysis.

[6] **Saurabh Sinha:** (University of Washington, Seattle), 2002–2004. Rockefeller Univ., Computational Biology, Algorithms.

[7] **William Casey:** (New York University), 2002–2003. DARPA & NIH, Mathematics of Haplotypes & Phylogenetics .

[8] **Amy Greenwald:** (Brown University), 1998–1999. NSF, Automated Learning in Network Traffic Control.

[9] **Marek Teichmann:** (MIT), 1995–1996. NSF, Reactive Robotics.

Graduate Students (Mathematics)

Graduated Ph.D.s

[1] **Vera Cherepinsky:** August 4, 2003. NYU & Yale Univ.
   "*On Mathematical Aspects of Genomic Computing.*"

[2] **William Casey:** April 23, 2002. Math. Univ. of Warwick.
   "*Graph Embeddings with Application in Genomic Experiments.*"

Graduate Students (Computer Science)

Graduated Ph.D.s

[3] **Giuseppe Narzisi:** May 10, 2011. SUTTA, LLC
   "*Scoring-and-Unfolding Trimmed Tree Assembler: Algorithms for Assembling Genome Sequences Accurately and Efficiently.*"

[4] **Samantha Kleinberg:** April 6, 2010. Columbia University
   "*An Algorithmic Enquiry Concerning Causality.*"

[5] **Antonina Mitrofanova:** May 28, 2009. Columbia Univeristy
   "*Efficient Systems Biology Algorithms for Network Analysis over multiple time scales: from Evolutionary to Regulatory time.*"

[6] **Bing Sun:** August 8, 2006. Bear-Stern
   "*Pairwise Comparison between Genomic Sequences and Optical-Maps.*"

[7] **Ofer Gill:** May 26, 2006. Bloomberg
   "*Finding Your Match: Techniques for Improving Sequence Alignment in DNA and RNA.*"

[8] **Iuliana Ioniata:** April 24, 2006. Harvard University
   "*Multimarker Genetic Analysis Methods for High Throughput Array Data.*"

[9] **Mysore Venkatesh:** March 7, 2006. DE Shaw Research
   "*Algorithmic Algebraic Model Checking: Hybrid Automata and Systems Biology.*"

[10] **Salvatore Paxia:** December 5, 2003. NYU
   "*Rapid Prototyping in Computational Biology: Multi-scripting Environment, Free-format Databases, Data Manipulation Algorithms and Visualization Widgets in the Valis System.*"

[11] **Raoul-Sam Daruwala:** July 3, 2002. Google, NYU & ez-ways.com, Inc.
   "*On Computing the Pareto Optimal Solution in Large Scale Dynamic Network.*"

[12] **Gideon Berger:** April 23, 2001. Blackstone Investment Group & ez-ways.com, Inc.
   "*Knowledge Discovery in Databases for Intrusion Detection, Disease Classification and Beyond.*"

[13] **Amy Greenwald:** Apr., 21, 1999. Brown University
   "*Learning to Play Network Games.*"

[14] **Ron Even:** Dec., 21, 1998. Smarts.com
   "*Distributed Intelligence with Bounded Rationality: Applications to Economies and Networks.*"

[15] **Laxmi Parida:** Jul., 29, 1998. International Business Machine.
   "*Algorithmic Techniques in Computational Genomics.*"

[16] **Marek Teichmann:** Sep, 14, 1995. Massachusetts Institute of Technology.
   "*Grasping and Fixturing: a Geometric Study and an Implementation.*"

[17] **Marco Antoniotti:** Sep, 5, 1995. Univ. Cal. at Berkeley.
   "*Synthesis and Verification of Controllers for Robotics and Manufacturing Devices with Temporal Logic and the* Control-D *System.*"

[18] **Lars Ericson:** Mar, 31, 1994. CitiBank.
   "*GEDANKEN: A Tool for Pondering the Tractability of Correct Program Technology.*"

[19] **Gilad Koren:** Sep, 3, 1993. (Co-advisor Shasha.) Bar-Ilan University, Israel.
   "*Competitive Real-time Scheduling.*"

[20] **Christopher Fernandes:** Jul, 3, 1993. Morgan-Stanley.
   "*Nonholonomic Motion Planning: Algorithms and Software.*"

[21] **Naomi Silver:** Sep, 10, 1992. Morgan-Stanley.
   "*Control of Dexterous Hands: Theory, Implementation and Experiments.*"

[22] **Giovanni Gallo:** Apr, 16, 1992. Univ. di Catania, Sicily.
"*Complexity Issues in Computational Algebra.*"

[23] **Paul Pedersen:** Feb, 6, 1991. Univ. California, LA.
"*Counting Real Zeros.*"

[24] **Anne Dinning:** Jul, 16, 1990. D.E. Shaw and Co., Partner.
"*Detecting Nondeterminism in Shared Memory Parallel Programs.*"

[25] **Lou Salkind:** Jan, 26, 1990. D.E. Shaw and Co., Partner.
"*SAGE: A Real-Time System for Robotic Supervisory Control.*"

[26] **Pasquale Caianiello:** Nov, 16, 1989. (Co-advisor E. Davis.) Univ. de gli studi di L'Aquila.
"*Learning as the Evolution of Representation.*"

[27] **Dayton Clark:** Feb, 23, 1989. Brooklyn College.
"*Data Communication in Robot Control Systems.*"

Current Ph.D.s (Computer Science)

[28] **Pierre Franquin:** Dec., 2011. (Expected)
(Bioinformatics, Single Molecule Algorithms)

[29] **Andrew Sundstrom:** Dec., 2011. (Expected)
(Bioinformatics, Cancer Models)

Graduate Students (Biology)

Graduated Ph.D.s

[30] **Seongho Ryu:** October 2., 2007.
"*Hypothesis Testing with Systems Biology and Evolutionary Models.*"

[31] **Fang Cheng:** May 2, 2007. Graham Capital Management, L.P.
"*Statistical Approaches and Rich Probabilistic Models of Biological Regulation.*"

[32] **Yi Zhou:** May 5, 2005. Princeton University
"*Statistical Analyses and Markov Modeling of Duplication in Genome Evolution.*"

Masters Students

Graduated Masters (with theses, Computer Science)

[33] **Jung-Shih Lo:** May 25, 1995.
"*DNA Detection from Microscope Images.*"

[34] **Charles Repetti:** May, 29, 1992.
"*A Laboratory Exercise to Build a Simple MIDI Controller.*"

[35] **Ian Lau:** May, 23, 2005.
"*Designing and simulating a Nano-Bio-Sensor.*"

Graduated Masters (with theses, Biology)

[**36**] **Chiung-wen Chang:** Sept, 14, 2001.
  "*Genome Comparison of Haemophilus influenzae and Helicobacter pylori26695 .*"

High-School Mentorship

[**37**] **Marcin Mejran:** (Stuyvesant High School), Summer, 2001.
  "*Single Molecule Sequencing Approach to Find Expressed mRNA.*"

[**38**] **Abhra Halder:** (Stuyvesant High School), Summer, 2000.
  "*Statistical Simulation for Genomics.*"

[**39**] **Moshe Adeshnik:** (Stuyvesant High School), Summer, 1997.
  "*A Simulation of a Robotic Gripper.*"

Grants

Funded

[**1**] *Single Molecule Approaches to Sequencing by Hybridization, 2009-2014, Abraxis Life Sciences, LLC*, $625,000.

[**2**] *Expeditions in Computing: Collaborative Research: Next Generation Model Checking and Abstract Interpretation with a Focus on Embedded Control and Systems Biology, 2009-2014, NSF*, $10,000,000.

[**3**] *CDI-Type II: Discovery of Succinct Dynamical Relationships in Large Scale Biological Data Sets, 2008-2011, NSF*, $355,000.

[**4**] *Joint Project: Predicting Congestive Heart Failure Using Causal Analysis of EHR Data, 2009-2010, NYU Langone Medical Center*, $27,350.

[**5**] *Novel High Throughput Technology for Gene Expression Profiling Based on AFM, 2007-2010, NIH Subcontract from UCLA*, $40,000 per year.

[**6**] *Translate science to a cure for CFIDS, 2009-2010, The CFIDS Association of America*, $100,000.

[**7**] *IGERT: Program in Computational Biology (COB), 2003-2010, NSF*, $3,872,625 .

[**8**] *GRIN: Technology combining Genomics, Robotics, Informatics and Nanotechnology for Single Molecule Analysis, 2005-2007, NYNBIT Program, Department of Energy*, $60,000.

[**9**] *Design, Measurements and Algorithms for Biosensor with Nano Cantilevers, 2005-2007, Manufacturing Engineering Laboratory Grants Program, NIST*, $72,500.

[**10**] *EMT: Innovative Symbolic Hybrid Systems Models, Inspired by Biological Networks and Bio-Ontology*, 2005-2008, National Science Foundations, NSF-EMT, $300,000.

[11] *Computational Models for Gene Silencing: Elucidating a Pervasive Biological Defense Response, 2004-2007, National Science Foundation*, $344,996.

[12] *ITR: Collaborative Research: New approaches to experimental design and statistical analysis of genomic and structural biologic data from multiple sources, 2003-2008, NSF-ITR (Medium)*, $572,000.

[13] *Haplotype Sequencing via Single Molecule Hybridization, 2005-2007, National Institutes of Health, NHGRI*, $584,788.

[14] *Large-Scale Emergency Readiness (LaSER) Project: A Public Health Approach, 2004-2006, Dept. of Homeland Security*, $500,828.

[15] *Responding to Epidemic Threats Using Modern Bioinformatics Tools, 2004-2006, Dept. of Homeland Security*, $396,451.

[16] *Genomics of Human Cancer*: with M. Wigler, R. Lucito, V. Mittal, and M. Hamaguchi, 2002-2007, *NIH*, Cold Spring Harbor Lab, $3,543,190.

[17] *Computational Genomics Tools for Copy-Number Fluctuations in Prostate Cancer, 2004-2005, USA-MRMC*, $109,587.

[18] *SGER: Biologically Inspired Computation to Understand Regulatory Gene Networks, 2004-2005, NSF*, $100,000.

[19] *Mathematical & Algorithmic Analysis of Natural and Artificial DNA Sequences, 2002-2003, NSF*, $300,000.

[20] *Designer Molecules for Biosensor Applications, 2002, NSF*, $49,680.

[21] *Cell Signaling and Single Molecule Models for BioComputation*: 2001-2004, *Airforce*, $100,000.

[22] *Algorithmic and Mathematical Approaches in Cell Informatics*: with H. Weinstein, 2001-2002, *HHMI Biomedical Support Research Grant*, $100,000.

[23] *Faculty Development Program for Bioinformatics and Genomics*: 2001-2004, *New York State Office of Science, Technology, & Academic Research (NYSTAR)*, $750,000.

[24] *N2010: Nitrogen Networks in Plants*: with G. Coruzzi, 2001-2005, *National Science Foundation*, $3,000,000.

[25] *Algorithmic Tools and Computational Frameworks for Cell Informatics*:2001-2005, *DARPA*, $1,920,000.

[26] *High-Density Gene Copy Number Microarrays*: with M. Wigler, 2000-2003, *National Cancer Institute/National Institutes of Health*, $126,000.

[27] *Genomics via MicroArrays*: 2000-2001, *University Research Challenge Fund*, $5,857.

[28] *BioInformatics Prototyping Language for Mapping, Sequence Assembly and Data Analysis*: 2000-2003, *Department of Energy*, $880,000.

[29] *Development for Advanced Systems for Optical Mapping*: with D.C. Schwartz and T.S. Anantharaman, 1999-2001, *Department of Energy*, $1,587,732.

[30] *BioInformatics: Computational Genomics*:1999-2000, *NYU Curr. Challenge Fund*, $6,562.

[31] *Urban Research Initiative: Information Technology and the Future of Urban Environments*: with M. Moss, R. Zimmerman, I. Ellen and S. Gregory. 1999–2001, *National Science Foundation*, SBR-98-1-7778, $499,281.

[32] *KDI: Automated Learning in Network Traffic Control*: 1998–2001, *National Science Foundation*, $ 348,347.

[33] *Optical Mapping of Human Chromosome 18 BAC Clones*: with J. McPherson, R. McCombie and D.C. Schwartz, 1998–2001, *Department of Health and Human Services*, $ 80,000.

[34] *Global Analysis of Human Genomic Aberrations by Optical Mapping*: with D.C. Schwartz. 1998–1999, *National Cancer Institute*, $ 302,757.

[35] *Optical Approaches for Physical Mapping and Sequence Assembly of the Deinococcus Radiodurans Chromosome*: with D.C. Schwartz. 1998–1999. *Department of Energy, Office of Energy Research*, $ 64,309.

[36] *New Physical Methodologies for Genomic Analysis*: with D.C. Schwartz. 1997–1999, *Department of Health and Human Services, National Institute of Health*, $ 475,812.

[37] *A Proposal for a DIMACS workshop on Controllers for Manufacturing and Automation: Specification, Synthesis, and Verification Issues—*CONMASSYV—: 1996, *Office of Naval Research* (ONR), N00014-96-1-0400, $ 7,000. (+ Supplements of $ 5,000 from DIMACS and Industrial Support.)

[38] *Reactive Algorithms in Robotics*: 1995–98, *National Science Foundation* (IRIS), IRI-9414862, $ 228,993. No cost extension until 1999.

[39] *Computational Finance*, 1995–96, *NYU Curricular Development Challenge Fund*, Acct # 6-474-354,$ 7,000.

[40] *CISE Research Instrumentation*: with P. Dasgupta, Z. Kedem, K. Palem and D. Shasha. 1995-96, *National Science Foundation* (CISE), CDA-9421935, $ 75,429.

[41] *NYU Reactive Gripper with Industrial and Prosthetic Applications*: 1994–95, *NYU Technology Transfer Funds*, Acct # 6-459-614, $ 28,000.

[42] *Computational Algebraic Geometry* (Supplement): With C.-K. Yap. 1993–1994, *National Science Foundation*, CCR-9002819/CCR-9347117, $ 21,840.

[43] *A Proposal for the Educational Grant Program at the Wolfram Research, Inc.*: Co-PI: E. Friedman. 1991, *Wolfram Research, Inc.*, Software Donation.

[44] *A Group Proposal to Improve the Existing Research Infrastructure at the NYU Robotics Laboratory with Applications to Robotics, Manufacturing, Visualization and Graphics*: With P.K. Wright, J.W. Hong, Z.X. Li, K. Perlin and J.T. Schwartz. January 1991–December, 1991. *National Science Foundation*, CDA-9022527, $ 56,067.

[45] *Development of An Inexpensive Robotics, CAM, AI and Vision Laboratory Suitable for Wide Dissemination*: With J.T. Schwartz, Z.X. Li. 1990–1993, *National Science Foundation*, CDA-9018673, $ 650,000.

[46] *Geometry of Dexterous Manipulation*: With Z.X. Li. 1990–1992, *National Science Foundation*, IRI-9003986, $ 88,174.

[47] *Computational Algebraic Geometry* (Accomplishment Based Request for Renewal): With C.-K. Yap. 1990–1993, *National Science Foundation*, CCR-9002819, $ 248,564.

[48] *Modeling Robots: Φ0—Symbolic Computational Techniques*: 1989–1990, *Office of Naval Research*, N00014-89-J3042, $ 50,482.

[49] *Computational Algebraic Geometry*: With C.-K. Yap. 1986–1990, *National Science Foundation*, DMS-8703458, $ 309,350.

[50] *A Manufacturing Hand: Understanding the Process of Manipulation for Manufacturing Tasks*: with P.K. Wright, M.L. Nagurka, M.R. Cutkosky and J.T. Schwartz. 1985–1989, *National Science Foundation*, CMU-406349-55586, $ 525,000.

Talks

9th International Workshop on Satisfiability Modulo Theories (SMT) 2011, Snow Bird, Utah, July 15, 2011. "When Biology Meets (Symbolic) Computing: Algebra, Biology, Computability and Diophantus."

Lipari School on Computational Complex Systems Jacob T. Schwartz International School for Scientific Research, Lipari, Italy, July 10, 2011. "Darwin, Development and Dysplasia: Signalling Games that Cells Play."

Lipari School on BioInformatics and Computational Biology Jacob T. Schwartz International School for Scientific Research, Lipari, Italy, July 5, 6 & 7, 2011. "Genomics Redux: Man, Woman, Birth, Death, Infinity, Plus Altruism, Cheap Talks, Bad Behavior, Money, God and Diversity on Steroids. (Parts I – III)"

Eighth Annual Meeting of the Bioinformatics Italian Society (BITS 2011), Pisa, Italy, June 21, 2011. "Why We keep Assembling..."

Towards Systems Biology (TSB 2011), Université Joseph Fourier, Grenoble, France, May 28, 2011. "When Biology Meets (Symbolic) Computing: Algebra, Biology, Computability and Diophantus."

Poly Bioinformatics Event, NYU-Poly, Brooklyn, NY, May 21, 2011. "CBGB & omfug."

Panel on Computational Biology, Genomics and Bioinformatics, Courant Institute, Manhattan, NY, May 7, 2011. "CBGB & omfug."

Computational Biology Seminar Series, National Institute of Standards and Technology, Gaithersburg, MD, April 29, 2011. "Transcriptomania (SUTTA Assembler)."

Expedition in Computing PI Meeting, University of Maryland, College Park, MD, April 28, 2011. "Progress on PDAC Progression!"

Arts and Science Dialogue, Manhattan, New York, April 9, 2011. "Truth, Glimpsed and Demonstrated."

Bhabha Centenary Conference, Tata Institute of Fundamental Research, Mumbai, India, February 6, 2011. "Sarve Santu Niramaya."

Supercomputing: The Imperative and the Path Forward, Abu Dhabi, UAE, January 9, 2011. "One Thousand and One Arabian Genomes and Beyond: A Human Journey."

Temple City Institute of Technology and Engineering (TITE), Bhubaneswar, Orissa, India, January 4, 2011. "Computational Biology and India."

CIMS Graduate Student Seminar in Mathematics, New York University, Manhattan, New York, December 10, 2010. "The New New (Wrong Wrong) Thing."

Distinguished Lecture, College of Engineering and Computer Science, University of Central Florida, Orlando, Florida, November 15, 2010. "Detectability of Certain Dark-Genome-Matter: Sutta Assembly Approach."

Expedition in Computing PI Meeting, New York University, Manhattan, New York, October 28, 2010. "Models Wanted!"

The Calculus of Medicine: Treatment of Pancreatic Cancer as a Prime Exemplar, Banbury, New York, October 20, 2010. "The Calculi of Cancer."

Center for Computational Medicine and Bioinformatics (CCMB) Seminar, University of Michigan, Ann Arbor, Michigan, October 13, 2010. "Detectability of Certain Dark-Genome-Matter: Sutta Assembly Approach."

Computational Biology Seminar, Laufer Center, SUNY, Stonybrook, LI, NY, September 28, 2010. "Detectability of Certain Dark-Genome-Matter: Sutta Assembly Approach."

Sixth International School on Biology, Computation and Information (BCI 2010), Dobbiaco (BZ), Italy, September 19, 2010. "SUTTA, Scoring-and-Unfolding Trimmed Tree Assembler: Concepts, Constructs and Comparisons."

Dipartimento di Scienze BioMediche, University of Catania, Catania, Sicily, September 3, 2010. "Signals & Cancer."

Abraxis/Celgene Presentation, Los Angeles, California, August 24, 2010. "SUTTA Assembler & GWAS."

SUMMER 2010, UCLA Visiting Lecturer, Gonda (Goldschmied) Neuroscience & Genetics Research Center, UCLA, LA, California, August 23, 2010. "Detectability of Certain Dark-Genome-Matter: Sutta Assembly Approach."

National Institute for Science and Education Research (NISER), Bhubaneswar, Orissa, India, August 11, 2010. "Systems Biology and Causality."

Institute of Mathematics (IoM), Bhubaneswar, Orissa, India, August 10, 2010. "Some Problems in Mathematics Related to Genomics."

Illumina, San Francisco, CA, July 20, 2010. "SUTTA, Scoring-and-Unfolding Trimmed Tree Assembler: Concepts, Constructs and Comparisons."

Ion Torrent, San Francisco, CA, July 19, 2010. "SUTTA, Scoring-and-Unfolding Trimmed Tree Assembler: Concepts, Constructs and Comparisons."

BioPathways at ISMB 2010, Boston, MA, July 9, 2010. "When Biology Meets Computing."

Systems Biology and New Sequencing Technologies (SBNST) Conference, Barcelona, Spain, June 16, 2010. "SUTTA, Scoring-and-Unfolding Trimmed Tree Assembler: Concepts, Constructs and Comparisons."

Symposium on "Reactive Modeling in Science and Engineering," Institute of Science and Technology, **Vienna, Austria**, May 6, 2010. "Signals and Cancers."

Decision Procedures in Software, Hardware and Bioware, Dagstuhl, Germany, April 18, 2010. "Expeditions in Computational Systems Biology for Cancer."

C2B2 Bioinformatics Seminar, Columbia University, New York, March 26, 2010. "SUTTA, Scoring-and-Unfolding Trimmed Tree Assembler: Concepts, Constructs and Comparisons."

ITER (Institute of Technical Education and Research); Bhubaneswar, Orissa, March 19, 2010. "Signals and Cancers."

NISER (National Institute of Science Education and Research); IIT (Indian Institute of Technology) and IOP (Institute of Physics), Bhubaneswar, Orissa, March 19, 2010. "Sarve Santu Niramaya: Computational Biology's Promises for India."

Expedition NSF Site-Visit Meeting, CMU, Pittsburgh, PA, March 5, 2010. "Expeditions in Computational Systems Biology for Cancer."

2010 CMACS Workshop on Modeling Biological Systems, Lehman College, Bronx, NY, January 26, 2010. "Expeditions in Computational Systems Biology for Cancer."

Expedition Kick-off Meeting, CMU, Pittsburgh, PA, October 30, 2009. "Expeditions in Computational Systems Biology for Cancer."

COB Colloquium, NYU, New York, NY, September 25, 2009. "Expeditions in Systems Biology."

Pancreatic Cancer Set-Up Meeting, CMU, Pittsburgh, PA, September 4, 2009. "Expeditions in Model Building."

Workshop on Identifying Genetic Signatures for the Evolution of Complex Phenotypes, DIMACS, NJ, June 12, 2009. "Population and Personal Genomics: Man, Woman, Birth, Death, Infinity, Plus Altruism, Cheap Talks, Bad Behavior, Money, God and Diversity on Steroids."

Colloquium, Laboratory for Information Systems, MIT, Boston, MA, May 20, 2009. "Analyzing Time-Series Data and RDT."

Colloquium, Department of Industrial Engineering, Boston University, Boston, MA, May 8, 2009. "Algebra, Automata, Algorithms, Biology and Beyond."

Workshop on Algorithmics in Human Population-Genomics, DIMACS, NJ, April 28, 2009. "Population and Personal Genomics: Man, Woman, Birth, Death, Infinity, Plus Altruism, Cheap Talks, Bad Behavior, Money, God and Diversity on Steroids."

NHGRI Grantee Meeting, San Diego, CA, March 30, 2009. "SUTTA: Scoring and Unfolding Trimmed Trees Assembler."

Bioinformatics Colloquium, NYU Poly, Brooklyn, New York, March 24, 2009. "Just Causes or Just-So Causes: Expressing Causality in Probabilistic Temporal Logic."

Tata Institute of Fundamental Research, Colaba, Mumbai, India, March 22, 2009. "Just Causes or Just-So Causes: Expressing Causality in Probabilistic Temporal Logic."

Abraxis Life Sciences, LLC, Los Angeles, CA, March 5, 2009. "SUTTA: Scoring and Unfolding Trimmed Trees Assembler."

CS Colloquium, NYU, Manhattan, New York, February 13, 2009. "Just Causes or Just-So Causes: Expressing Causality in Probabilistic Temporal Logic."

Molecular Cancer Therapeutics (MCT) Editors' Meeting, Biltmore, Phoenix, AZ, February 6, 2009. "Causal Analysis of Cancer Data."

Sequenom, LLC, San Diego, CA, January 30, 2009. "SMASH: Single Molecule Approach to Sequencing by Hybridization."

CFIDS Kick-off Meeting, Charlotte, NC, January 18, 2009. "Causality."

Kavli Future Symposium: Envisioning the Extreme Machine, Muelle, Costa Rica, January 12, 2009. "Human Population Genetics and Challenges for Computing."

Iowa State University Distinguished Lecture, Iowa State University, Ames, Iowa, September 24, 2008. "SMASH: Single Molecule Approach to Sequencing by Hybridization."

Dupont, Wilmington, Delaware, September 17, 2008. "SMASH: Single Molecule Approach to Sequencing by Hybridization."

SAMSI, Research Triangle Park, NC, September 15, 2008. "Algebra, Automata, Algorithms, Biology and Beyond."

IEEE CASE Meeting, Washington, DC, August 23, 2008. "Algorithmic Automation and Biotechnology for Large-population Studies."

Brookhaven National Laboratory, Long Island, New York, August 12, 2008. "SMASH: Single Molecule Approach to Sequencing by Hybridization."

International Summer School on Functional Biology, Ragusa, Sicily, July 8, 2008. "Causality."

28th CNLS Annual Conference, Santa Fe, NM, May 15, 2008. "SMASH: Single Molecule Approach to Sequencing by Hybridization."

LA's BEST 2008, Los Angeles, CA, March 29, 2008. "Inspiring Science."

Cancer Research Center, Medical School of the University of Catania, Catania, Sicily, March 26, 2008. "Cancer: A Multifaceted problem and an ideal target for collaborative endeavors: State of the Art and Future Perspectives."

Differential Algebra and Related Computer Algebra, A Conference in Memory of Giuseppa Carrà Ferro, **Catania, Sicily**, March 26, 2008. "Algebra, Automata, Algorithms, Biology and Beyond."

Clay Mathematics Institute & Cold Spring Harbor Laboratory, Workshop on "Algebraic Statistics, Machine Learning and Lattice Spin Models," Banbury, NY, March 17, 2008. "SMASH: Single Molecule Approach to Sequencing by Hybridization."

CCPR-LaSER PLAN C Meeting, New York University, NY, March 3, 2008. "PLAN C: Theory and Practice."

Mathematics Department Colloquium, Drexel University, Philadelphia, February 28, 2008. "Algorithms, Algebra, Automata, Biology, and Beyond."

Electrical Engineering Department Colloquium, University of Pennsylvania, Philadelphia, February 27, 2008. "SMASH: Single Molecule Approach to Sequencing by Hybridization."

Abraxis Life Sciences, LLC, Los Angeles, CA, January 17, 2008. "SMASH and Personal Genomics."

BioCon, Inc., Bangalore, India, December 22, 2007. "SMASH: Single Molecule Approach to Sequencing by Hybridization."

ICG Satellite Symposium on Biotechnology, Hong Kong Science & Technology Park, China, November 2, 2007. "The Lion, the Leopard, The Wolf or the Boar, Why Not More: Efficient Comparative Genomics Algorithms."

International Genomics Conference, Shenzhen, Guangdong Province, China, October 29– November 1, 2007. "SMASH: Single Molecule Approach to Sequencing by Hybridization."

Joint-CMU-Pitt Computational Biology Meeting, Mellon Institute, Pittsburgh, October 18–19, 2007. "SMASH: Single Molecule Approach to Sequencing by Hybridization."

C2B2 Seminar, Columbia University, New York, October 10, 2007. "SMASH: Single Molecule Approach to Sequencing by Hybridization."

Syntiron, Inc., Minneapolis, MN, August 1, 2007. "Host-Pathogen Interaction Modeling using GOALIE."

Algebraic Biology 2007, RISC, Castle of Hagenberg, Austria, July 2–4, 2007. "Algebraic Systems Biology: Theses and Hypotheses."

RISC Summer Events of 2007, RISC, Castle of Hagenberg, Austria, June 26–28, 2007. "Symbolic Computation and Algebraic Systems Biology: Lecture 1: Systems Biology (Introduction to Biology, Regulatory & Metabolic Processes, Algebraic Models in Biology); Lecture 2: Model Checking (Temporal Logic, Kripke Models, Model Checking, Biologically Faithful Models); Lecture 3: Semi-Algebraic Geometry (Real Closed Field, Tarski Algebra, Decision Theories, Hybrid Models, Algorithmic Algebraic Model); Lecture 4: Hybrid Systems (Hybrid Models, Algorithmic Algebraic Models & Model Checking, O-minimal Systems & SaCoRe, IDA , Open Problems)."

Interface 2007, 39th Symposium on the interface of Statistics, Computing Science, and Applications, Philadelphia, PA, May 23–26, 2007. "Short Course I: Computational Systems Biology of Cancer: Measuring, Mining and Modeling."

Computational Biology Seminar, Indian Institute of Technology at Kanpur, India, April 3, 2007. "Principia Biologica."

Computer Science Department Seminar, Indian Institute of Technology at Kanpur, India, April 2, 2007. "SMASH: Single Molecule Approaches to Sequencing by Hybridization."

Workshop on Applications of Algebraic Geometry, Institute for Mathematics and its Applications (IMA), Minneapolis, MN, March 5–9, 2007. "Principia Biologica."

Session entitled "New Sequencing Technologies," AGBT: Advances in Genome Biology and Technology 2007, Marco Island, FL, February 7, 2007, "SMASH: Single Molecule Approaches to Sequencing by Hybridization."

Principal Investigators Meeting, NHGRI DNA Sequencing Technology Development Program, Marco Island, FL, February 6, 2007, "Sequencing by Hybridization."

Department of Computer Science, NYU, NY, January 29, 2007, "Translational Bioinformatics."

Biology Seminar, Texas A&M University, College Station, TX, January 18, 2007. "Intelligently Deciphering Unintelligible Designs: Algorithmic Algebraic Model Checking in Systems Biology."

Museum Seminar, American Museum of Natural History, NY, January 12, 2007. "CAPO: Comparative Analysis and Phylogenetics with Optical Maps."

BioInformatics Seminar, Arizona State University, Tempe, AR, December 18, 2006. "SMASH: Single Molecule Approach to Sequencing-by-Hybridization."

Burakoff-Lab Seminar, NYU Cancer Institute, NY, November 3, 2006. "The Topic of Cancer."

GM Workshop, General Motors Research, MI, October 31, 2006. "Remembrance of Experiments Past: Analyzing Time Course Datasets to Discover Complex Temporal Invariants."

Bio-Courant-Physics Faculty Exchange 06/07, New York University, NY, October 25, 2006. "Dude, Where is my genome? Past, Present and Future of Genomics Technologies."

Cancer Genomic Seminar, Yale University, CT, October 17, 2006. "The Topic of Cancer."

Cancer Genomic Seminar, Boston University, MA, October 3, 2006. "The Topic of Cancer."

DCT Blue Chalk Meeting, British Petroleum, SF, September 11, 2006. "PLAN C."

CNSI (California Nano Systems Institute) Seminar, University of California, LA, September 8, 2006. "Nanographia."

TAMU Distinguished Lecture Series, Department of Computer Science, Dwight Look College of Engineering, Texas A&M University, College Station, TX, September 4, 2006. "Dude, Where is my genome? Past, Present and Future of Genomics Technologies."

4th KDD Workshop on Temporal Data Mining: Network Reconstruction from Dynamic Data, Philadelphia, PA, August 20 2006. "Remembrance of Experiments Past: Analyzing Time Course Datasets to Discover Complex Temporal Invariants."

Cancer Genomics Seminar, Translational Genomic Research Institute, Phoenix, AZ, August 17 2006. "Analysis of Adreno-cortical Carcinoma Data."

Department of Computer Science, Virginia Polytechnic, Blacksburg, VA, August 11 2006. "Aligning for RNAi in VALIS."

Summer School on Proteomes and Proteins, The International School of Advanced BioMedicine and BioInformatics and The Lipari International School for Computer Science Researchers, July 9-22, 2006. "Computational Oncogenomics" consisting of three lectures: Lecture 1: Cancer and Genomics: What we know and what we do not. Lecture 2: Cancer and Computational Genomics: What we can compute and what we cannot. Lecture 3: Cancer and Systems Biology: What we can predict and what we cannot

Bio-Math Seminar, University of California, LA, May 19, 2006. "Principia Biologica."

Computer Science Colloquium, University of California, LA, May 18, 2006. "Dude, Where is my genome? Past, Present and Future of Genomics Technologies."

Banbury Center Conference on Design Principles in Biological Systems, **Banbury, LI, NY**, May 10, 2006. "Theory of Computation for Systems Biologists: A Tutorial."

Systems Biology of Cancer Workshop, Mathematical   Science Research Institute (MSRI), Berkeley, CA, May 3, 2006, "Inheritance of Loss: Computational Systems Biology for Cancer."

50th Anniversary Celebration of Computer Science Research and Education at CMU, Professor Edmund M. Clarke 60-th Birthday, CMU, Pittsburgh, PA, April 22, 2006, "Remembrance of Experiments Past: Analyzing Time Course Datasets to Discover Complex Temporal Invariants"

National Cancer Institute, National Institutes of Health, Bethesda, MD, April 17, 2006, "Inheritance of Loss: Human Cancer Genome Project; Genetics of Loss and Gain in Copy Numbers."

Philips Research, Briarcliff Manor, NY, April 10, 2006, "Inheritance of Loss: Human Cancer Genome Project; Genetics of Loss and Gain in Copy Numbers," and "Remembrance of Experiments Past: Analyzing Time Course Datasets to Discover Complex Temporal Invariants"

Laboratory for Information and Decision Systems, MIT, Boston, MA, March 29, 2006, "Optical Sequencing."

Department of Computer Science, NYU, NY, March 21, 2006, "Dude, Where is My Genome? Designing Next Generation DNA Readers."

Lawrence Berkeley National Laboratory, San Francisco, CA, March 17, 2006, "Inheritance of Loss: Human Cancer Genome Project; Genetics of Loss and Gain in Copy Numbers."

Digital Technology Center, University of Minnesota, Minneapolis, MN, March 16, 2006, "Dude, Where is my genome? How to Build a Cheap Whole Genome Haplotypic Sequencer."

Department of Computer Science, Univ. Wisconsin, Madison, WI, March 13, 2006, "What's Next? Challenges from Systems Biology."

Bioinformatics Seminar, Computer Science Department, University of Arizona, Tucson, AZ, February 28, 2006, "Remembrance of Experiments Past: Analyzing Time Course Datasets to Discover Complex Temporal Invariants"

Cancer Genomics Seminar, University of Arizona, Tucson, and TGen (Translational Genomic Research Institute), Phoenix, AZ, February 27, 2006, "Interpreter of Maladies: Computational and Technological Challenges of Human Cancer Genome Project"

Program in Integrative Information, Computer and Application Sciences (PICASso) Talk, Princeton University, Princeton, NJ, February 15, 2006, "Remembrance of Experiments Past: Analyzing Time Course Datasets to Discover Complex Temporal Invariants"

Session entitled "New Sequencing Technologies," AGBT: Advances in Genome Biology and Technology 2006, Marco Island, FL, February 9, 2006, "Single Molecule Approaches to Genomic Analysis"

Principal Investigators Meeting, NHGRI DNA Sequencing Technology Development Program, Marco Island, FL, February 8, 2006, "Sequencing by Hybridization."

Invited Talks During the Period 2001–2005: • 1st Geometry Workshop: Brooklyn Polytechnic, Brooklyn, New York; • 2005 Howard Hughes Seminar: Dept. of Biology, NYU, NY; • 3rd Annual NYU Cancer Institute Retreat: The Translational Research Program, NYU School of Medicine, Wave Hill, Bronx, NY; • 8th International Meeting of the Microarray Gene Expression Data Society, MGED 8: Bergen, Norway; • 17th Int. Conference on Computer Aided Verification, CAV '05: Edinburgh, Scotland, UK; • ABRF 2001: San Diego, Ca; • Affymetrix[**2**]: Santa Clara, Ca; • American Museum of Natural History and New York University: Manhattan, NY; • Annual SIAM Meeting: San Diego, CA; • Applied Math Seminar: Courant Institute, New York, NY; • Applied Mathematics Seminar: Yale University, New Haven, CT; • Applied Mathematics Seminar: Department of Applied Mathematics, Columbia University, New York, NY; • Argonne National Laboratory: Chicago; • Banbury Center Conference on From Markers to Models: Integrating Data to Make Sense of Biologic Systems: Banbury, LI, NY; • Banbury Workshop on Formal Languages for Biological Processes: Banbury Center, Cold Spring Harbor Lab, LI, NY; • Banbury Workshop on Designer Molecules for Biosensor Applications: Banbury Center, Cold Spring Harbor Lab, LI, NY; • BioConcur 04: The Royal Society, London, UK; • Biological Language Modeling Workshop: School of Computer Science, Carnegie-Mellon University, Pittsburgh, PA; • Biogeometry Workshop: Symposium on Computational Geometry, Brooklyn, NY; • Bioinformatics Seminar[**2**]: Cold Spring Harbor Laboratory, Long Island, New York; • Bioinformatics Seminar: Tata Consultancy Services, Hyderabad, India; • Bioinformatics Program Seminar: Boston University, Boston, MA; • Bioinformatics Seminar[**2**]: Cold Spring Harbor Laboratory, Long Island, NY; • Bioinformatics Lecture: Regeneron Pharmaceuticals, Inc., Tarrytown, NY; • Biologically Motivated Problems in Statistics: STATPHYS 22, Bangalore, India; • Biotechnology Seminar: Indian Institute of Technology, New Delhi, India; • BioTechnology Seminar: SUNY, Stony Brook, LI, NY; • Biotech Center: Univ. of Wisconsin, Madison, WI; • Cancer Institute Seminar: University of California at San Diego, SD, CA; • Center for Studies in Physics & Biology: Rockefeller University, NYC, NY; • CGR: Center for Genomic Research: Harvard University, Boston, MA; • College of Physicians and Surgeons: Columbia University, NY; • Computer Science Colloquium: Institute for Computational Mathematics, Consiglio Nazionale Delle Ricerche, Pisa, Italy; • Computer Science Department[**2**]: Tata Institute of Fundamental Research, Mumbai, India; • Computer Science Department[**2**]: City Univ. of New York, New York, NY; • Computer Science Department Seminar: Columbia University, Manhattan, New York; • Computer Science Dept: Univ. of Chicago, Chicago; • Cutting Edge Science in New York City: New york Academy of Sciences, Manhattan, NY; • Dabur India Ltd.: Ghaziabad, UP, India; • DARPA Biocomp Meeting [**8**]: Falls Church, VA; Arlington, VA; Vienna, VA; Adelphi, MD; Ft. Lauderdale, FL; Washington, DC; Monteray Bay, CA; & Washington, DC; • Demerec In-house Seminar: Cold Spring Harbor Laboratory, Long Island, NY; • Department of Biotechnology: Ministry of Science & Technology, New Delhi, India; • Department of Medical Informatics: Columbia University, Manhattan,

New York; • Department of Ob/Gyn: NYU School of Medicine, New York, NY; • Department of Computer Science: Dartmouth College, Hanover, NH; • Department of Computer Science: New York University, Manhattan, NY; • Department of Computer Science: Virginia Polytechnic, Blacksburg, VA; • Department of Human Genetics: Mt. Sinai School of Medicine, NY; • Dermatology Update 2002: Command Hospital (Indian Air Force), Bangalore, India; • DIMACS Workshop on Detecting and Processing Regularities in High Throughput Biological Data: DIMACS, Rutgers University, NJ; • Dipartimento di Matematica e Informatica: University of Udine, Udine, Italy; • Dipartimento di Informatica, Sistemistica e Comunicazione (DISCo): Università degli Studi di Milano Bicocca, Milan, Italy; • Distinguished Lecture Series: University of Maryland, College Park, MA; • Distinguished Lecture Series At Rutgers: Electrical & Computer Engineering, Rutgers University, New Brunswick, NJ; • Distinguished Seminar Series: Drexel University, Philadelphia, PA; • Distinguished Speaker at Delaware: University of Delaware, Newark, DE; • DOE Grantee's Meeting: Oakland, CA; • Duke $(CB)^2$ (Center for Computational Biology and Bioinformatics) Seminar: Duke University, Raleigh Durham, North Carolina; • ECE/CS Distinguished Lecture: Carnegie-Mellon University, Pittsburgh, PA; • Electrical & Systems Engineering: University of Pennsylvania, Philadelphia, PA; • Friday Afternoon Seminar: Broad Institute, MIT, Cambridge, MA; • Genomics Seminar Series: Skirball Institute of Biomolecular Medicine, New York, NY; • High-Performance Computing Division: Air force, Rome, NY; • I3P Meeting: Dartmouth Institute for Information Infrastructure Protection (I3P) Consortium Meeting, Puck Building, Wagner School, NYU, NY; • Infosys IT Seminar: Bhubaneswar, Orissa, India; • In-house Symposium: Cold Spring Harbor Laboratory, Long Island, NY; • In-house Genomics Seminar: Cold Spring Harbor Lab, Long Island, NY; • Invited Session, International Conference On High Performance Computing: Bangalore, India; • International Business Machine: Yorktown Heights, NY; • International Conference on Complex Systems (ICCS2002)[2]: Nashua, NH; • ITL Seminar Series (MEL & CSTL): National Institute of Standards and Technology, Gaithersburg, MD; • ITR Medium Meeting at MIT: Massachusetts Institute of Technology, Boston, MA; • Keynote Speech: Conference On High Performance Computing, HiPC 2003, Hyderabad, India; • LaserMED Seminar: Center for Catastrophe Preparedness and Response, NYU, NYC, NY; • Mathematics Department, Graduate Program: Ravenshaw College, Utkal University, Orissa, India; • Mathematics Seminar: SUNY, Stony Brook, LI, NY; • Meeting on Evolutionary Genomics: Biology Department, NYU, NY; • Microarray Data Analysis Workshop: Yale University, New Haven, CT; • National Institute of Immunology: New Delhi, India; • National Institute of Standards and Technology: Gaithersburg, MD; • Nazionale Consorzio Interuniversitario Biotecnologie (LNCIB): AREA Science Park, Trieste, Italy; • NCBS, National center for Biological Sciences: Bangalore, India; • NSF Fellow Seminar: Math for America, Steinhardt School of Education, NYU, NY; • NSF QUBIC/ITR Meeting: Ft. Lauderdale, FL; • NSF Workshop on Computational Genomics and Disease Models: MITRE, McLean, Virginia; • NYCBS: New York Academy of Science, Manhattan, NY; • Minisymposium on Microarray and Bioinfomatics: Temple University, Philadelphia, PA; • Paper Presentation: International Conference On High Performance Computing, Bangalore, India; • Perlegen Sciences, Inc.: Mountain View, CA; • Persistent System, Inc.: Pune, India; • Plenary Speaker, International Conference on Complex Systems: Boston, MA; • Principal Investigators Meeting: NHGRI DNA Sequencing Technology Development Program, Harvard Medical School, Boston, MA; • Scientific Horizons Seminar: SAC Capital Advisors, LLC, New York, NY; • Second International School on Biology, Computation and Information (BCI 2005): Dobbiaco (BZ), Italy; • SIAM Symposium on Computational Models and Simulation for Intra-Cellular Processes:, Washington, DC; • Strand Genomics, Inc.: Bangalore, India; • Stuyvassent High School: Chamber Street, Manhattan, NY; • Systems Biology Seminar: Harvard Medical School, Harvard University, Boston, MA; • Systems Biology Seminar: Tata Consultancy Services, Hyderabad, India; • Translational Systems Biology Talk: Mt. Sinai School of Medicine, New York, NY; • Workshop on Biological Modeling: Courant Institute, Manhattan, NY; • Workshop on Computable Semantics for Complex Biological Systems: Arlington, VA.

Invited Talks During the Period 1996–2000: • 11th International School in Computer Science: Computational Biology, Lipari, Sicily; • 1998 Genome Mapping and Sequencing Conference, Cold Spring Harbor Lab, NY; • 1st Industry Day, Computer Science Department, NYU, NY; • 2nd Research Conference on Computational Biology, RECOMB 98, New York, NY; • 9th Genome Sequencing and Analysis Conference '97, Hilton Head, SC; • AML (Applied Mathematics Lab Seminar), CIMS, NYU, NY; • AMS Meeting, Charlotte, NC; • Applied Math. Seminar, Courant Institute of Mathematical Sciences, NY; • Biology and Computing Seminar, New York University, New

York, NY; • Bio-Mathematics Division, Mt. Sinai Medical School, New York, NY; • Biophysics Department, Rockefeller University, Manhattan, NY; • Celera Genomics, Rockville, MD; • Cold Spring Harbor Lab, Long Island, NY; • Computer Science Department, Dartmouth College, NH; • Computational Biology Seminar, DIMACS, Rutgers University, NJ; • Delware Valley Computer Algebra Seminar, University of Delaware and Drexel University, Philadelphia, PA; • Dept. Applied Math., Princeton University, NJ; • Dept. Computer Science, Columbia University, New York, NY; • Dept. of Industrial Engineering, Rutgers University, New Brunswick, NJ; • Department of Mathematics and Statistics, Unveristy of Maryland Baltimore Campus, Baltimore, MD; • DIBIT (Dept. of Biological & Technological Research, S. Raffaelle Science Park, Milan, Italy; • Dipartimento di Scienza dell'Informazione, Universita Degli Studi di Milano, Milan, Italy; • Einstein School of Medicine, Bronx, NY; • The Gaschnig/Oakley Memorial Lecture, Distinguished Lecture, School of Computer Science, Carnegie-Mellon Univ., Pittsburgh, PA; • Harvard University, Boston, MA; • Intelligent Systems for Molecular Biology: ISMB '99, Heidelberg, Germany; • International Symposium on Robotics and Manufacturing, World Automation Congress, WAC'96, Montpellier, France; • IPAM (Institute for Pure and Applied Mathematics), UCLA, LA; • Joint Seminar, Electrical Engineering and Industrial Engineering and Operations Research Dept., University of California at Berkeley, CA; • LIDS (Laboratory for Information and Decision Systems), MIT, MA; • Mathematics Department, Graduate Program, Ravenshaw College, Utkal University, Orissa, India; • Mechanical engineering Department, John Hopkins University, Baltimore, MD; • Microsoft Research, Redmond, Seattle, WA; • Mt. Sinai and NYU FAS Faculty Meeting, New York University, NY; • National Institutes of Health (NIH), National Human Genome Research Institute (NHGRI), Bethesda, MD; • National Institute of Allergy and Infectious Diseases, National Institutes of Health, Rockville, MD; • National Cancer Institute (NCI), Genetics Department, Bethesda, MD; • NCBI, National Institutes of Health, Bethesda, MD; • NCRR Workshop on Integrated Genomics Technologies, (NCRR, NHGRI, NCI & NIGMS), Washington, DC; • NECSI (New England Complex Systems Institute), New Hampshire, NH; • New York Academy of Science, Manhattan, NY; • NSF Learning and Intelligent Systems PI Meeting, Georgetown University, Washington, DC; • NYU, New York, NY ("A Morning on the Millennium"); • Pan Asian Congress of Mathematicians, First Annual Meeting and Conference, NY; • Post-Graduate Department of Mathematics, Ravenshaw College, Cuttack, Orissa, India; • Probabilistic and Statistical Physics Seminar, Courant Institute of Mathematical Sciences, NYU, NY; • Recent Advances In Science Series, NYU, NY ("Critical Issues In DNA Research."); • Robotics Institute, Carnegie-Mellon Univ., Pittsburgh, PA; • Rohit Parikh's 60th Birthday Celebration, City University of New York, Grad. Center, NY and • Seminar on Combinatorial Computing, City University of New York, New York, NY; • Tata Institute of Fundamental Research, Mumbai, India (twice); • The United Technologies Sponsored Seminar Series in Manufacturing and System Sciences, Department of Manufacturing Engineering, Boston University, MA; • University of Chicago, Chicago, IL; • Urban Research Initiative Seminar, Taub Urban Research Center, Wagner School, NYU, NY; • Workshop on Robotics and Computer Vision, DIMACS, Rutgers University, NJ; • Workshop on Grasping, Fixturing, and Manipulation: Towards a Common Language, ICRA 98, Leuven, Belgium; • Workshop on Lie Groups and Lie algebra for Robotics, ICRA 98, Leuven, Belgium & • Workshop on Mathematical Problems in Molecular Sciences, Courant Inst, NY.

Invited Talks During the Period 1991–1995: • 1991 AAAS Annual Meeting, Washington, DC; • 4th Int'l conf. on CIM and Automation Technology, RPI, Troy, NY; • Bell Communications Research (Bellcore), Morristown; • Dept. of Computer Science, Columbia University, New York, NY; • Dept. of Mechanical Engineering and Applied Mechanics, University of Pennsylvania, Philadelphia, Pennsylvania; • Dept. of Industrial Engineering, Rutgers University; • Digital Topology Day, Queens College, NY; • Dipartimento di Matematica Pura ed Applicata, Universita degli Studi di L'Aquila, Abruzzo, Italy; • Dipartimento di Matematica, Citta' Universita, Universita di Catania, Catania, Sicily; • Institute of Industrial Science, University of Tokyo, Roppongi, Tokyo, Japan; • Int'l Conf on Robotics and Automation: ICRA 93, Atlanta; • Int'l Workshop on Intelligent Robots and Systems: IROS'91, Osaka, Japan; • Mathematics Research Center, AT&T Bell Labs, Murray Hill, NJ; • NSF Workshop on Geometric Uncertainty in Robotic Manipulation, Catalina Island, California; • NYU Faculty Resource Network, New York, NY; • Polytechnic University of Brooklyn; • SIAM Minisymposium on Robotics Programming, San Diego, CA; • SODA '94, Arlington, VA; • Texas A&M University, Texas; • The Second European Workshop on Real-time and Hybrid systems, Grenoble, France; • Tudor Investments Corporation, NY (2) and • WAFR '94, San Francisco, CA.

Invited Talks During the Period 1986–1990: • DIMACS, Rutgers University; • Honeywell, Minneapolis; • Indian Institute of Technology, Kharagpur; • International Workshop on Advances in Robot Kinematics, Linz, Austria; • NASA Goddard Flight Center, Goddard; • Purdue University; • Robotics Institute, Carnegie-Mellon University; • School of Computer Science, Carnegie-Mellon University and • Symposium on Theory of Computing, STOC'90, Baltimore.

Invited Talks During the Period 1981–1985: • AT&T Bell Labs, Murray Hill; • Columbia University; • Duke University; • Foundations of Computer Science Conference, FOCS'84, Singer Island, Florida; • IBM, Yorktown Heights; • Logics of Programs Conference, Pittsburgh, PA; • Purdue University; • Tartan Laboratories, Pittsburgh; • University of Chicago and • University of Southern California.

Program Committees

(December 23-25, 2011) Program Committee (with P. Tripathy, C. Ungureanu, et al.) *The First International Conference on Future Internet Computing*: (ICFIC-2011), Bhubaneswar, Orissa, India.

(December 10-12, 2011) Program Committee (with L. Sweeney, SE. Marcus, R. Kikinis and J. Zhan): *The First IEEE International Conference on Biomedical Computing*: (BioMedCom-2011), Washington D.C., USA.

(November 12-15, 2011) Program Committee (with E. Bartocci and L. Bortolussi): *First International Workshop on Hybrid Modeling in Systems Biology*: (HMSB 2011), Atlanta, GA.

(September 21-23, 2011) Program Committee (with F. Fages, D. Harel, G. Plotkin, et al.): *9th International Conference on Computational Methods in Systems Biology*: (CMSB 2011), Institut Henri Poincaré, Paris, France.

(April 12–14, 2011) Program Committee (with E. Frazzoli and R. Grosu): *14th International Workshop on Hybrid Systems: Computation and Control*: (HSCC'06), Chicago, Il.

(July 31–August 2, 2010) ANB Steering Committee and Program Committee (with B. Buchberger et al.): *Algebraic and Numeric Biology, ANB 2010*, RISC, Castle of Hagenberg, Austria.

(January 18–21, 2010) Program Committee (with G. Myers et al.): *Asia Pacific Bioinformatics Conference, APBC 2010*, Bangalore, India.

(July 31–August 2, 2009) Program Committee (with B. Buchberger et al.): *Algebraic Biology, AB 2009*, SAMSI, Research Triangle Park, NC, USA.

(September, 2007-June, 2008) Organizing Committee/Invited Lecturer (with D. Sumner et al.): *IMA year on the Mathematics of Molecular and Cellular Biology*, Minneapolis, MN.

(July 31–August 2, 2008) Program Chair: *Algebraic Biology, AB 2008*, RISC, Castle of Hagenberg, Austria.

(March 29–31, 2008) Program Chair: *Hybrid Systems: Computation and Control, HSCC 2008*, Georgia, Atlanta, USA.

(June 27–30, 2007) Program Committee (with J. Trinkle): *RSS 2007: Robotics, Sensing and Systems*, Georgia Institute of Technology, Atlanta, GA, USA.

(April 5–7, 2007) Program Committee (with S. Biswas, P.S. Thiagarajan & J.-C. Latombe): *Workshop on Algorithms for Structural and Systems Biology*, IIT, Kanpur, India.

(December 15–17, 2006) Program Committee (with L. Parida): *International Symposium on Computational Biology & Bioinformatics*, Bhubaneshwar, India.

(December 3–6, 2006) Program Committee (with P. Mitra & R. Murray): *Engineering Principles in Biological Systems*, Cold Spring Harbor Laboratory, Long Island, NY.

(October 18–19, 2006) Program Committee (with C. Priami): *CMSB 2006: International Conference on Computational Methods in Systems Biology*, Trento, Italy.

(August 16–19, 2006) Program Committee (with J. Trinkle): *RSS 2006: Robotics, Sensing and Systems*, Philadelphia, PA.

(July 16–18, 2006) Program Committee (with N. Amato, S. Akella and W. Huang): *Workshop on Algorithmic Foundation of Robotics*, New York, NY.

(March 29–31, 2006) Program Committee (with J. Hespanha and A. Tiwari): *9th International Workshop on Hybrid Systems: Computation and Control*: (HSCC'06), Santa Barbara, CA.

(November 28–30, 2005) Program Committee (with H. Anai): *Algebraic Biology*: (AB2005), Fujitsu Solution Square, Tokyo, Japan.

(August 16–18, 2005) Program Co-Chair (with C. Priami): *Bioconcur 2005*, San Francisco, CA.

(August 2-6, 2005) Program Committee (with K. Goldberg): *IROS2005*, Edmonton, Canada.

(May 2004) Panelist (with J. Beebe, P. Appelbaum, P. Wolpe, and K. Chien) *Robot Stories: Emotional and Ethical Challenges of a Technological Age*, Panel discussion on Psychiatry, Technology and the Arts, American Psychiatry Association Annual Meeting, New York, NY.

(October 2002) Organizer (with J.T. Schwartz): *Technologies for Dealing with Bioterrorism: Two Assessment/Planning Conferences*, Brookings Institute, Washington, DC.

(August 2002) Organizer: *Designer Molecules for Biosensor Applications*, Banbury Center, Cold Spring Harbor Laboratory, NY.

(June 2002) Session Chair: *Conference on Logic and Games*, CUNY Graduate Center, New York, NY.

(Fall 2000) Working Group (with G. Churchill, J.-M. Claverie, D. Haussler, M. Kronick, K. Lange, P. Smietana, R. Simon, T. Speed, S. Tavaré, M. Waterman and W. H. Wong): *Program on "Functional Genomics"*, Institute of Pure and Applied Mathematics (IPAM), UCLA, Los Angeles, Ca.

(August 2000) Organizing Committee (with Rohit Parikh): *Workshop on "Probability, Conditionals and Games"*, Courant Institute, New York, NY.

(July 2000) Program Committee: *2000 ACM International Symposium on Symbolic and Algebraic Computation* (ISSAC'2000).

(April 2000) Panelist (with S.J. Gould, D. Bell, E.L. Doctorow, C. Gilligan, T. Judt, L. Nochlin, N. Postman, W. Suzuki): *A Morning on the Millenium*, NYU, NY.

(October 1999) Chair, Organizing Committee (with Misha Gromov and Ned Seeman): *First Workshop on "Mathematical Problems in the Molecular Sciences"*, Courant Institute, New York, NY.

(February 1998) Program Committee: *International Conference on Gröbner Bases*, RISC-Linz of the Johannes Kepler Universität, Linz, Austria.

(July 1996) Program Committee: *1996 ACM International Symposium on Symbolic and Algebraic Computation* (ISSAC'96), ETH, Zurich.

(May 1996) Co-organizer with Mohsen Jafari: *DIMACS Workshop on Controllers for Manufacturing and Automation: Specification, Synthesis and Verification Issues* (ConMASSyv'95), Rutgers University, New Brunswick, NJ.

(February 1994) Program Committee: *Workshop on the Algorithmic Foundations of Robotics* (WAFR'94), San Francisco, CA.

(February 1991) Organizer: a session entitled "Robotics and Mathematics" *American Association for the Advancement of Science, 1991 Annual Meeting* AAAS-91, Washington, DC. (Cosponsors: AAAS Sections A, M and T, AMS and IEEE).