

AWARDS:

- 2007 Advisor, *Best Student Paper Awardee*, Robotics Science and Systems Conference.
- 2005 *Rensselaer Faculty Early Research Career Honoree*, RPI.
- 2001 *NSF CAREER Award*, National Science Foundation.
- 1999 *Finalist, Best Paper Award*, IEEE International Conference on Robotics and Automation.
- 1998 *Finalist, Anton Philips Best Student Paper Award*, IEEE International Conference on Robotics and Automation.
- 1996-1999 *Beckman Fellow*, Beckman Institute, UIUC.
- 1994-95 *Japanese Language Training Fellowship*, JSTMP, CMU.
- Summer 1992 *Participant, Summer Institute in Japan*, National Science Foundation.
- 1989-90 *Tata Scholar*, J.N.Tata Endowment, Bombay.
- 1984-89 *National Talent Search Scholar*, Government of India.

FUNDING:

- S. Akella (PI) and R. J. Linhardt (Co-PI), "III-CXT: Enabling Automated Digital Microfluidic Biochips for Combinatorial Biosynthesis and Screening," NSF, \$449,995, August 2007-July 2010.
- S. Akella (Co-PI), J. S. Dordick (PI), R. J. Linhardt (Co-PI), "Digital Microfluidic Artificial Golgi for Glycan Synthesis", NSF, \$300,000, June 2007-May 2010.
- S. Akella (PI), C. Busch (co-PI), J. S. Dordick (co-PI), R. J. Linhardt (co-PI), "CRI:IAD: A Digital Microfluidic Testbed for Combinatorial Biosynthesis and Screening", NSF, \$299,960, August 2007-July 2010.
- S. Akella (PI) and J. C. Trinkle (co-PI), "Fully-Implicit Time Stepping Methods with Integrated Proximity Queries for Accurate Simulation of Multi-Rigid-Body Systems with Intermittent Contact", NSF, \$200,000, September 2007-August 2010.
- S. Akella (PI), "Automated Ophthalmoscope Spot Image Classification", Welch Allyn Inc., \$30,000, Dec. 2007-Mar. 2008.
- S. Akella (PI), "Quattro Optimization", Electro Scientific Industries, \$60,000, July 2006-June 2007.
- S. Akella (PI) and M. K. Goldberg (co-investigator), "SGER: Towards Automated Droplet Coordination in Digital Microfluidic Systems," NSF, \$100,000, July 2005-December 2006.
- S. Akella (PI), "CAREER: Manipulation and Motion Planning of Articulated Objects," NSF, \$399,793, May 2001-April 2007.
- S. Akella (PI), REU Supplement to "CAREER: Manipulation and Motion Planning of Articulated Objects," NSF, \$6,000, June 2004-April 2007.
- S. Akella (PI), Flexible Parts Feeding for Automated Assembly and Packing, Motorola Corporate Manufacturing Research Center, 1996-97, \$18,500.
- S. Akella, S. Hutchinson, J. Ponce, N. Ahuja, G. DeJong, C. Hayes, N. Srinivasa, AdeptOne robot and Flexfeeder, Beckman Foundation Equipment Grant, UIUC 1997, \$80,000.
- S. Akella and J. Ponce, Fabrication of Robotic Parts Orienting device, Beckman Foundation Equipment Grant, UIUC, 1999, \$10,260.

PATENTS:

E. Griffith and S. Akella, *Method, System, and Program Product for Controlling Chemical Reactions in a Digital Microfluidic System*, U. S. Patent application number 11/176,508, filed July 2005.

S. Akella, S. J. Blind, C. McCullough, J. Ponce, *U. S. Patent No. 6,633,797: Automated reconfigurable object manipulation device with an array of pins*, October 14, 2003.

TEACHING:

Robot Motion Planning: Fall 2001, Fall 2003, Fall 2005

Developed and introduced a new combined graduate and undergraduate course on algorithmic techniques for robot motion planning.

3D Computer Graphics: Fall 2000, Fall 2002, Fall 2004, Fall 2006

Developed and introduced a new undergraduate course on three-dimensional computer graphics.

Data Structures & Algorithms: Spring 2001, Spring 2002, Spring 2003, Spring 2004, Spring 2006

Taught and enhanced a core sophomore course on data structures and algorithms.

Geometric Algorithms: Spring 2000

Developed and introduced a new combined graduate and undergraduate course on computational geometry.

STUDENTS SUPERVISED:

Jufeng Peng, Ph.D. in Mathematical Sciences, RPI, *Multiple Robot Coordination: A Mathematical Programming Approach*, May 2005. (Awarded the Joaquin B. Diaz Memorial Prize in Mathematics, RPI.)

Nilanjan Chakraborty, Ph.D. student in Computer Science, *Proximity Queries and Collision Detection using Interior Point Algorithms*, August 2004-present.

Evan Shechter, Ph.D. student in Computer Science, *Geometric Design of 3D MEMS Devices*, August 2003-present.

Lingzhi Luo, Ph.D. student in Computer Science, *Algorithms for Digital Microfluidic Systems*, August 2006-present.

Megha Gupta, M.S. student in Computer Science, *Hardware Design of Digital Microfluidic Systems*, August 2006-present.

Arjun Arumbakkam, M.S. in Computer Science, RPI, *Towards Parallel Assembly of 3D Microstructures Using Magnetically Actuated MEMS Panels*, August 2006.

Yogesh Girdhar, M.S. in Computer Science, RPI, *Efficient Sampling of Protein Folding Funnels using HMMSTR and Pathway Generation using Probabilistic Roadmaps*, April 2005.

Jufeng Peng, M.S. in Computer Science, RPI, *Optimal Control of Multiple Robot Systems with Friction using Mathematical Programs with Complementarity Constraints*, August 2004. Co-thesis advisor: Mihai Anitescu (Argonne National Lab.).

Liang Lu, (co-supervised with Seth Hutchinson), *Folding Cartons with Fixtures*, M.S., Electrical and Computer Engg., UIUC, May 1999.

Sebastien J. Blind, (co-supervised with Jean Ponce), *Automated Programming of a Reconfigurable Part Feeder*, M.S., Computer Science, UIUC, May 1999.

PUBLICATIONS:

Book:

1. S. Akella, N. M. Amato, W. H. Huang, B. Mishra, Editors, *Algorithmic Foundations of Robotics VII*, Springer Tracts in Advanced Robotics, Springer-Verlag, 2008.

Journal Papers:

1. N. Chakraborty, S. Akella, and J. T. Wen, "*Coverage of a Planar Point Set with Multiple Robots subject to Geometric Constraints*," *IEEE Transactions on Automation Science and Engineering*, accepted, September 2008.
2. N. Chakraborty, J. Peng, S. Akella, and J. Mitchell, "*Proximity Queries between Convex Objects: An Interior Point Approach for Implicit Surfaces*," *IEEE Transactions on Robotics*, Vol. 24, No. 1, pp. 211-220, February 2008.
3. E. J. Griffith, S. Akella, and M. K. Goldberg, "*Performance Characterization of a Reconfigurable Planar Array Digital Microfluidic System*," *IEEE Transactions on Computer-Aided Design of Integrated Circuits And Systems*, Special issue on Design Automation Methods and Tools for Microfluidics-Based Biochips, Vol. 25, No. 2, pp. 340-352, February 2006.
4. E. J. Griffith and S. Akella, "*Coordinating Multiple Droplets in Planar Array Digital Microfluidic Systems*," *International Journal of Robotics Research*, Vol. 24, No. 11, pp. 933-949, November 2005.
5. J. Peng and S. Akella, "*Coordinating Multiple Robots with Kinodynamic Constraints along Specified Paths*," *International Journal of Robotics Research*, Vol. 24, No. 4, pp. 295-310, April 2005.
6. S. Blind, C. C. McCullough, S. Akella, and J. Ponce, "*Manipulating Parts with an Array of Pins: A Method and a Machine*," *International Journal of Robotics Research*, Vol. 20, No. 10, pp. 808-818, October 2001.
7. S. Akella and M. T. Mason, "*Orienting Toleranced Polygonal Parts*," *International Journal of*

Robotics Research, Vol. 19, No. 12, pp. 1147-1170, December 2000.

8. L. Lu and S. Akella, "**Folding Cartons with Fixtures: A Motion Planning Approach**," *IEEE Transactions on Robotics and Automation*, Vol. 16, No. 4, pp. 346-356, August 2000.
9. S. Akella, W. H. Huang, K. M. Lynch, and M. T. Mason, "**Parts feeding on a conveyor with a one joint robot**," *Algorithmica* (Special Issue on Robotics), Vol. 26, No. 3/4, pp. 313-344, March/April 2000.
10. S. Akella and M. T. Mason, "**Using Partial Sensor Information to Orient Parts**," *International Journal of Robotics Research*, Vol. 18, No. 10, pp. 963-997, October 1999.
11. S. Akella and M. T. Mason, "**Posing polygonal objects in the plane by pushing**," *International Journal of Robotics Research*, Vol. 17, No.1, pp. 70-88, January 1998.

Refereed Conference and Workshop Papers:

1. L. Luo and S. Akella, "**Minimum Resource Characterization of Biochemical Analyses for Digital Microfluidic Biochip Design**," Eighth Workshop on Algorithmic Foundations of Robotics, Guanajuato, Mexico, 2008.
2. N. Chakraborty, S. Akella, and J. T. Wen, "**Minimum Time Point Assignment for Coverage by Two Constrained Robots**," IEEE International Conference on Robotics and Automation, Pasadena, CA, May 2008.
3. L. Luo and S. Akella, "**Optimal Scheduling for Biochemical Analyses on Digital Microfluidic Systems**," 2007 IEEE/RSJ International Conference on Intelligent Robots and Systems, San Diego, CA, October 2007.
4. M. Gupta and S. Akella, "**A Scheduling and Routing Algorithm for Digital Microfluidic Ring Layouts with Bus-phase Addressing**," 2007 IEEE/RSJ International Conference on Intelligent Robots and Systems, San Diego, CA, October 2007.
5. E. Shechter, A. Arumbakkam, P. Lamoureux, X. Tang, M. Shima, and S. Akella, "**Sequential Assembly and Layout Planner with New Hard Magnet Configuration Towards Batch Fabrication and Assembly of 3D Microstructures**," 2007 IEEE/RSJ International Conference on Intelligent Robots and Systems, San Diego, CA, October 2007.
6. N. Chakraborty, S. Akella, and J. T. Wen, "**Coverage of a Planar Point Set with Multiple Constrained Robots**," IEEE Conference on Automation Science and Engineering, Phoenix, AZ, September 2007.
7. N. Chakraborty, S. Berard, J. Trinkle, and S. Akella, "**An Implicit Compliant Model for Multibody Systems with Frictional Intermittent Contact**," ASME 2007 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, Las Vegas, NV, September 2007.

8. N. Chakraborty, S. Berard, S. Akella, and J. C. Trinkle, "*An Implicit Time-Stepping Method for Multibody Systems with Intermittent Contact*," Robotics: Science and Systems conference (RSS 2007), Atlanta, GA, June 2007. (Awarded Best Student Paper Award.)
9. E. J. Griffith, S. Akella, and M. K. Goldberg, "*Performance Characterization of a Reconfigurable Planar Array Digital Microfluidic System*," In *Design Automation Methods and Tools for Microfluidics-Based Biochips*, K. Chakrabarty and J. Zeng (editors), Springer, 2006.
10. N. Chakraborty, J. Peng, S. Akella, and J. Mitchell, "*Proximity Queries between Convex Objects: An Interior Point Approach for Implicit Surfaces*," 2006 IEEE International Conference on Robotics and Automation, pp. 1910-1916, Orlando, FL, May 2006.
11. E. Griffith and S. Akella, "*Coordinating Multiple Droplets in Planar Array Digital Microfluidics Systems*," *Algorithmic Foundations of Robotics VI* (WAFR 2004), M. Erdmann, D. Hsu, M. Overmars, and A. F. van der Stappen (editors), pp. 219-234, Springer-Verlag, Berlin, 2005.
12. J. Peng and S. Akella, "*Coordinating Multiple Double Integrator Robots on a Roadmap: Convexity and Global Optimality*," 2005 IEEE International Conference on Robotics and Automation, Barcelona, Spain, pp. 2762-2769, April 2005.
13. S. Akella and J. Peng, "*Time-Scaled Coordination of Multiple Manipulators*," 2004 IEEE International Conference on Robotics and Automation, pp. 3337-3344, New Orleans, LA, April 2004.
14. J. Peng, M. Anitescu, and S. Akella, "*Optimal Control of Multiple Robot Systems with Friction Using MPCC*," 2004 IEEE International Conference on Robotics and Automation, pp. 5224-5231, New Orleans, LA, April 2004.
15. J. Peng and S. Akella, "*Coordinating Multiple Robots with Kinodynamic Constraints along Specified Paths*," *Algorithmic Foundations of Robotics V* (WAFR 2002), J.-D. Boissonnat, J. Burdick, K. Goldberg, and S. Hutchinson (editors), pp. 221-237, Springer-Verlag, Heidelberg, Germany, 2003.
16. J. Peng and S. Akella, "*Coordinating the Motions of Multiple Robots with Kinodynamic Constraints*," 2003 IEEE International Conference on Robotics and Automation, pp. 4066-4073, Taipei, Taiwan, September 2003.
17. S. Akella and S. Hutchinson, "*Coordinating the Motions of Multiple Robots with Specified Trajectories*," 2002 IEEE International Conference on Robotics and Automation, pp. 624-631, Washington D.C., May 2002.
18. S. J. Blind, C. C. McCullough, S. Akella, and J. Ponce, "*A Reconfigurable Parts Feeder with an Array of Pins*," 2000 IEEE International Conference on Robotics and Automation, pp. 147-153, San Francisco, CA, April 2000.
19. S. Blind, C. McCullough, S. Akella, and J. Ponce, "*Manipulating Parts with an Array of Pins: A Method and a Machine*," *Robotics Research: The Ninth International Symposium*, pp. 123-130,

John M. Hollerbach and Daniel E. Koditschek (editors), Springer-Verlag, London, 2000.

20. L. Lu and S. Akella, "*Folding Cartons with Fixtures: A Motion Planning Approach*," 1999 IEEE International Conference on Robotics and Automation, pp. 1570-1576, Detroit, MI, May 1999. **(Finalist, Best Conference Paper Award.)**
21. S. Akella and M. T. Mason, "*Parts Orienting with Shape Uncertainty*," 1998 IEEE International Conference on Robotics and Automation, pp. 565-572, Leuven, Belgium, May 1998. **(Finalist, Anton Philips Best Student Paper Award.)**
22. S. Akella and M. T. Mason, "*Parts Orienting with Partial Sensor Information*," 1998 IEEE International Conference on Robotics and Automation, pp. 557-564, Leuven, Belgium, May 1998.
23. S. Akella, W. H. Huang, K. M. Lynch, and M. T. Mason, "*Sensorless parts feeding with a one joint robot*," In *Algorithms for Robotic Motion and Manipulation*, J.-P. Laumond and M. Overmars, eds., pp. 229-237, A.K. Peters, Boston, MA, 1997.
24. S. Akella, W. H. Huang, K. M. Lynch, and M. T. Mason, "*Planar manipulation on a conveyor with a one joint robot*," In *Robotics Research: The Seventh International Symposium*, G. Giralt and G. Hirzinger, eds., pp. 265-276, Springer, Berlin, 1996.
25. S. Akella, W. H. Huang, K. M. Lynch, and M. T. Mason, "*Sensorless parts orienting with a one-joint manipulator*," 1997 IEEE International Conference on Robotics and Automation, pp. 2383-2390, Albuquerque, NM, April 1997.
26. S. Akella and M. T. Mason, "*Parts orienting by push-aligning*," 1995 IEEE International Conference on Robotics and Automation, pp. 414-420, Nagoya, Japan, May 1995.
27. S. Akella and M. T. Mason, "*Posing polygonal objects in the plane by pushing*," 1992 IEEE International Conference on Robotics and Automation, pp. 2255-2262, Nice, France, May 1992.

Refereed Posters and Video Proceedings:

1. Y. Girdhar, C. Bystroff, S. Akella, E. Carlson, "*Efficient Sampling of Protein Folding Pathways using HMMSTR and Probabilistic Roadmaps*", (poster), 2005 IEEE Computational Systems Bioinformatics Conference (CSB 2005), Stanford, California, August 2005.
2. Y. Shao, M. Magdon-Ismail, D. Freedman, S. Akella, M. Zaki, and C. Bystroff, "*Compressing Protein Conformational Space*", (poster), Sixth International Conference on Research in Computational Molecular Biology (RECOMB 02), Washington D.C., April 2002.
3. S. J. Blind, C. C. McCullough, S. Akella and J. Ponce, "*A Reconfigurable Parts Feeder with an Array of Pins*," Video Proceedings of the 2000 IEEE International Conference on Robotics and Automation, San Francisco, CA, April 2000.
4. L. Lu and S. Akella, "*Folding Cartons with Fixtures*," Video Proceedings of the 1999 IEEE International Conference on Robotics and Automation, Detroit, MI, May 1999.

5. S. Akella, W. H. Huang, K. M. Lynch, and M. T. Mason, "*Planar Manipulation on a Conveyor with a One Joint Robot*," Video Proceedings of the 1997 IEEE International Conference on Robotics and Automation, Albuquerque, NM, April 1997.

Other Publications:

1. S. Akella, "*Robotic Manipulation for Parts Transfer and Orienting: Mechanics, Planning, and Shape Uncertainty*," Advisor: Prof. Matthew T. Mason, Carnegie Mellon University, Technical Report CMU-RI-TR-96-38, December 1996.
2. S. Akella, "*Packaging of Motorola Two-Way Radios: Efficient Layouts, Automation, and Defect Reduction*," Beckman Institute, University of Illinois at Urbana-Champaign, August 1997.
3. S. Akella, W. H. Huang, K. M. Lynch, and M. T. Mason, "*From robotic juggling to robotic parts feeding*," Yale Workshop on Adaptive and Learning Systems, New Haven, CT, June 1996.
4. M.T. Mason, S. Akella, and K. M. Lynch, "*New results in pushing*," Proceedings of the 1993 NSF Design Systems Grantees Conference, Charlotte, NC, January 1993.

PROFESSIONAL LEADERSHIP ACTIVITIES:

Associate Editor	IEEE Transactions on Automation Science and Engineering, July 2003-May 2007
Guest Editor	International Journal of Robotics Research, Special issue from the 2006 Workshop on Algorithmic Foundations of Robotics (WAFR 2006)
Co-chair	2006 Workshop on the Algorithmic Foundations of Robotics (WAFR 2006)
Associate Editor	IEEE Robotics and Automation Society Conference Editorial Board, 2007 IEEE International Conference on Robotics and Automation (ICRA 2007)
Program Cmte.	IEEE International Conference on Robotics and Automation (ICRA 2006, ICRA 2004) Robotics Science and Systems Conference (RSS 2006) IEEE International Conference on Automation Science and Engineering (IEEE CASE 2006, IEEE CASE 2005) IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2007, IROS 2005, IROS 2004, IROS 2003) Fourth Workshop on Algorithmic Foundations of Robotics (WAFR 2000) SPIE Mechatronics for Agile Manufacturing Conference, 1999.
Guest editor	Manufacturing Automation, special issue of the SPIE Robotics newsletter, Vol. 6, Issue 1, April 1997.

Member	IEEE Transactions on Automation Science and Engineering Steering Committee, May 2002-July 2003 IEEE Robotics and Automation New Transactions Committee, December 2001-May 2002 Tutorials and workshops committee, 2000 IEEE International Conference on Robotics and Automation.
Session chair	2006, 2004, 1999, 1997, and 1995 IEEE Conferences on Robotics and Automation. Seventh Workshop on Algorithmic Foundations of Robotics (WAFR 2006) Fifth Workshop on Algorithmic Foundations of Robotics (WAFR 2002)
Reviewer	IEEE Transactions on Robotics and Automation, IEEE Transactions on Robotics, International Journal of Robotics Research, IEEE Conferences on Robotics and Automation, NSF panels on Robotics and Human Augmentation; Computer Graphics; Manufacturing Machines and Equipment, ASME Design for Manufacturing Conference, ACM Symposium on Computational Geometry, Robotica, International Journal of CAD/CAM, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, IEEE Transactions on Systems, Man, and Cybernetics.
Team member	Xavier mobile robot team, AAAI-93 Robot Competition.
Secretary	Mechanical Engineering Association (1987-88), IIT Madras.
Member	ACM, ASME, IEEE, Sigma Xi.

INVITED TALKS:

May 2008	Dept. of Computer Science, Stanford University, Stanford, CA. <i>Coordinating Multiple Moving Objects: From Robots to Microdroplets.</i>
March 2008	Dept. of Computer Science, Univ. of Southern California, Los Angeles, CA. <i>Coordinating Multiple Moving Objects: From Robots to Microdroplets.</i>
December 2007	School of Engineering, University of California, Merced, CA. <i>Enabling Digital Microfluidic Systems.</i>
June 2007	Palo Alto Research Center, Palo Alto, CA. <i>Enabling Digital Microfluidic Systems.</i>
April 2007	College of Computing and Informatics, Univ. of North Carolina,

- Charlotte, NC.
Coordinating Multiple Moving Objects: From Robots to Microdroplets.
- March 2007 General Electric Global Research Center, Niskayuna, NY.
Enabling Digital Microfluidic Systems.
- November 2006 NASA Ames Research Center, Moffett Field, California.
Coordinating Multiple Moving Objects: From Robots to Microdroplets.
- July 2006 Wadsworth Center, NY State Department of Health, Albany, New York.
Enabling Digital Microfluidic Systems.
- March 2006 Workshop on CAD Aspects of Biochips
2006 Design, Automation, and Test in Europe (DATE) conference, Munich.
Droplet Coordination in Digital Microfluidic Systems.
- January 2005 International Workshop on Motion Planning in Virtual Environments
(MOVIE), LAAS-CNRS, Toulouse.
Coordinating Multiple Robots with Dynamics Constraints.
- January 2004 Workshop on the Geometry of Modelling Proteins, Bellairs, Barbados.
Challenges in Using Motion Planning for Protein Folding.
- October 2003 IEEE Transactions on Automation Science and Engineering Open Forum, IROS
2003, Las Vegas.
Challenging Automation Problems.
- June 2003 Dept. of Mechanical Engineering, Indian Institute of Science, Bangalore, India.
Minimalist Robotic Systems for Flexible Manufacturing: Feeding and Folding Objects.
- May 2003 Beckman Fellows Symposium, Beckman Institute for Advanced Science and
Technology, University of Illinois at Urbana-Champaign.
Coordinating the Motions of Multiple Robots.
- April 2000 Workshop on Flexible Parts Feeding and Fixturing, ICRA 2000, San Francisco.
Manipulation and Motion Planning for Automated Packaging.
- May 1999 Dept. of Computer Science and Engg., Penn. State Univ., State College, PA.
Robot Algorithms for Minimalist Manipulation.
- April 1999 Dept. of Electrical Engineering, University of Washington, Seattle, WA.
Minimalist Robotic Systems for Flexible Automation.

- April 1999 Math and Computing Technology Lab, Boeing, Seattle, WA.
Minimalist Robotic Systems for Flexible Manufacturing.
- April 1999 Dept. of Mechanical, Industrial & Mnfg. Engg., Univ. of Toledo, Toledo, OH.
Minimalist Robotic Systems for Flexible Manufacturing.
- April 1999 Dept. of Computer Science, Rensselaer Polytechnic Institute, Troy, NY.
Robot Algorithms for Minimalist Manipulation.
- April 1999 Dept. of Mechanical Engineering, Texas A&M University, College Station, TX.
Minimalist Robotic Systems for Flexible Manufacturing.
- March 1999 Dept. of Computer Science, Texas A&M University, College Station, TX.
Robot Algorithms for Minimalist Manipulation.
- March 1999 Dept. of Mechanical Engineering, University of Kentucky, Lexington, KY.
Minimalist Robotic Systems for Flexible Manufacturing.
- March 1999 Dept. of Mechanical & Aerospace Engg., Rutgers University, Piscataway, NJ.
Minimalist Robotic Systems for Flexible Manufacturing.
- March 1999 Intelligent Systems & Robotics Ctr., Sandia National Lab, Albuquerque, NM.
Minimalist Robotic Systems for Flexible Manufacturing.
- March 1999 Dept. of Computer Science, University of New Mexico, Albuquerque, NM.
Robot Algorithms for Minimalist Manipulation.
- March 1999 Dept. of Mechanical Engineering, Iowa State University, Ames, IA.
Minimalist Robotic Systems for Flexible Manufacturing.
- November 1998 Dept. of Industrial Engg. & Operations Research, U. California, Berkeley, CA.
Linear and Nonlinear Programming Formulations for Parts Feeding.
- June 1998 Center for Artificial Intelligence and Robotics, Bangalore, India.
Parts Orienting with Partial Sensor Information.
- June 1998 Satyam Computers, Hyderabad, India.
Robotics and Computer Vision.
- March 1998 Dept. of Mechanical Engineering, Johns Hopkins University, Baltimore, MD.
Parts Orienting with Partial Sensor Information.
- January 1997 Engineering Staff College of India, Hyderabad, India.
Robotics and Computer Vision Technologies for India.

- August 1996 Motorola Corporate Research Center, Schaumburg, IL.
Parts Feeding on a Conveyor with a One Joint Robot.
- April 1996 Dept. of Manufacturing Engineering, Boston University, Boston, MA.
Robotic Parts Transfer and Orienting for Flexible Assembly.
- October 1995 College of Computing, Georgia Institute of Technology, Atlanta, GA.
Robotic Manipulation for Parts Feeding (Guest lecture, Robotics course).
- May 1995 NTT Human Interface Laboratory, Musashino, Japan.
Parts Orienting by Push-aligning.
- May 1995 Fujitsu Multimedia Systems Laboratory, Kawasaki, Japan.
Parts Orienting by Push-aligning.
- July 1992 NTT Human Interface Laboratory, Musashino, Japan.
Posing Objects in the Plane by Pushing.
- June 1992 Intelligent Systems Division, Electrotechnical Laboratory, Tsukuba, Japan.
Posing Objects in the Plane by Pushing.