John D. Carpinelli
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Education: **Rensselaer Polytechnic Institute, Troy, NY**
Ph.D. Computer and Systems Engineering, August, 1987
M.E. Electrical Engineering, December, 1984

Stevens Institute of Technology, Hoboken, NJ
B.E. Electrical Engineering, May, 1983

Interests: Computer-aided instruction, computer simulation, parallel processing, computer architecture, interconnection networks

Experience: **New Jersey Institute of Technology (1986 to present)**
Professor of Electrical and Computer Engineering (2008 – present)
Associate Director, NJIT Institute for Teaching Excellence (2017 – 2019)
Executive Director, Center for Pre-College programs (2012 – 2014)
Director, Center for Pre-College programs (2007 – 2011)
Associate Professor of Electrical and Computer Engineering (1993 – 2008)
Assistant Professor of Electrical and Computer Engineering (1987 – 1993)
Special Lecturer of Electrical Engineering (1986 – 1987)
Member, Gateway Engineering Education Coalition Governing Board (2000-2003)
NJIT Gateway Coordinator (2000 – 2003)
Director, Multimedia Production and Internet Delivery Studio (2000 – 2002)
Associate Director, New Jersey Center for Multimedia Research (2000 – 2002)
Associate Professor/Professor of Computer Science (joint appointment) (1995 – present)
Director, Computer Engineering Program (1994 – 1996)
Acting Associate Chair, ECE Department (1993 – 1996, 1997)
Associate Director, Computer Engineering Program (1992 – 1994)

- Member, Executive Committee, *NJIT Institute for Teaching Excellence*
- Campus Representative, *Barry M. Goldwater Scholarship Program*
- Director, *NJIT Provost's Summer Undergraduate Research Program*
- Coordinator, Panasonic Creative Design Challenge
- Tournament Director, New Jersey Science Olympiad NJIT Regional Competition
- *Research Experience for Undergraduates Site in Computer Networking and Security* program coordinator
- Coordinated NJIT activities in undergraduate education for the *Gateway Engineering Education Coalition*
- Coordinated preparations for successful ABET accreditation visit (Computer Engineering – 1995)
- Developed the MS program in Computer Engineering
- Coordinator, Provost's Summer Undergraduate Research Program
- Coordinator of applications for Barry M. Goldwater Scholarship Program
- Coordinator: Computer Engineering Senior Projects

- Chair: NJIT Teaching, Learning, and Technology Committee
- Chair: NJIT Excellence in Teaching Awards Committee (2 terms)
- Chair, ECE Department Chair Search Committee
- Chair, ECE Department Computer Facilities and Usage Committee
- Chair, NJIT Master Teacher Committee
- Chair, NJIT Undergraduate Research Committee
- Member: NJIT Task Force on Undergraduate Education
- Member: NJIT Undergraduate Curriculum Review Committee
- Member: NCE College and Program Accreditation Committees
- Member: Committee on Computer Engineering Curriculum
- Member of approximately 25 additional committees at University, College, and Department level

Honors:

- IEEE Computer Society 2014 Distinguished Contributions to Public Service in a Pre-College Environment Award.
- Commendation, Governor of the State of New Jersey, presented to NJIT in appreciation of its work with the Panasonic Creative Design Challenge, 2009 (Dr. Carpinelli is NJIT's activities leader for this annual event)
- Nominated for Best Paper Award, ASEE Annual Conference, 2009
- Outstanding Honors Faculty Award, NJIT Albert Dorman Honors College, 2008
- iNEER Recognition Award, International Network for Engineering Education and Research, 2007
- NJIT ECE Department Chair's Recognition Award, 2005 and 2006
- NJIT Master Teacher, 2004
- NJIT Excellence in Teaching Award (Team, Interdepartmental, Multidisciplinary, or Non-Traditional Teaching), 2004
- NCE Innovation in Education Award, 2001
- NJIT Excellence in Teaching Award (Upper Division Undergraduate Education), 1999
- Finalist for HKN C. Holmes MacDonald Outstanding Young Teacher Award, 1988, 1991.

Teaching: Courses Developed

- FED 101, Fundamentals of Engineering Design (ECE module)
- ECE/CoE 353, Advanced Computer Architecture (Distance Learning)
- ECE/CoE 353H, Honors Advanced Computer Architecture (Distance Learning)
- EE 698, Selected Topics in Electrical Engineering
- EE 699, Selected Topics in Electrical Engineering
- CoE 485, Computer Engineering Design Laboratory
- CoE 496H, Honors Independent Study
- CoE 496, Independent Study
- CoE 495, Computer Engineering Project
- CoE 493, Computer Engineering Laboratory III
- CoE 451, Computer Architecture
- CoE 391, Computer Engineering Laboratory I
- CoE 351, Computer Organization
- EE 352, Microprocessors

Educational Software Developed

- The Multi-Platform Optics and Photonics Education App
- The Relatively Simple Computer System with Cache Simulator
- The DMA Controller Simulator

- The Beneš Network Simulator
- The Wallace Tree Simulator
- The Very Simple CPU Simulator
- The Relatively Simple CPU Simulator
- The Relatively Simple Computer System Simulator
- The Programmable Logic Device Simulator
- *APAP*: The Arithmetic Pipeline Analysis Package
- *MCCS*: The Mesh Connected Computer Simulator
- *DFDG*: The Data Flow Dependency Generator
- *INAP*: The Interconnection Network Analysis Package
- *J/APAP*: The Java Arithmetic Pipeline Analysis Package

Educational Materials Developed

- *Laboratory Manual and Supplementary Notes, ECE 394: Digital Systems Laboratory*. Revised 2015, 2016.
- *Laboratory Manual and Supplementary Notes, FED 101: Freshman Engineering Design, Electrical and Computer Engineering Module*, 2004. Revised 2005.
- *Laboratory Manual and Supplementary Notes, ECE 458: Computer Systems*, 2003.
- *Computer Systems Organization and Architecture*, Addison-Wesley, 2001. (See the list of publications later in this CV for a complete list of editions of this textbook.)
- Developed new distance learning materials for *CoE 353, Advanced Computer Architecture*, 2002
- Developed distance learning materials for *CoE 353H, Honors Advanced Computer Architecture*, 2001.
- Videotaped lectures and online notes for *CoE 353, Advanced Computer Architecture*, 1998-1999
- *Laboratory Manual and Supplementary Notes, CoE 485: Computer Engineering Design Laboratory,* New Jersey Institute of Technology, Newark, NJ, 1996. Revised 1996; 2001
- *Laboratory Manual and Supplementary Notes, CoE 493: Computer Engineering Laboratory III*, New Jersey Institute of Technology, Newark, NJ, 1990. Revised 1991; 1992; 1993; 1995
- *Laboratory Manual and Supplementary Notes, EE 497: Computer Systems Laboratory*, New Jersey Institute of Technology, Newark, NJ, 1990. Revised 1991; 1992; 1994; 2001
- *Laboratory Manual and Supplementary Notes, CoE 391: Computer Engineering Laboratory I*, New Jersey Institute of Technology, Newark, NJ, 1989. Revised 1991; 1992; 1992; 1993
- *Laboratory Manual and Supplementary Notes, EE 393: Electrical Engineering Laboratory III, Part A: Microprocessors*, New Jersey Institute of Technology, Newark, NJ, 1989.
- *MCCS User's Guide*, New Jersey Institute of Technology, Newark, NJ, 1989. Revised 1992.
- *DFDG User's Guide*, New Jersey Institute of Technology, Newark, NJ, 1990.
- *APAP User's Guide*, New Jersey Institute of Technology, Newark, NJ, 1989.

Thesis Advisement

- Hamed Nassar. *Fault Tolerant Interconnection Networks for Multiprocessor Systems*, New Jersey Institute of Technology, April, 1989. Dissertation advisor.
- Hyun Yeop Lee. *Routing on Fault-Tolerant Multistage Interconnection Networks for Multiprocessor Systems*, New Jersey Institute of Technology, October, 1994. Dissertation advisor.
- Doctoral dissertation committee member for over 10 PhD students
- Thesis advisor for over 50 MSCoE and MSEE students
- Project advisor for over 15 MSCoE, MSEE and MSCS students

Publications: Books and Book Chapters

- J. Carpinelli. *An Animated Introduction to Digital Logic Design*, NJIT, 2023, in press. ISBN # 978-1-970194-005.
- J. Carpinelli. *Computer Systems Organization and Architecture*, Addison-Wesley, 2001, 584 pages. ISBN # 0-201-61253-4.
  - J. Carpinelli. *Computer Systems Organization and Architecture (LPE – edition for India, Bangladesh, Pakistan, Nepal, Sri Lanka, and Maldives)*, Pearson Education, Delhi, India, 2006. ISBN # 81-7758-767-6.
  - J. Carpinelli. *Computer Systems Organization and Architecture (Taiwan, Traditional Chinese-language edition)*, Pearson Education North Asia, Limited, 2003. ISBN # 9-867594-92-4.
  - J. Carpinelli. *Computer Systems Organization and Architecture (Philippines, English-language edition)*, Pearson Education, 2003. ISBN # 9-814119-29-6.
  - J. Carpinelli. *Computer Systems Organization and Architecture (Mainland China, Simplified Chinese-language edition)*, People's Post and Telecommunications and Pearson Education North Asia, Limited, 2003. ISBN # 7-115-11243-6.
  - J. Carpinelli. *Computer Systems Organization and Architecture (International edition)*, Pearson Education, London, England, UK, 2003. ISBN #0321210808.
  - J. Carpinelli. *Computer Systems Organization and Architecture (LPE – edition for India, Bangladesh, Pakistan, Nepal, Sri Lanka, and Maldives)*, Pearson Education, Delhi, India, 2002. ISBN # 81-7808-268-3.
  - J. Carpinelli. *Computer Systems Organization and Architecture (Korean language edition)*, Pearson Education, Seoul, Korea, 2002. ISBN # 89-5550-111-0.
  - J. Carpinelli. *Computer Systems Organization and Architecture (Mainland China, English-language edition)*, People's Post and Telecommunications and Pearson Education North Asia, Limited, 2001. ISBN # 7-115-09918-9.
- J. Carpinelli and A. Lippel, Eds. *Proceedings of Engineering Education Unbounded: Lifelong Learning Any Time/Any Place,* United Engineering Foundation, New York, June 2000.

- H. S. Kimmel, R. H. Rockland, J. D. Carpinelli, and G. T. Spak. "Effective Instructional Practices in Continuing Engineering Education," in *Continuing Engineering Education Handbook*, Charles E. Baukal, Jr., editor. Nova Science Publishers, New York, May 2022, pp. 89-127.
- H. Kimmel, J. Carpinelli, G. Spak, and R. Rockland. "A Methodology for Retaining Student Learning during the Pandemic," in *Educational Practices during the COVID-19 Viral Outbreak*, Mack Shelley and Ismail Sahin, editors, ISTES Organization, Bloomington, IN, October 2020, pp. 1-19.
- R. Rockland, H. Kimmel, J. Carpinelli, L. Hirsch, and L. Burr-Alexander. "Medical Robotics in K-12 Education," in *Robotics in K-12 Education*, IGI Global, Hershey, PA, 2011, pp. 121-140.
- J. Carpinelli, H. Kimmel, R. Rockland, L. Burr-Alexander, and L. Hirsch. "Robotics as an Effective Instructional Tool and a Motivation for Learning," in *Innovations 2011: World Innovations in Engineering Education and Research*, iNEER, Arlington, VA, pp. 133-142. (Invited).
- J. Carpinelli, H. Kimmel, and J. Bloom. "The Early College Program at New Jersey Institute of Technology," in *Innovations 2010: World Innovations in Engineering Education and Research*, iNEER, Arlington, VA, 2009, pp. 341-350. (Invited).
- J. Carpinelli and A. Perna. "Strategies for Disseminating Educational Innovations Developed by University Coalitions," in *Innovations 2003: World Innovations in Engineering Education and Research*, iNEER, Arlington, VA, 2003, pp. 257-263. (Invited).
- J. Carpinelli and H. Nassar. "Fault-tolerance for Switching Networks," in *Switching Networks: Recent Advances*, DingZhu Du and Hung Ngo, editors, Kluwer Publishing Company, 2001, pp. 1-23.

- J. Carpinelli and C. B. Wang. "Performance of a New Decomposition Algorithm for Rearrangeable Clos Interconnection Networks under Sub-maximal and No-fault Conditions," in *Advances in Switching Networks*, Frank Hwang and DingZhu Du, editors, American Mathematical Society, 1998, pp. 103-117.

Refereed Journal Articles

- R. Rockland, J. Carpinelli, L. Burr-Alexander, L. Hirsch, D. Bloom, and H. Kimmel. "Advancing the E in K-12 STEM Education," *The Journal of Technology Studies*, Spring 2010, pp. 53-64, peer reviewed.
- J. Carpinelli and T. Zaman. "Instructional Tools for Designing and Analysing a Very Simple CPU," *International Journal of Electrical Engineering Education*, July 2006, pp. 261-270, peer reviewed.
- S. Lee and J. Carpinelli. "High-Speed Integer Operations in the Consequent Fuzzy Part and the Defuzzification Stage for Intelligent Control Systems," *International Journal of Intelligent Control Systems*, December 2005, pp. 258-268, peer reviewed.
- J. Carpinelli. "The Relatively Simple Computer System Simulator – A Visualization Tool for Computer System Organization and Architecture," *ASEE Computers in Education Journal*, October-December 2004, pp. 36-41, peer reviewed.
- J. Carpinelli and M. Dokachev. "The Wallace Tree Simulator," *ASEE Computers in Education Journal*, July-September 2004, pp. 10-14, peer reviewed.
- H. Nassar, J. Carpinelli, and F. Nada. "Queueing Analysis of an ATM Multichannel Switch Routing Two-class Multimedia Traffic with Two Service Rates," *IEICE Transactions on Communications*, June 2004, pp. 1505-1513, peer reviewed.
- J. Carpinelli. "The Relatively Simple CPU Simulator," *ASEE Computers in Education Journal*, April-June 2002, pp. 20-26.
- H. Nassar and J. Carpinelli. "A Generalized Model for Banyan Networks with Nonuniform Traffic," *IEE Proceedings-Computers and Digital Techniques*, May, 1998, pp. 225-228.
- H. Lee, F. Hwang and J. Carpinelli. "A New Decomposition Algorithm for Rearrangeable Clos Interconnection Networks," *IEEE Transactions on Communications*, November, 1996, pp. 1572-1578.
- J. Carpinelli and Y. Oruc. "Applications of Matching and Edge Coloring Algorithms to Routing in Clos Networks," *Networks,* September, 1994, pp. 319-326.
- J. Carpinelli and Y. Oruc. "On Non-backtracking Matrix Decomposition Algorithms for Routing on Clos Networks," *IEEE Transactions on Communications*, August, 1993, pp. 1245-1251.
- J. Carpinelli and S. Rosenstark. "Bridging the Gap Between Digital Circuits and Microprocessors," *IEEE Transactions on Education*, August, 1993, pp. 334-339.
- J. Carpinelli. "MCCS: A Simulation Tool for Teaching Multiprocessor System Design," *ASEE Computers in Education Journal*, March, 1993, pp. 66-69.
- J. Concepcion, J. Carpinelli, G. Kuo-Petravic and S. Reisman. "CT Fan Beam Reconstruction with a Non-Stationary Axis-of-Rotation," *IEEE Transactions on Medical Imaging*, March, 1992, pp. 111-116.
- R. Chadwick and J. Carpinelli. "A High-Speed Correlator for Spread Spectrum Applications," *International Journal of Electronics*, March, 1992, pp. 373-381.

Refereed Conference Papers

- L. Yepez, A. Khreishah, J. Carpinelli, and D. Misra, "The Enhanced Multi-Platform Optics and Photonics Educational App," *Proceedings of the International Conference on Technical Education*, Salt, Jordan, November 2018.
- T. Ventura, A. Khreishah, J. Carpinelli, and D. Misra, "The Multi-Platform Optics and Photonics Educational App," *Proceedings of the ASEE Annual Conference*, Salt Lake City, UT, June 2018.
- J. Carpinelli, A. Perna, and L. Hirsch, "The Impact of an Undergraduate Research Program on Students' Attitudes toward and Pursuit of Graduate Studies – A Follow-up Study," *Proceedings of the ASEE Annual Conference*, Columbus, OH, June 2017.
- J. Carpinelli, L. Hirsch, and R. Perez-Castillejos, "The Impact of a Neuro-Engineering Research Experience for Undergraduates Site on Students' Attitudes toward and Pursuit of Graduate Studies," *Proceedings of the ASEE Annual Conference*, Seattle, WA, June 2015.
- L. Hirsch, H. Kimmel, and J. Carpinelli, "Classroom Implementation of Instructional Modules Developed by Teachers During Engineering RET Programs: A Follow-up Study," *Proceedings of the ASEE Annual Conference*, Seattle, WA, June 2015.
- H. Kimmel, L. Burr-Alexander, L. Hirsch, R. Rockland, J. Carpinelli, and M. Aloia, "Pathways to Effective K-12 STEM Programs," *Proceedings of the 2014 Frontiers in Education Conference*, Madrid, Spain, October 2014.
- L. Hirsch, S. Berliner-Heyman, J. Carpinelli, and H. Kimmel, "Middle School Students' Understanding and Application of the Engineering Design Process," *Proceedings of the 2014 Frontiers in Education Conference*, Madrid, Spain, October 2014.
- L. Hirsch, S. Berliner-Heyman, R. Cano, J. Carpinelli, and H. Kimmel, "The Effects of Single vs. Mixed Gender Engineering Enrichment Programs on Elementary Students' Perceptions of Engineers," *Proceedings of the ASEE Annual Conference*, Indianapolis, IN, June 2014.
- R. Curtmola, J. Carpinelli, L. Hirsch, H. Kimmel, and L. Bur-Alexander, "Cloud Computing for Education: A Professional Development Program for High School Teachers," *Proceedings of the ASEE Annual Conference*, Indianapolis, IN, June 2014.
- L. Hirsch, S. Berliner-Heyman, R. Cano, J. Carpinelli, H. Kimmel, and S. Romero. "A Comparison of Single and Mixed Gender Engineering Enrichment Programs for Elementary Students," *Proceedings of the 2013 Frontiers in Education Conference*, Oklahoma City, OK, October 2013.
- R. Rockland, L. Burr-Alexander, H. Kimmel, J. Carpinelli, L. Hirsch, and T. Tylutki. "Integration of Medicine and Robotics – An Online Professional Development Program for STEM Education," *Proceedings of the 2013 American Society of Engineering Education Annual Conference*, Atlanta, GA, June 2013.
- R. Rockland, L. Hirsch, L. Burr-Alexander, J. Carpinelli, and H. Kimmel. "Learning Outside the Classroom – Flipping an Undergraduate Circuits Analysis Course," *Proceedings of the 2013 American Society of Engineering Education Annual Conference*, Atlanta, GA, June 2013.
- L. Hirsch, A. Perna, J. Carpinelli, and H. Kimmel. "The Effectiveness of Undergraduate Research Programs: A Follow-up Study," *Proceedings of the 2012 Frontiers in Education Conference*, Seattle, WA, October 2012.
- L. Hirsch, S. Berliner-Heyman, J. Carpinelli, and H. Kimmel. "Introducing Middle School Students to Engineering and the Engineering Design Process," *Proceedings of the 2012 American Society of Engineering Education Annual Conference*, San Antonio, TX, June 2012.
- L. Hirsch, S. Berliner-Heyman, R. Cano, H. Kimmel, and J. Carpinelli. "Middle School Girls' Perceptions of Engineers Before and After a Female Only Summer Enrichment Program," *Proceedings of the 2011 Frontiers in Education Conference*, Rapid City, SD, October 2011.
- H. Kimmel, R. Rockland, L. Hirsch, J. Carpinelli, and L. Burr-Alexander. "Medibotics: An Engineering Program for Integration into Secondary School Science Curriculum," *Proceedings of the 2011 International Conference on Engineering Education*, Belfast, Northern Ireland, August 2011.
- L. Hirsch, A. Perna, J. Carpinelli, and H. Kimmel. "The Effect Undergraduate Research Programs Have on Engineering Students' Attitudes toward Graduate Studies," *Proceedings of*

the 2011 International Conference on Engineering Education, Belfast, Northern Ireland, August 2011.

- H. Kimmel, A. Perna, S. Klotzkin, J. Carpinelli, and R. Tomkins. "Student Learning and the Continuous Program Improvement Process in a Chemical Engineering Program," *Proceedings of the 2011 American Society of Engineering Education Annual Conference*, Vancouver, BC, Canada, June 2011.

- R. Rockland, H. Kimmel, and J. Carpinelli. "Moodle as a Course Management System: It Isn't Just for Distance Learning," *Proceedings of the 2011 American Society of Engineering Education Annual Conference*, Vancouver, BC, Canada, June 2011.

- J. Carpinelli, H. Kimmel, L. Hirsch, L. Burr-Alexander, K. Narh, and R. Dave. "Translating Research Experiences into Classroom Practice: An RET Project," *Proceedings of the 2011 American Society of Engineering Education Annual Conference*, Vancouver, BC, Canada, June 2011.

- H. Kimmel, R. Rockland, L. Hirsch, L. Burr-Alexander, and J. Carpinelli. "A Capstone Approach to Exploring Teacher Outcomes from Professional Development," *Proceedings of the 2010 American Society of Engineering Education Annual Conference*, Louisville, KY, June 2010.

- R. Rockland, H. Kimmel, L. Hirsch, L. J. Carpinelli, and Burr-Alexander. "Technology and Learning Objects in the Engineering Technology Classroom," *Proceedings of the 2010 American Society of Engineering Education Annual Conference*, Louisville, KY, June 2010.

- H. Kimmel, L. Hirsch, J. Carpinelli, R. Rockland, L. Burr-Alexander, and M. O'Shea. "A Rubric To Assess the Effectiveness of Pre-Engineering Classroom Instruction," *Proceedings of the 38th IGIP Conference*, Graz, Austria, September 2009.

- L. Hirsch, J. Carpinelli, H. Kimmel, A. Perna, and K. Narh. "Measuring the Impact of Undergraduate Research Programs on Engineering Students' Attitudes toward Graduate Studies," *Proceedings of the 2009 American Society of Engineering Education Annual Conference*, Austin, TX, June 2009.

- L. Hirsch, J. Carpinelli, H. Kimmel, R. Rockland, and L. Burr-Alexander. "The Impact of Introducing Robotics in Middle- and High-School Science and Mathematics Classrooms," *Proceedings of the 2009 American Society of Engineering Education Annual Conference*, Austin, TX, June 2009.

- J. Carpinelli, H. Kimmel, L. Hirsch, L. Burr-Alexander, R. Rockland, and M. O'Shea. "A Rubric to Evaluate Standards-based lesson Plans and Students' Achievement of the Standards," *Proceedings of the 2008 American Society of Engineering Education Annual Conference*, Pittsburgh, PA, June 2008.

- R. Rockland, H. Kimmel, J. Carpinelli, and J. Bloom. "Engineering Technology as a Vehicle for Putting Qualified Technology Teachers in High School Classrooms," *Proceedings of the 2008 American Society of Engineering Education Annual Conference*, Pittsburgh, PA, June 2008.

- H. Kimmel, J. Carpinelli, L. Burr-Alexander, L. Hirsch, and R. Rockland. "Introducing Robotics into the Secondary Science Classrooms," *Proceedings of the Society for Information Technology and Teacher Education International Conference*, Reno, NV, March 2008.

- L. Hirsch, J. Carpinelli, H, Kimmel, and A. Perna. "The Effects of Undergraduate Research Programs on Engineering Students' Attitudes toward Graduate Studies," *Proceedings of the 2008 American Educational Research Association Annual Conference*.

- L. Hirsch, J. Carpinelli, H. Kimmel, R. Rockland, and J. Bloom. "The Differential Effects of Pre-engineering Curricula on Middle School Students' Attitudes to and Knowledge of Engineering Careers," *Proceedings of the 2007 Frontiers in Education Conference*, Milwaukee, WI, October 2007.

- H. Kimmel, J. Carpinelli, and R. Rockland. "Bringing Engineering into K-12 Schools: A Problem Looking for Solutions?" *Proceedings of the 2007 International Conference on Engineering Education*, Coimbra, Portugal, September 2007.

- H. Kimmel, J. Carpinelli, R. Cano, and A. Perna. "A U.S. Working Model for the K-16 Engineering Pipeline," *Proceedings of the 2007 International Conference on Engineering Education*, Coimbra, Portugal, September 2007.

- L. Hirsch, J. Carpinelli, H. Kimmel, R. Rockland, and J. Bloom. "The Differential Effects of Female Only vs. Co-ed Enrichment Programs on Middle School Students' Attitudes to Science, Mathematics and Engineering," *Proceedings of the 2007 American Society for Engineering Education Conference*, Honolulu, HI, June 2007.
- J. Carpinelli, L. Hirsch, H. Kimmel, A. Perna, and R. Rockland. "A Survey to Measure Undergraduate Engineering Students' Attitudes toward Graduate Studies," *Proceedings of the First International Conference on Research in Engineering Education*, Honolulu, HI, June 2007.
- H. Kimmel, J. Carpinelli, R. Cano, and A. Perna. "The K-16 Engineering Pipeline: A Working Model," *Proceedings of the ASEE Middle Atlantic Section Spring 2007 Conference*, Newark, NJ, April 2007.
- J. Finne, J. Carpinelli, and W. Barnes. "The Transition from the 8085 to the 'Modern' World," *Proceedings of the ASEE Middle Atlantic Section Spring 2007 Conference*, Newark, NJ, April 2007.
- J. Carpinelli and A. Perna, "Best Practices in Freshman Engineering Design at the New Jersey Institute of Technology," *Proceedings of the 2006 International Conference on Engineering Education*, San Juan, PR, July 2006.
- H. Kimmel, J. Carpinelli, L. Burr-Alexander, and R. Rockland, "Bringing Engineering into K-12 Schools: A Problem Looking for a Solution?" *Proceedings of the 2006 American Society for Engineering Education Conference*, Chicago, IL, June 2006.
- J. Carpinelli, R. Calluori, V. Briller, E. Deess, and K. Joshi, "Factors Affecting Student Performance and Satisfaction in Distance Learning Courses," *Proceedings of the 2006 American Society for Engineering Education Conference*, Chicago, IL, June 2006.
- R. Calluori, V. Briller, J. Carpinelli, P. Deess, and K. Joshi, "A Comparison of Web software platforms, teaching technology formats, technology training used in Distance Learning courses and their impact on learning outcomes," *Proceedings of the 46th Annual Forum of the Association for Institutional Research*, Chicago, IL, May 2006.
- S. Lee and J. Carpinelli, "VHDL Implementation of a Very High-Speed Integer Fuzzy Controller," *Proceedings of the 2005 IEEE Systems, Man, and Cybernetics Conference*, Honolulu, HI, October 2005, pp. N/A (published on CD ROM).
- J. Carpinelli, V. Briller, J. Valyo, E. Deess, R. Calluori, and K. Joshi, "Effects of a Freshman Engineering Design Experience on Student Performance in a Sophomore Circuits Course," *Proceedings of the 2005 American Society for Engineering Education Conference*, Portland, OR, June 2005, pp. N/A (published on CD ROM).
- J. Carpinelli, V. Briller, C. Saraydar, J. Frank, E. Deess, and R. Calluori, "A Needs Assessment for a Sophomore Circuits Course for Electrical and Computer Engineering Students," *Proceedings of the ASEE Middle Atlantic Section Spring 2005 Conference*, Teaneck, NJ, April 2005, pp. N/A (published on CD ROM).
- J. Carpinelli, "Twenty-five Years of Engineering Education: 1992 – 2017," *Proceedings of the 2004 International Conference on Engineering Education*, Gainesville, FL, October 2004, pp. N/A (published on CD ROM).
- J. Carpinelli, L. Burr-Alexander, D. Hanesian, H. Kimmel, and R. Sodhi. "The Pre-Engineering Instructional and Outreach Program at the New Jersey Institute of Technology," *Proceedings of the 2004 International Conference on Engineering Education*, Gainesville, FL, October 2004, pp. N/A (published on CD ROM).
- V. Briller and J. Carpinelli. "Reducing the Withdrawal Rate in Distance Learning Courses," *Proceedings of the 2004 American Society for Engineering Education Conference*, Salt Lake City, UT, June 2004, pp. N/A (published on CD ROM).
- J. Carpinelli, A. Clements, J. Demel, S. Seidman, and W. Zobrist. "Discussion Panel: Writing a Textbook," *Proceedings of the 2003 Frontiers in Education Conference*, Westminster, CO, November, 2003.
- J. Carpinelli and M. Dokachev. "The Wallace Tree Simulator," *Proceedings of the 2003 American Society for Engineering Education Conference*, Nashville, TN, June 2003, pp. N/A (published on CD ROM).

- V. Briller, J. Carpinelli, P. Deess, R. Calluori, and C. Gonzalez-Lenahan. "The Effectiveness of the Educational Learning Assistants Program for Student Retention," *Proceedings of the 2003 American Society for Engineering Education Conference*, Nashville, TN, June 2003, pp. N/A (published on CD ROM).
- J. Carpinelli. "The Very Simple CPU Simulator," *Proceedings of the 2002 Frontiers in Education Conference*, Boston, MA, November, 2002, pp. T2F.11-14.
- J. Carpinelli and A. Perna. "Extending the Work of the Engineering Education Coalitions," *Proceedings of the 2002 International Conference on Engineering Education*, Manchester, England, UK, August, 2002, pp. N/A (published on CD ROM), peer reviewed. (Invited)
- V. Briller and J. Carpinelli. "A Comparative Analysis of Student Performance in Lower Division Computer Science Courses in Face-to-Face Mode vs. Distance Learning Mode," *Proceedings of the 2002 ASEE Annual Conference*, Montreal, Quebec, Canada, June, 2002, pp. N/A (published on CD ROM), peer reviewed.
- J. Carpinelli and F. Jaramillo. "Simulation Tools for Digital Design and Computer Organization and Architecture," *Proceedings of the 2001 Frontiers in Education Conference*, Reno, NV, October, 2001, pp. S3C.1-5, peer reviewed.
- J. Carpinelli and V. Briller. "Distance Learning Instruction: As Effective as Face-to-face Instruction?" *Proceedings of the International Conference on Engineering Education*, Oslo, Norway, August, 2001, pp. 6E8.8-10, peer reviewed.
- J. Carpinelli and A. Perna. "Engineering Education Coalitions: Perspective from a Partner University," *Proceedings of the International Conference on Engineering Education*, Oslo, Norway, August, 2001, pp. 6E2.12-14, peer reviewed.
- J. Carpinelli. "The Relatively Simple CPU Simulator," *Proceedings of the 2001 ASEE Annual Conference*, Albuquerque, NM, June, 2001, pp. N/A (published on CD ROM), peer reviewed.
- J. Carpinelli. "On Similar Networks and the Minimality of Waksman Networks," *Proceedings of the 1996 Conference on Information Sciences and Systems*, Princeton, NJ, March, 1996, pp. 211-215, peer reviewed.
- H. Nassar and J. Carpinelli. "Design and Performance of a Fault Tolerant Clos Network," *Proceedings of the 1995 Conference on Information Sciences and Systems,* Baltimore, MD, March, 1995, pp. 810-815, peer reviewed.
- H. Lee and J. Carpinelli. "Routing Algorithms in Fault-Tolerant Clos Networks," *Proceedings of the 1994 Conference on Information Sciences and Systems*, Princeton, NJ, March, 1994, pp. 227-231, peer reviewed.
- H. Nassar and J. Carpinelli. "A Simple Fault-Tolerance Technique for Interconnection Networks," *Proceedings of the Sixth International Conference on Parallel and Distributed Computing and Systems*, Louisville, KY, October, 1993, pp. 25-30, peer reviewed.
- P. Ahluwalia and J. Carpinelli. "Optimization of Fault-Tolerant Clos Networks," *Proceedings of the 1992 Conference on Information Sciences and Systems*, Princeton, NJ, March, 1992, pp. 790-793, peer reviewed.
- J. Carpinelli. "DFDG: The Data Flow Dependency Generator," *Proceedings of the Twenty-second Pittsburgh Conference on Modeling and Simulation*, May, 1991, pp. 1521-1527, peer reviewed.
- H. Berndt, J. Carpinelli, et. al. "Scanning Acoustic Microscopy and Human Femoral Bone Remodelling," *Proceedings of the Seventeenth Northeast Bioengineering Conference*, Hartford, April, 1991, pp. 165-166, peer reviewed.
- W. Hubbi and J. Carpinelli. "On the New Jersey Master Faculty Program," *Proceedings of the 1990 Frontiers in Education Conference*, Vienna, July, 1990, pp. 455-457, peer reviewed.
- J. Carpinelli, R. Dresnack, J. Grow and W. Hubbi. "Experiences with the New Jersey Master Faculty Program," *Proceedings of the 1989 Frontiers in Education Conference*, Binghamton, NY, October, 1989, pp. 261-265, peer reviewed.
- M. Ahmad and J. Carpinelli. "A Methodology for Designing Spacecraft Onboard Processing Systems," *Proceedings of the AIAA Computers in Aerospace VII Conference*, Monterey, CA, October, 1989, pp. 189-199, peer reviewed.

- D. Chen and J. Carpinelli. "MCCS: The Mesh-Connected Computer Simulator," *Proceedings of the Twentieth Pittsburgh Conference on Modeling and Simulation*, May, 1989, pp. 1031-1035, peer reviewed.
- C. Christou and J. Carpinelli. "Determination of Optimal Cache Size through Modeling and Simulation," *Proceedings of the Twentieth Pittsburgh Conference on Modeling and Simulation*, May, 1989, pp. 1267-1271, peer reviewed.
- J. Carpinelli and Y. Oruc. "Matrix Decomposition Algorithms for Dynamic Topology Reconfiguration in Parallel Computers," *Proceedings of the Fourth International Conference on Supercomputing*, Santa Clara, CA, April, 1989, pp. 327-332, peer reviewed.
- C. Lin, J. Carpinelli and M. Singh. "APAP: A Computer-based Tool for Analyzing Data Flow in Arithmetic Pipelines," *Proceedings of the 1988 Frontiers in Education Conference*, Santa Barbara, CA, October, 1988, pp. 250-254, peer reviewed.
- J. Carpinelli and Y. Oruc. "Applications of Edge-Coloring Algorithms to Routing on Parallel Computers," *Proceedings of the Third International Conference on Supercomputing*, Boston, MA, May, 1988, pp. 249-257, peer reviewed.
- C. Lin, J. Carpinelli and M. Singh. "APAP: The Arithmetic Pipeline Analysis Package," *Proceedings of the Nineteenth Annual Pittsburgh Conference on Modeling and Simulation*, May, 1988, pp. 1101-1105, peer reviewed.
- J. Carpinelli and Y. Oruc. "Parallel Set-Up Algorithms for Clos Networks Using a Tree-Connected Computer," *Proceedings of the Second International Conference on Supercomputing*, Santa Clara, CA, May, 1987, pp. 321-327, peer reviewed.
- J. Carpinelli and Y. Oruc. "Some Group Theoretic Results Towards a Linear-Time Set Up Algorithm for Benes Networks," *Proceedings of the Twentieth Annual Conference on Information Sciences and Systems*, Princeton, NJ, March, 1986, pp. 563-567, peer reviewed.

Proposals and Grants

- A. Khreishah, D. Misra, J. Carpinelli (I), et. al. *REU Site: Optics and Photonics: Technologies, Systems, and Devices*, $364,517, 2019-2022.
- A. Khreishah, D. Misra, J. Carpinelli (I), et. al. *REU Site: Optics and Photonics: Technologies, Systems, and Devices*, $359,633, 2016-2019.
- E. Hou, C. Santasieri, and J. Carpinelli (Co-PI), New Jersey Transit, *Combating Fare Evasion on the New Jersey Light Rail System*, $65,000, 2015.
- J. Carpinelli (PI) and R. Dave, National Science Foundation, *RET Site for Structured Organic Particulates*, $500,000, 2014-2016.
- R. Perez-Castillejos, J. Carpinelli (CP), H. Grebel, Z. Michalopoulou, and S. Mitra, National Science Foundation, *Interdisciplinary Undergraduate Program in Nanotechnology at NJIT: Linking K-12 through Graduate Education via Nanotechnology*, $200,000, 2014-2015.
- J. Carpinelli (PI), State of New Jersey, *Dual Enrollment Program*, $15,000, 2012-2013.
- H. Kimmel, J. Carpinelli (CP), and R. Rockland, ExxonMobil Foundation, *Virtual Medibotics*, $300,000, 2011-2014.
- K. Narh, R. Dave, J. Carpinelli (I), et. al., National Science Foundation, *NSF-RET Site at Engineering Research Center on Structured Organic Particulate Systems (C-SOPS)*, $474,522, 2010-2013.
- J. Carpinelli (PI), ExxonMobil Foundation, *Bernard Harris Summer Science Camp*, $560,000, 2007-2014.
- J. Carpinelli (PI), National Science Foundation, *Travel Grant to attend the First International Conference on Research in Engineering Education*, $1,168, 2007.
- R. Dave, L. Simon, and J. Carpinelli (I), National Science Foundation, *An RET Program for C-SOPS*, $80,000, 2007.
- R. Rockland, J. Carpinelli (CP) and H. Kimmel, National Science Foundation, *Medibotics: The Merging of Medicine, Robotics, and IT*, $1,050,815, 2007-2010.
- J. Carpinelli (PI) and D. Misra, National Science Foundation, *An REU Site for Computer Networking and Security*, $300,000, 2006-2009.

- V. Briller, E. Deess, and J. Carpinelli(I), CARANA Corporation (subcontract under USAID grant), *EdNet*, $60,000, 2004-2007.
- J. Carpinelli (PI), National Science Foundation, *Gateway Engineering Education Coalition Supplemental Extension Subcontract*, $66,043, 2003.
- J. Carpinelli (PI), National Science Foundation, *Gateway Engineering Education Coalition No-cost Extension Subcontract*, $144,367, 2002-2003
- J. Carpinelli (PI) National Science Foundation, *Gateway Engineering Education Coalition Year 10 Subcontract*, $203,471, 2001-2002.
- J. Carpinelli (PI), National Science Foundation, *Travel Grant to Attend the 2001 International Conference on Engineering Education*, $800, 2001.
- J. Carpinelli (PI), New Jersey Commission on Higher Education (NJI-TOWER subcontract), *Development of an Honors Distance Learning Course in Computer Architecture*, $4,500, 2001.
- J. Carpinelli (PI) National Science Foundation, *Gateway Engineering Education Coalition Year 9 Subcontract*, $230,472, 2000-2001.
- J. Carpinelli (PI) and A. Lambiase, Altera Corporation, *Altera University Program,* $70,000, 2000.
- A. Perna and J. Carpinelli (CP), National Science Foundation, *Gateway Engineering Education Coalition Year 8 Subcontract - Information Technology*, $16,936, 1999-2000.
- J. Carpinelli (PI), NJIT Provost's Challenge Grant, *Enhancement of a Microprocessor Simulator for Undergraduate Computer Architecture Students,* $10,000, 1999.
- J. Carpinelli (PI) and A. Lambiase. Altera Corporation, *Altera University Program,* $176,153, 1999.
- A. Perna and J. Carpinelli (CP), National Science Foundation, *Gateway Engineering Education Coalition Year 7 Subcontract - Information Technology*, $20,494, 1998-1999.
- J. Carpinelli (PI) and A. Lambiase, Altera Corporation, *Altera University Program,* $65,170, 1997-1998.
- J. Carpinelli (PI), National Science Foundation (Gateway Engineering Education Coalition), *Implementation of Asynchronous Learning Networks in an Undergraduate Computer Architecture Course*, $26,442, 1997-1998.
- R. Hiltz, A. Lippel, J. Carpinelli (CP), et. al. *From Virtual Classroom® to Virtual University: Institutionalizing Asynchronous Learning Networks at NJIT,* $450,000, Alfred P. Sloan Foundation, 1997-1999.
- J. Carpinelli (PI). *Altera Development Tools for Higher Education Program, Phase II+,* $5,000, Altera Corporation, 1995.
- J. Carpinelli (PI). *Altera Development Tools for Higher Education Program, Phase III,* $207,000, Altera Corporation, 1994-1995.
- J. Carpinelli (PI). *Altera Development Tools for Higher Education Program, Phase II*, $4,000, Altera Corporation, 1993.
- J. Carpinelli (PI). *Altera Development Tools for Higher Education Program, Phase I*, $42,000, Altera Corporation, 1992.
- Y. Bar-Ness, J. Carpinelli (CP), et. al. *Proposal Preparation for Mobile Detection Assessment Response System (MDARS) Communication and Control Subsystem (CCSS)*, $9,500, Picatinny Arsenal, 1991.
- J. Carpinelli (PI) and P. Engler. *Computerized Registry for the BICU*, $1,500, St. Barnabas Hospital, Burn Unit, 1991.
- J. Carpinelli (CP) and S Reisman. *Stress Distribution*, $6,531, UMDNJ, 1989.
- J. Carpinelli (PI). *Intel Microprocessor Development System* (equipment donation), $14,050, Bellcore, 1988.
- J. Carpinelli (PI) and S. Rosenstark. *Programmable Array Logic System*, Excellence Initiative, $15,000, 1987.

Peer reviewing activity

- Referee for several journals and conferences, including:
  - *ASEE Journal of Engineering Education*
  - *ASEE Annual Conference*
  - *IEEE Transactions on Parallel and Distributed Systems*
  - *IEEE Transactions on Computers*
  - *IEEE Transactions on Communications*
  - *IEEE/ACM Transactions on Networking*
- Textbook reviewer for HBJ-Saunders, John Wiley, Inc., and Pearson Education.

Professional Societies

- Member, International Network for Engineering Education Researchers (iNEER)
  - Secretary, iNEER Awards Committee (2004 – 2011)
- Senior Member, IEEE
- Senior Member, IEEE Education Society
- Senior Member, IEEE Computer Society
- Member, ASEE
  - NJIT Campus Representative (2006 – present)
  - Member, ASEE K-12 Division Publication Committee (2014 – 2015)
  - Member, ASEE K-12 Division Business Meeting Planning Committee (2012)
  - Member, ASEE K-12 Division Elections Committee (2012)

Other activities

- Session Chair for *K-12 Engineering Resources: Best Practices in Curriculum Design (Part 1)*, ASEE Annual Conference, New Orleans, LA, June 2016.
- Session facilitator, *When Students Don't All Learn the Same Way: Addressing the Variety of Learning Styles in the Classroom*, ITE May 2016 Workshop and ITE August 2016 Workshop, NJIT.
- Brown-bag lunch session facilitator for *The Different Styles of Learning*, NJIT, November 16, 2015.
- External Reviewer, Department of Electrical and Computer Engineering, University of Nevada at Las Vegas, 2015.
- Session Chair for *Mobile Devices and Apps*, ASEE Annual Conference, Seattle, WA, June 2015.
- Session Chair for *Engineering Resources: Best Practices in Curriculum Design, Part 1 of 2*, ASEE Annual Conference, Indianapolis, IN, June 2014.
- Member, Advisory Board, *NEURON REU Program*, 2011-2014
- NJIT ASEE Campus Representative (2007 – present)
- Session Chair for *Research Related to Learning and Teaching Engineering in Elementary Classrooms*, ASEE Annual Conference, Vancouver, BC, Canada, June 2011
- Session Chair for *Engineering Professional Development for K12 Teachers*, ASEE Annual Conference, Pittsburgh, PA, June 2008
- Session Chair for *Engineering Research Methods Division Poster Session*, ASEE Annual Conference, Pittsburgh, PA, June 2008
- Member, ASEE Middle Atlantic Section Spring 2007 Conference Planning Committee
- Secretary and Member, Awards Committee, International Network of Engineering Education and Research (recused 2007)
- Tournament Director, New Jersey Science Olympiad (NJIT regional), 2007 – present
- Faculty Supervisor, Panasonic Creative Design Challenge, 2007 – present
- Member, ASEE Middle Atlantic Section Spring 2007 Conference Planning Committee
- Session Chair, "Early Engineering Courses," ASEE Middle Atlantic Section Spring 2007 Conference, NJIT, April 2007
- Member, New Jersey Engineering Education Committee

- Reviewer, Junior Engineering Technical Society (JETS) test guide book, 2007.
- Member, New Jersey President's Council Working Group on the American Diploma Project
- Session Organizer and Chair for *Twenty-five Years of Engineering Education, 1992 – 2017*, International Conference on Engineering Education, October 2004, Gainesville, FL
- Session Organizer and Chair for *Discussion Panel – Writing a Textbook*, Frontiers in Education Conference, November 2003, Westminster, CO
- Session Chair for *Computer Architecture Education*, Frontiers in Education Conference, November 2003, Westminster, CO
- Session Organizer and Chair for *Engineering Education Coalitions - a Retrospective*, International Conference on Engineering Education, August 2002, Manchester, UK
- Session Chair for *Advanced Classroom Techniques 2*, Frontiers in Education Conference, October 2001, Reno, NV
- Session Organizer for *Engineering Education Coalitions*, International Conference on Engineering Education, August 2001, Oslo, Norway
- Member of the Organizing Committee for *Engineering Education Unbounded: Lifelong Learning Any Time/Any Place,* July 1999, Santa Clara, CA
- Session Chair for *Engineering Education Unbounded: Lifelong Learning Any Time/Any Place,* July 1999, Santa Clara, CA
- Session Chair for the *1995 Conference on Information Sciences and Systems,* March, 1995, Johns Hopkins University, Baltimore, MD
- Member of the Program Committee for the *ASEE Fall 1993 Middle Atlantic Section Meeting*, November, 1993, New Jersey Institute of Technology
- Session Organizer and Chair: *The Partners in Learning Program*, presented at the *ASEE Fall 1993 Middle Atlantic Section Meeting*, November, 1993, New Jersey Institute of Technology