

NEBOJSA I. JAKSIC, Ph.D., P.E.
Professor and MS Mechatronics Engineering Program Director
Colorado State University - Pueblo

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EDUCATION:

- **Doctor of Philosophy, Industrial and Systems Engineering**, March 2000 The Ohio State University, Columbus, Ohio Ph.D. Dissertation: Programmable Air-Jet Tooling for Vibratory Bowl Feeder Systems; Area of Specialization: robotics and automation
- **Master of Science, Industrial and Systems Engineering**, 1992 The Ohio State University, Columbus, Ohio MS Thesis: A Study of the Touching and Overlapping Parts Problem in a Sensor Based Vibratory Bowl Feeder; Area of Specialization: robotics and automation
- **Master of Science, Electrical Engineering**, 1988 The Ohio State University, Columbus, Ohio MS Thesis: Fast Smooth Cyclical Motion of the Prototype Leg; Area of Specialization: robotics
- **Master of Science (Dipl. Ing.), Electrical Engineering**, 1984 Belgrade University, Belgrade, Yugoslavia Thesis: Computer-Aided Selection of DC Motors for Robotics Applications Area of Specialization: robotics - power

EXPERIENCE:

- 8/18 – present **Professor of Engineering and MS in Mechatronics Engineering Program Director**
- 8/10 – 7/18 **Professor of Engineering and Mechatronics Programs Director**
Colorado State University - Pueblo, Engineering Department, Pueblo, Colorado
 - Responsible for teaching and developing courses in CIM, Automation, Manufacturing, Mechatronics, Robotics, and Nanotechnology
 - Responsible for strategic planning, assessment, accreditation activities, and day-to-day operations of the Mechatronics Programs (BSE-Mechatronics and MSE-Mechatronics)
- 1/13 – 5/13 and 1/06-5/06 **Acting Department Chair** Colorado State University - Pueblo, Engineering Department, Pueblo, Colorado
- 8/03- 5/10 **Associate Professor of Engineering, Graduate Program Director** (8/03-7/07 and 8/09-12/09), and Mechatronics Programs Director (8/07 – 7/10)
Colorado State University - Pueblo, Engineering Department, Pueblo, Colorado
 - Taught and developed courses in CIM, Automation, Manufacturing, Mechatronics, Robotics, and Nanotechnology
 - (8/03-7/07 and 8/09-12/09) Performed strategic planning, assessment, and day-to-day operations of the Graduate Engineering Program

- (8/07 – 7/10) Performed strategic planning, assessment, accreditation activities, and day-to-day operations of the Mechatronics Program.
- Performed research in nanotechnology.
- 8/00-7/03 **Assistant Professor of Engineering**
Colorado State University - Pueblo, Engineering Department, Pueblo, Colorado
 - Performed research in emerging manufacturing technologies.
 - Taught and developed courses in CIM, Automation, Manufacturing, Robotics, and Nanotechnology.
- 6/92-7/00 **Adjunct (92-94), Assistant (94-97), Associate (97-00) Professor of Electrical Engineering Technology** DeVry Institute of Technology, Electronics Engineering Technology Department, Columbus, Ohio
 - Taught and developed hands-on courses in Industrial Controls, Analog Controls, Digital Controls, Analog Signal Processing, Electronic Communications, Computer Networks, Digital Electronics, Electronic Devices, and Electronics Fundamentals
- 1/92 – 4/92 **Graduate Teaching Associate**, The Ohio State University, Columbus, Ohio
 - 9/95 – 12/97 Industrial and Systems Engineering Department
 - Taught an industrial automation lab course and a manufacturing lab course using PLCs, pneumatics and hydraulics.
- 9/85-12/90 **Graduate Research Associate**, The Ohio State University, Columbus, Ohio
Geology Department:
 - Maintained geophysics DEC based computer network
 - Ported software package VICAR from SUNs running UNIX and X11 Windows to DEC workstations running ULTRIX and DECWindows
- Instruction and Research Computer Center:
 - Developed software for SONNET using C and AWK in UNIX environment
 - Implemented and tested modems, SLIP terminal servers, X11 Windows etc.
 - Installed an environmental monitoring system for the CRAY Y/MP supercomputer
- Computer and Information Sciences Department:
 - Maintained a computer network consisting of SUNs, Pyramids and Macintoshes
 - Assisted customers and performed backups for network file servers
- Electrical Engineering Department:
 - Using multiprocessor computer architecture, developed control algorithms for high-speed applications of hydraulic actuators for the Prototype Leg – one of the six legs of a car-size autonomous walking vehicle

CONSULTING:

- James Croshal, Attorney at Law, Pueblo, CO Investigated accidents involving low-speed car crashes
- Health Care Logistics, Circleville, OH Developed and implemented an electromagnetic latch assembly with associated computer interface for a set of drawers used for drug delivery in hospitals
- The Ohio State University, CIS Department,
Designed, installed and performed tests on an Asynchronous Transfer Mode (ATM) pilot network

- Banc One Services Corporation, Columbus, Ohio
As an independent contractor successfully implemented a system for equipment recovery, testing, reuse and inventory control resulting in total savings of over \$1,000,000.00 to the customer
- Society of Manufacturing Engineers
Edited, published and distributed the Columbus Chapter SME monthly bulletin

PUBLICATIONS:

REFEREED JOURNAL ARTICLES:

1. N. I. Jaksic, "Pair-to-Pair Peer Learning in a Lab Environment," *Journal of Higher Education Theory and Practice*, pp. 134-143, Vol. 20(9), 2020. – Previous version presented at 2020 ASEE Virtual Annual Conference) <https://doi.org/10.33423/jhetp.v20i9.3645>
2. B. Ansaf and N. Jaksic, "Simulation and Interactive Digital Tools to Support Teaching Engineering Manufacturing Processes Course," *Computers in Education Journal*. Vol. 11, no. 2, 2020.
3. N. Jaksic and P. Desai, "Characterization of Capacitive Elements Created by Fused Filament Fabrication using Electrically-Conductive Filament," *Procedia Manufacturing* 38, pp. 33-41, *FAIM 2019, 29th International Conference on Flexible Automation and Intelligent Manufacturing*, Limerick, Ireland, June 24-28, 2019.
4. H. Sarper and N. Jaksic, "Simulation of the Stochastic One-Dimensional Cutting Stock Problem to Minimize the Total Inventory Cost," *Procedia Manufacturing* 38, pp. 916-923, *FAIM 2019, 29th International Conference on Flexible Automation and Intelligent Manufacturing*, Limerick, Ireland, June 24-28, 2019.
5. N. Jaksic and P. Desai, "Characterization of Resistors Created by Fused Filament Fabrication using Electrically-Conductive Filament," *Procedia Manufacturing* 17, pp. 37-44, *FAIM 2018, 28th International Conference on Flexible Automation and Intelligent Manufacturing*, Columbus, OH, June 10-14, 2018.
6. H. Sarper and N. Jaksic, "Evaluation of Procurement Scenarios in One-Dimensional Cutting Stock Problem with a Random Demand Mix," *Procedia Manufacturing* 17, pp. 827-834, *FAIM 2018, 28th International Conference on Flexible Automation and Intelligent Manufacturing*, Columbus, OH, June 10-14, 2018.
7. B. Ansaf, T. H. Duong, N. Jaksic, J. L. DePalma, A. H. Al-Allaq, B. M. Deherrera, and B. Li, "Influence of Temperature and Humidity on Electromechanical Characteristics of Ionic Polymer-Metal Composite Actuators," *Procedia Manufacturing* 17, pp. 960-967, *FAIM 2018, 28th International Conference on Flexible Automation and Intelligent Manufacturing*, Columbus, OH, June 10-14, 2018.
8. T. H. Duong, N. Jaksic, J. L. DePalma, B. Ansaf, D. M. Daniel, J. Armijo, and M. Galaviz, "G-code Visualization and Editing Program for Inexpensive Metal 3D Printing," *Procedia Manufacturing* 17, pp. 22-28, *FAIM 2018, 28th International Conference on Flexible Automation and Intelligent Manufacturing*, Columbus, OH, June 10-14, 2018.
9. N. Jaksic, N. D'Angelo, and G. Vigano, "Inexpensive Metal 3D Printers in Engineering Education: The Revolution Continues," *Transactions on Techniques in STEM Education*,

Vol. 2, No. 3 April-June 2017, pp. 100-110, revised and edited version of the paper with the same title presented at *2016 ASEE Rocky Mountain Section Conference*. (Received Best Paper Award for April – June 2017 Issue)

10. N. Jaksic, "Novel Experiential Learning Practices in Engineering Education Based on Inexpensive 3D Printers," *Computers in Education Journal*, Vol. 5, No. 4, pp. 2-17, October-December 2014. (Received *2014 Merl K. Miller Award* for the outstanding journal article)
11. N. Jaksic, "Learning Nanotechnology through Experimentation: Carbon Nanotube Manufacturing using an Electric Discharge Machine," *Nanotechnology Reviews*, Vol. 1, Issue 3, pp. 281-287, June 2012.
12. D. Spencer and N. Jaksic, "A Multidisciplinary Robotics Learning Environment: What Mindstorms and DARPA Urban Challenge have in Common," *Computers in Education Journal, Special issue on Novel Approaches to Robotics Education*, Vol. 1/3, pp. 32-40, July – September, 2010.
13. J. M. Fraser, N. Jaksic, D. Yuan, W. A. Bloxsom, J. DePalma, H. Sarper, and E. K. Sinkhorn. "An Engineering Capstone: The Class as a Job." *Creative College Teaching Journal, Capstone Issue*, Vol. 5, No. 1, pp. 23 – 32, Fall 2009.
14. N. Jaksic and D. Spencer, "Multidisciplinary Robotics Experiment: LEGO Mindstorms NXT Bluetooth Convoy," *International Journal of Modern Engineering*, Vol. 10, No. 1, pp. 5 – 10, Fall/Winter 2009.
15. N. Jaksic and C. Salahifar, "A Feasibility Study of Electrochromic Windows in Vehicles," *Solar Energy Materials & Solar Cells*, Vol. 79/4 pp 409-423, 2003.
16. N. Jaksic and G. Maul, "Flexible Air-Jet Tooling for Vibratory Bowl Feeder Systems," *International Journal of Flexible Manufacturing Systems*, Vol. 14, No 3, pp. 227-248, July 2002.
17. N. Jaksic and G. Maul, "Development of a Model for Part Reorientation in Vibratory Bowl Feeders with Active Air Jet Tooling", *Robotics and Computer Integrated Manufacturing*, Vol. 17/1-2, pp. 145-149, 2001.
18. G. Maul and N. Jaksic, "Sensor-Based Solution to Contiguous and Overlapping Parts in Vibratory Bowl Feeders", *Journal of Manufacturing Systems*, Vol. 13, No. 13, pp. 190-195, 1994.
19. V. Potkonjak and N. Jaksic, "A Contribution to Computer-Aided Choice of DC Motors for Manipulation Robots," *Robotica*, UK, Vol. 4, pp. 37-41, Jan. - Mar. 1986.

OTHER REFEREED ARTICLES

20. N. Jaksic, "Pair-to-Pair Peer Learning," *2020 ASEE Virtual Annual Conference*, June 21-26, 2020. Paper ID # 31373
21. H. Sarper, N. Jaksic, Ben J. Stuart, and Karina Arcaute, "Assessment and Applications of the Conversion of Chemical Energy to Mechanical Energy using Model Rocket Engines," *2020 ASEE Annual Conference, Virtual Conference*, June 21-26, 2020. Paper ID # 28577

22. A. Al-Allaq and N. Jaksic, "Modeling and Simulation of a Superconductive Linear Motor," *ASME 2019 International Mechanical Engineering Congress and Exposition*, Salt Lake City, UT, Nov. 11-14, 2019. Technical Paper Publication. DOI: 10.1115/IMECE2019-10083
23. A. Al-Allaq, N. Jaksic, B. Ansaf, J. DePalma, and D. Trung, "Modified Nernst-Planck-Poisson Model for IPMC With Back-Relaxation Effects," *ASME 2019 International Mechanical Engineering Congress and Exposition*, Salt Lake City, UT, Nov. 11-14, 2019. Technical Paper Publication. DOI: 10.1115/IMECE2019-10084
24. N. Jaksic, "A Life of a Lab from Need to Retirement: A Case Study in Automation," *2019 ASEE Annual Conference*, Tampa, FL, June 15-19, 2019. Paper ID # 25173
25. B. Ansaf and N. Jaksic, "Teaching Undergraduate Manufacturing Course using Design-based Teaching Approach," *2019 ASEE Annual Conference*, Tampa, FL, June 15-19, 2019. Paper ID # 25162
26. H. Sarper, D. Landman, N. Jaksic, B. J. Stuart, J. T. Zongolowicz, and L. Vahala, "Impulse Calculation of Model Rocket Engines," *2019 ASEE Annual Conference*, Tampa, FL, June 15-19, 2019. Paper ID # 25051
27. T. Duong and N. Jaksic, "Let's not throw away that big and bulky manipulator - Revitalize it!," *2018 ASEE Annual Conference*, Salt Lake City, UT, June 24-27, 2018. Paper ID # 23606
28. H. Sarper and N. Jaksic, "Manufacturing Applications of the One-Dimensional Cutting Stock Problem as a Team Project," *2018 ASEE Annual Conference*, Salt Lake City, UT, June 24-27, 2018. Paper ID # 21138
29. B. Ansaf and N. Jaksic, "Teaching Mechanical Design for Mechatronics Engineering students using Project-Based Sequential Learning Approach," *2018 ASEE Annual Conference*, Salt Lake City, UT, June 24-27, 2018. Paper ID # 21296
30. N. Jaksic and B. Ansaf, "Inexpensive Digital Light Processing 3D Printers in Undergraduate Engineering Labs," *2018 ASEE Annual Conference*, Salt Lake City, UT, June 24-27, 2018. Paper ID # 23911
31. N. Jaksic, "A Virtual Reality Course using EON Reality: Students' Experiences," *2018 ASEE Annual Conference*, Salt Lake City, UT, June 24-27, 2018. Paper ID # 23858
32. N. Jaksic and T. Duong, "Teaching an old Robot New Tricks," *2018 ASEE Zone IV Conference*, Boulder, CO, March 25-27, 2018. Paper ID # 24080
33. N. Jaksic, B. Li, B. Maestas, and K. Rothermal, "Dancing Humanoid Robots Lab Demonstration for the First Year Engineering Students," *2017 ASEE Annual Conference*, Columbus, OH, June 25 – 28, 2017. Paper ID # 18989
34. N. Jaksic and B. Li, "Humans vs. Robots – Workout Challenge," *2017 ASEE Annual Conference*, Columbus, OH, June 25 – 28, 2017. Paper ID # 18986
35. H. Sarper, N. Jaksic, and L. Vahala, "Metal Cutting and Manufacturing Economics Project for Freshmen," *2017 ASEE Annual Conference*, Columbus, OH, June 25 – 28, 2017. Paper ID # 17761

36. A. Djouadi and N. Jaksic, "Resolving Cyclic Ambiguities and Increasing Accuracy and Resolution in DOA Estimation Using Array Rotation," *Third International Conference on Signal and Image Processing (SIPRO 2017)*, Published in *Computer Science & Information Technology - Computer Science Conference Proceedings* series, Vol. 7, No. 2, pp. 121-138, January 28-29, 2017, Dubai, UAE. DOI: 10.512/csit.2017.70212
37. N. Jaksic, N. D'Angelo, and G. Vigano, "Inexpensive Metal 3D Printers in Engineering Education: The Revolution Continues," *2016 ASEE Rocky Mountain Section Conference*, Cedar City, UT, pp. 23 – 34, Sept. 30 – Oct. 1, 2016.
38. N. Jaksic, "Sustainable Undergraduate Engineering 3D Printing Lab," *2016 ASEE Annual Conference and Exhibition*, New Orleans, LA, June 26 - 29, 2016. Paper ID #16338
39. N. Jaksic, "MAKER: 3D-Printing Evolution in Engineering Education: The Things we make," *2016 ASEE Annual Conference and Exhibition*, New Orleans, LA, June 26-29, 2016. Paper ID #16253
40. Jane. M. Fraser, Leonardo Bedoya-Valencia, Jude L. DePalma, Ding Yuan, Nebojsa I. Jaksic, Ananda Mani Paudel, and Hüseyin Sarper. "Integration of Sustainability in a Multidisciplinary Engineering Department." *2015 ASEE Annual Conference & Exposition*, Seattle, WA, June 14 – 17, 2015.
41. N. Jaksic, "When 3D-printers go Wrong: Laboratory Experiences," *2015 ASEE Annual Conference and Exhibition*, Seattle, WA, June 14-17, 2015.
42. N. Jaksic, "BYOE: Using 3D Pens for Enhancement and Rework of 3D-Printed Parts," *2015 ASEE Annual Conference and Exhibition*, Seattle, WA, June 14-17, 2015.
43. N. Jaksic, J. DePalma, P. Desai, and R. Van Deest, "3D-Printed Smart Lamp Workshop," *2015 ASEE Annual Conference and Exhibition*, Seattle, WA, June 14-17, 2015.
44. N. Jaksic, "Post-processing 3D-printed Plastic Objects: Laboratory Tools, Techniques, and Experiences," *2015 ASEE Rocky Mountain Section Conference*, Denver, CO, pp. 27-34, April 10-11, 2015.
45. N. Jaksic, "New Inexpensive 3D Printers Open Doors to Novel Experiential Learning Practices in Engineering Education," *2014 ASEE Annual Conference and Exhibition*, Indianapolis, IN, June 15-18, 2014.
46. J. Fraser, N. Jaksic, H. Sarper, J. DePalma, D. Yuan, L. Bedoya, and A. Paudel, "Integration of Sustainability in a Multidisciplinary Engineering Department," *2014 ASEE Annual Conference and Exhibition*, Indianapolis, IN, June 15-18, 2014.
47. N. Jaksic, "A Brainwriting Exercise on Improving Engineering Programs," *2014 ASEE Zone IV Conference*, Long Beach, CA, April 24-26, 2014.
48. D. Yuan, N. Jaksic, and J. DePalma, "LEGO Mindstorms: EV3 versus NXT 2.0 A Laboratory Study in an Introduction to Engineering Course," *2014 ASEE Zone IV Conference*, Long Beach, CA, April 24-26, 2014.
49. D. Dillon, H. Sarper, N. Jaksic, and J. DePalma, "A Multi-year Student Project: Demonstration of Production of Necessary Gases for Return from and Survival on Mars - Automated Methane, Oxygen, and Hydrogen Production Using a Solar Powered

- Electrolysis Tank and a Table Top Sabatier Reactor,” *2014 ASEE Zone IV Conference*, Long Beach, CA, April 24-26, 2014.
50. N. Jaksic, “DaNI-K: A Vision-based Robot Control Experiment with a DaNI Robot and Kinect Sensor,” *2013 ASEE Annual Conference and Exhibition*, Atlanta, GA, June 23-26, 2013.
 51. J. Fraser, H. Sarper, J. DePalma, N. Jaksic, D. Yuan, L. Bedoya-Valencia, and A. Paudel, “Community Outreach and Engagement through Sustainability,” *2013 ASEE Annual Conference and Exhibition*, Atlanta, GA, June 23-26, 2013.
 52. A. Paudel, N. Jaksic, R. Florom, J. Fraser, and T. McGettigan, “*The Role of Engineering Education in Building Workforce Capacity for the Railroad Industry*,” 2013 ASEE Rocky Mountain Section Conference, pp. 135-144, Pueblo, CO, March 29-30, 2013.
 53. N. Jaksic, H. Sarper, J. Fraser, J. DePalma, D. Yuan, L. Bedoya-Valencia, and A. Paudel, “*Synergy between MSISE and MSE Curricula at Colorado State University-Pueblo*,” 2013 ASEE Rocky Mountain Section Conference, pp. 127-134, Pueblo, CO, March 29-30, 2013.
 54. N. Jaksic and D. Yuan, “*All Aboard: Engineers for an MS in Railroad Engineering*,” 2013 ASEE Rocky Mountain Section Conference, pp. 92-99, Pueblo, CO, March 29-30, 2013.
 55. N. Jaksic, “*A Mechatronics Experiment: Introduction to Linear Motors*,” 2012 ASEE Annual Conference and Exhibition, San Antonio, TX, June 10-13, 2012.
 56. L. Bedoya-Valencia and N. Jaksic, “*An Exercise for Improving the Modeling Abilities of Students in an Operations Research Course*,” 2012 ASEE Annual Conference and Exhibition, San Antonio, TX, June 10-13, 2012.
 57. N. Jaksic, J. Fraser, and D. Yuan, “*The Rise of the Intelligent Machines Masters: An MS Mechatronics Program*,” 2012 ASEE RMS Conference, Ogden, UT, March 2-3, 2012.
 58. H. Sarper, J. DePalma, A. Gabaldon, N. Jaksic, P. Wallace, and S. Trevithick, “*Design, Construction, and Operation of a Three Point Bending Tester Machine to Evaluate the Strength of Rat Bones*,” 2012 ASEE RMS Conference, Ogden, UT, March 2-3, 2012.
 59. N. Jaksic, “*S-Field Analysis Innovation Method Exercise in a Computer-Integrated Manufacturing Course*,” 2011 ASEE Annual Conference and Exhibition, Vancouver, Canada, June 26-29, 2011.
 60. D. Yuan, J. DePalma, N. Jaksic, and J. Fraser, “*A Learning Community for First-Year Engineering Courses*,” 2011 ASEE Annual Conference and Exhibition, Vancouver, Canada, June 26-29, 2011.
 61. L. Bedoya-Valencia and N. Jaksic, “*Improving the Modeling Capabilities of Students in an Operations Research Course*,” 2011 ASEE Rocky Mountain Section Conference, Rapid City, SD, April 15-16, 2011.
 62. N. Jaksic and C. Buesch, “*Automated Production of Nanocomposites with Carbon Nanotubes*,” 2010 Flexible Automation and Intelligent Manufacturing Conference, pp. 744-751, Hayward, CA, July 12-14, 2010.
 63. N. Jaksic, “*Teaching PLCs using the Kolb Learning Cycle*,” 2010 ASEE Annual Conference and Exhibition, AC 2010-2249, Louisville, KY, June 20 – 23, 2010 – Peer reviewed

64. D. Spencer and N. Jaksic, "Flexible CIS Laboratory Environment Employing Multi-boot and Virtual Computing," 2010 ASEE Annual Conference and Exhibition, Louisville, KY, June 20 – 23, 2010 – Peer reviewed
65. N. Jaksic, J. Piquette, M. Druelinger, D. Lehmpuhl, H. Caprioglio, J. Cho, P. Chacon, and M. Mincic, "Maturing of a Multidisciplinary Cohort of STEM Scholars: Year Three," 2010 ASEE Zone IV Conference, pp. 121-131, Reno, NV, March 25-27, 2010 – Peer reviewed.
66. D. Yuan, J. DePalma, and N. Jaksic, "A Learning Community for First-Year Engineering Courses," 2010 ASEE Zone IV Conference, pp. 44-47, Reno, NV, March 25-27, 2010, Work in Progress – Peer reviewed.
67. N. Jaksic and G. Mohandass, "An Experimental Analysis of Bernoulli-type End Effectors for Contact Manipulation of Irregularly Shaped Objects," 2009 Flexible Automation and Intelligent Manufacturing Conference, pp. 444-451, Middlesbrough, UK, July 6-8, 2009.
68. N. Jaksic and D. Spencer, "A Manufacturing Processes Laboratory: What Book-Making and Sheet-Metalworking have in Common," 2009 ASEE Annual Conference and Exhibition, Austin, TX, June 14-17 2009.
69. D. Yuan, N. Jaksic, and J. M. Fraser, "Start Earlier, Prepare Better: An Engineering Senior Seminar Course," 2009 ASEE Annual Conference and Exhibition, Austin, TX, June 14-17 2009.
70. H. Sarper, N. Jaksic, and S. Imam, "Lander Design Project for Autonomous Rovers," *Proceedings of 2009 ASEE Rocky Mountain Section Annual Conference*, Orem, UT, April 10-11, 2009. (Received the Best Paper Award)
71. N. Jaksic, E. K. Sinkhorn, M. Druelinger, D. Lehmpuhl, H. Caprioglio, Y. Long, P. Chacon, M. Mincic, J. Mclean, J. Borton, and J. Piquette, "Multidisciplinary Cohorts of STEM Scholars: Challenges and Rewards," *Proceedings of 2009 ASEE Rocky Mountain Section Annual Conference*, Orem, UT, April 10-11, 2009.
72. N. Jaksic, "A Nanotechnology Experiment for Undergraduate Engineering Programs: Carbon Nanotube Production using Electric Discharge Machining," *Proceedings of 2008 ASEE Annual Conference*, Pittsburgh, PA, June 22-25, 2008.
73. N. Jaksic and D. Spencer, "A Multidisciplinary Laboratory Course: Robotic Design and Programming with Mindstorms," *Proceedings of 2008 ASEE Annual Conference*, Pittsburgh, PA, June 22-25, 2008.
74. N. Jaksic, "A Manufacturing Laboratory: Book Making," *Proceedings of 2008 ASEE Rocky Mountain Section Annual Conference*, pp. 103-114, Pueblo, CO, April 18-19, 2008.
75. D. Yuan, N. Jaksic, and J. M. Fraser "A Senior Seminar Engineering Course," *Proceedings of 2008 ASEE Rocky Mountain Section Annual Conference*, pp. 36-41, Pueblo, CO, April 18-19, 2008.
76. J. M. Fraser, W. A. Bloxsom, J. DePalma, N. Jaksic, H. Sarper, E. K. Sinkhorn, and D. Yuan, "The Capstone Course as a Real Job," *Proceedings of 2008 ASEE Rocky Mountain Section Annual Conference*, pp. 42-46, Pueblo, CO, April 18-19, 2008.
77. N. Jaksic and D. Spencer, "An Introduction to Mechatronics Experiment: LEGO Mindstorms NXT Urban Challenge," 2007 ASEE Annual Conference, Honolulu, HI, June 24-27, 2007.

78. N. Jaksic and D. Spencer, "Mini Urban Challenge using LEGO Mindstorms NXT Autonomous Robots," *Robotica 2007*, The 7th Conference on Mobile Robots and Competitions, Paderne, Algarve, Portugal, April 27, 2007.
79. N. Jaksic and G. Mohandass, "A Nanotechnology Experiment: Carbon Nanotube Synthesis in Electric Discharge Machines," *Proceedings of ASEE Rocky Mountain Section Annual Conference*, Provo, UT, April 20-21, 2007.
80. N. Jaksic, "A Nanotechnology Experiment: Design of Low Cost Scanning Tunneling Microscopes," *2006 ASEE Annual Conference*, Chicago, IL, June 18-21, 2006. (Received the Best Paper Award from the Division of Experimentation and Laboratory Oriented Studies)
81. N. Jaksic, "A Design-Based Nanotechnology Course for Undergraduate Industrial Engineering Students," *2006 Annual Industrial Engineering Research Conference*, Orlando, FL, May 20-24, 2006.
82. N. Jaksic, G. Mohandass, and B. Unruh, "Health Risks in Multiwall Carbon Nanotube Production Using Arc Discharge in Liquid Nitrogen," *2006 Annual Industrial Engineering Research Conference*, Orlando, FL, May 20-24, 2006.
83. N. Jaksic, J. Fraser, H. Carrasco, J. DePalma, E. K. Sinkhorn, and H. Sarper, "Synergy between Industrial Engineering and Mechatronics Curricula at Colorado State University – Pueblo," *2006 Annual Industrial Engineering Research Conference*, Orlando, FL, May 20-24, 2006.
84. N. Jaksic, "Improving Self-Efficacy in Engineering Students using PLC Based Traffic Light Experiments," *2002 American Society for Engineering Education Annual Conference and Exposition Proceedings*, Montreal, Canada, June 17-19, 2002.
85. N. Jaksic and G. Maul, "Orienting Parts in a Plane Parallel to the Bowl Wall in Vibratory Bowl Feeders with Active Air Jet Tooling," *Annual Industrial Engineering Research Conference Proceedings*, Dallas, Texas, May 20-22, 2001.
86. N. Jaksic and G. Maul, "Orienting Parts in a Plane Normal to the Track and the Bowl Wall of a Vibratory Bowl Feeder with Active Air-jet Tooling", *Fifth International Conference on Engineering Design and Automation Proceedings*, pp. 97-102, Las Vegas, Nevada, August 5-8, 2001.
87. N. Jaksic and G. Maul, "Empirical Study of Air-Jet Forces in Active Vibratory Bowl Feeder Tooling", *Fourth International Conference on Engineering Design and Automation Proceedings*, pp. 321-326, Orlando, Florida, July 24-26, 2000.
88. G. Maul and N. Jaksic, "Active Air Jet Tooling for Vibratory Bowl Feeders", *Second International Conference on Engineering Design and Automation Proceedings*, Hawaii, August 1998.

CONFERENCE PROCEEDINGS

89. N. Jaksic and M. Szabo, "Design of an Atomic Force Microscope Using NI ELVIS and LabVIEW," *NI Week 2007*, Austin, TX, Paper Contest Finalist in Design R&D Category, August 7-9, 2007.

90. H. Sarper, R. Malhotra, S. Dede, N. Jaksic, D. Lehmpuhl, H. Carrasco, W. Sauer, and P. Wallace, "Use of Biomass and Fly ash in Briquette Production for Power Plants," *Proceedings of the 15th European Biomass Conference and Exhibition*, Paper V3.I.21, pp. 2440-2447, Berlin, Germany, May 7-11, 2007.
91. N. Jaksic, "Nanoscience, Nanoengineering and Nanotechnology Education at Colorado State University – Pueblo," *Proceedings of 2006 Materials Research Society Spring Meeting*, San Francisco, CA, April 17-21, 2006.
92. N. Jaksic and M. Adali, "An Inexpensive Low Voltage Scanning Tunneling Microscope for Undergraduate Laboratories," *NATO-Advance Study Institute (ASI) Nanoengineered Nanofibrous Materials*, Antalya, Turkey, September 1-12, 2003.
93. N. Jaksic, "High-Speed Smooth Cyclical Motion of a Hydraulic Cylinder," *12th International Conference on Flexible Automation and Intelligent Manufacturing 2002, Proceedings*, pp. 846-857, Dresden, Germany, July 15-17, 2002.
94. N. Jaksic, "Generating Smooth Cyclical Motion for a Hydraulic Cylinder," *11th International Conference on Flexible Automation and Intelligent Manufacturing Proceedings*, Vol. 1, pp. 167-176, Dublin, Ireland, July 16-18, 2001.
95. N. Jaksic and G. Maul, "Modeling and Control of an Air-Jet Based Vibratory Bowl Feeder Orienting System", *10th International Conference on Flexible Automation and Intelligent Manufacturing Proceedings*, Vol. 2, pp. 1066-1073, Maryland, June 26-28, 2000.

PATENTS

96. N. Jaksic, "*Methods and Apparatus for Manufacturing Carbon Nanotubes*," U.S. Patent 7,816,619, Issued on Oct. 19, 2010.
97. N. Jaksic, "*Method for Manipulating Objects*," U.S. Patent 7,516,995 B2, Issued on April 14, 2009.

FUNDING:

1. Colorado State University Pueblo, Communities to Build Active STEM Engagement (CBASE), PI, "Course Development – Development and Implementation of Computer-Integrated Manufacturing Labs using ABB IRB120 Industrial Robots with RobotStudio," \$6,000, Spring 2020 – Spring 2021.
2. Colorado State University Pueblo, Communities to Build Active STEM Engagement (CBASE), PI, "Course Development – Development and Implementation of CIM labs using Allen-Bradley Micro 800 Series PLCs," \$6,000, Fall 2018 – Spring 2019.
3. Colorado State University – Pueblo, The Institute of Cannabis Research Grant, PI, "Collaborative Proposal: Study of hemp composite elements as structural members for framing houses," \$35,650, Fall 2018 – Spring 2019.
4. Colorado State University – Pueblo, The Institute of Cannabis Research Grant, PI, "Rheological Characteristics of Hemp-based Filament Composites for 3D Printing," \$106,000, Summer 2018 – Spring 2020.

5. Colorado State University – Pueblo, The Institute of Cannabis Research Grant, PI, “Industrial Hemp Fibers as Reinforcing Agents in 3D-printing Filament Composites – Continuation Grant,” \$65,000, Summer 2017 – Spring 2018.
6. Colorado State University – Pueblo, The Institute of Cannabis Research Grant, PI, “Industrial Hemp Fibers as Reinforcing Agents in 3D-printing Filament Composites,” \$139,657, Fall 2016 - Summer 2017.
7. Colorado State University – Pueblo, Center for Teaching and Learning, PI, “MAESTRO Teaching Innovation Grant: Improvements of a Virtual Reality Lab with HTC Vive for Retention of First-Year and Second-Year Students,” \$913, Fall 2016.
8. Colorado State University – Pueblo, Center for Teaching and Learning, PI, “MAESTRO Teaching Innovation Grant: Development of a Bionic Hand Lab Module for Retention of First-Year and Second-Year Students,” \$835, Fall 2016.
9. Colorado State University – Pueblo, PROPEL, PI, “Development grant for attendance to International Symposium on Automation and Robotics in Construction ISARC2016,” \$2,500, Summer 2016.
10. Faculty Development Grant, PI, “Registration for Certified Manufacturing Engineer Examination,” \$305, Summer 2016.
11. Colorado State University – Pueblo, Center for Teaching and Learning, PI, “MAESTRO Innovation Grant: Development of a Humanoid Robots Lab for Retention of First-Year Students and Further Improvements in Engineering Curricula,” \$4,508, Spring 2016.
12. Colorado State University – Pueblo, Center for Teaching and Learning, PI, “MAESTRO Innovation Grant: Attendance to RAPID: 3D Manufacturing Event,” \$2,600, May 2016.
13. Colorado State University – Pueblo, PI, Students Technology Fee Grant, “3-Dimensional Scanner for Computer-Aided Design and Computer-Integrated Manufacturing Labs,” \$4,985, Fall 2014.
14. Colorado State University – Pueblo, PI, Students Technology Fee Grant, “DaNI 2.0 Robots for Engineering,” \$6,907, Fall 2013.
15. Colorado State University – Pueblo, PI, SEED Grant, “Maintenance of a Scanning Electron Microscope used for Nanotechnology Materials Characterization,” \$5000, Spring 2013.
16. Colorado State University – Pueblo, PI, CO-AMP grant, “Laboratory Materials for the CSU-Pueblo AFM Project,” \$1000, Fall 2012.
17. Colorado State University – Pueblo, PI, CO-AMP grant, “Student Scholarship for the Design of a Quadcopter using a 3-D Printer,” \$1000, Summer 2012.
18. Colorado State University – Pueblo, PI, “Summer Student Research and Scholarly Activities Design of a Low-Cost Atomic Force Microscope,” \$1000, Summer 2012.
19. Colorado State University – Pueblo, PI, Students Technology Fees Grant, “3-Dimensional Printer for Computer-Aided Design and Computer-Integrated Manufacturing Labs,” \$15,030, August 2012.

20. Colorado State University – Pueblo, Professional Developmental Grant, PI,” Registration and Travel Expenses Support for the ASEE 2012 National Conference in San Antonio, TX, \$880, January 2012.
21. Colorado State University – Pueblo, PI, “Summer Student Research and Scholarly Activities Stipend: Carbon Nanotube Manufacturing and Characterization,” \$1,000, May 2011.
22. Colorado State University – Pueblo, Professional Developmental Grant, PI,” Registration and Travel Expenses Support for National Instruments Week 2011, \$1,000, August 2011.
23. Colorado State University – Pueblo, Title V grant, Co-PI, “Laboratory Equipment for the First-Year Engineering Courses,” \$4,600.00, 10/10 -12/10.
24. Colorado State University – Pueblo, PI, Student Technology Fee Committee for “Mechatronics Lab Upgrade with NI ELVIS II+ Workstations,” \$14,974.00, 7/10 – 6/11.
25. National Science Foundation, PI, “Scholarships in Science, Technology, Engineering and Mathematics at CSU-Pueblo,” \$500,000.00, 01/07 – 12/11.
26. Colorado State University – Pueblo, Title V grant, Co-PI, “Laboratory Equipment for the First-Year ‘Introduction to Engineering Course’,” \$7,259.00, January 2009.
27. National Science Foundation, PI, “Travel expenses for Global Nanoscale Science and Engineering Education Workshop 2008,” Arlington, VA, \$1,029.00, November 12-14, 2008.
28. Colorado State University – Pueblo, PI, Internal Grant Proposal – Professional Development Grant, “Acquisition of Five Mindstorms NXT Robotic Kits For Classroom and Outreach Use,” \$1,500.00, 2/08-5/08
29. Advanced Motion Controls, Inc., PI, Equipment grant - Servo Drives 101, “Acquisition of servo drives for mechatronics laboratory,” In-kind, \$9,000, 01/2008.
30. Colorado State University – Pueblo, PI, Student Technology Fee Committee for “Computer Machining Center,” \$19,999.00, 7/05 – 6/06.
31. Colorado State University – Pueblo, PI, Student Technology Fee Committee for “Computer Program LabVIEW for Engineering Laboratory,” \$2,995.00, 7/05 – 6/06.
32. Colorado State University – Pueblo, PI, Faculty Champions 5 for “Laboratory Improvements in Nanotechnology Course Using Polycom ShowStation IP,” \$1,000.00, 1/05 – 8/05.
33. National Science Foundation, PI, Nanotechnology in Undergraduate Education Program for organizing “Nanotechnology in Undergraduate Engineering Education Peer Evaluation Collaborative Workshop,” \$1,900.00, 8/04 – 9/04.
34. National Science Foundation, PI, Nanotechnology in Undergraduate Education Program for “Nanotechnology in Undergraduate Engineering Education,” \$81,318.00, 6/04 – 5/07.
35. Colorado State University – Pueblo, PI, Student Technology Fee Committee for “Mechatronics-based Computer Numerically Controlled Plasma Torch Upgrade Kit,” \$3,614.00, 8/04 – 6/05.
36. Colorado State University – Pueblo, PI, Faculty Champions 4 for “Integrating Web Sources in Industrial Engineering Education,” \$2,500.00, 1/04 – 5/05.

37. University of Southern Colorado, PI, Faculty Scholarly and Creative Activities Grants Committee for “Intelligent Control of Air Jet Based Orienting Devices for High Speed Feeding of Small Parts in Automatic Assembly Applications,” \$2,038.66, 8/02 – 6/03
38. University of Southern Colorado, PI, Scholarly and Creative Activities Grant, for “Application of Portable Computer Instrumentation for Testing Embedded Sensors in Rapid Prototyping Models,” 8/01 – 6/02, \$3,500.00

MEMBERSHIP:

- Institute of Electrical and Electronics Engineers (IEEE), Senior Member (2002 -), Member (1989 – 2001), Columbus Chapter Newsletter Editor (1989,1990)
- Society of Manufacturing Engineers (SME), Senior Member (2002 -), Member (1995 – 2002), Columbus Chapter Newsletter Editor (1995 – 2000), Region 7 Newsletter Editor (1997), Columbus Chapter Secretary (2000)
- American Society for Engineering Education (ASEE), Member (2000 -), Rocky Mountain Section Chair (2007-2008), Division of Experimentation and Laboratory Oriented Studies (DELOS) Program Chair for the 2008 ASEE Annual Conference and Exposition, DELOS Division Chair for the 2009 ASEE Annual Conference and Exposition, Program Chair for 2010 Zone IV Meeting, Section IV Chair (2012 -2014), Member of the Board of Directors (2012-2014)
- Materials Research Society (MRS), Member (2006 -2015)
- Professional Engineer (PE) registered in Colorado (2002 -)
- Phi-Kappa-Phi, Colorado State University – Pueblo Chapter, Member (2009 –)

AWARDS:

- 2019-2020, Colorado State University – Pueblo, *College of Education, Engineering, and Professional Studies Recognition as The Best Faculty Member for 2019/2020 Academic Year*, Received April 30, 2020.
- 2017-2018 Colorado State University – Pueblo, *University Award for Excellence in Scholarly and Creative Activity for 2017/2018 Academic Year*, Received April 12, 2018.
- 2017-2018 *College of Education, Engineering, and Professional Studies Recognition for Excellence in Scholarship/Creative Activity*, Colorado State University - Pueblo, Received March 30, 2018.
- *2017 Best Paper Award, April – June 2017 Issue*, for “Inexpensive Metal 3D Printers in Engineering Education: The Revolution Continues,” *Transactions on Techniques in STEM Education*, Vol. 2, No. 3 April-June 2017, pp. 100-110.
- *2017 ASEE-DELOS Best Paper Award* in recognition of an outstanding contribution titled: “Humans vs. Robots – Workout Challenge,” *2017 ASEE Annual Conference*, Columbus, OH, June 25 – 28, 2017. Paper ID # 18986
- 2015 ASEE, *Computers in Education Division, 2014 Merl K. Miller Award: An annual award for the outstanding Computers in Education Journal paper on Teaching/Instruction for “Novel Experiential Learning Practices in Engineering Education Based on Inexpensive 3D*

Printers,” *Computers in Education Journal*, Vol. 5, No. 4, pp. 2-17, October-December 2014.

- 2014 ASEE, *Honors* for meritorious service as a member of the Board of Directors, Chair Council of Sections, Zone IV, 2012-2014.
- 2014 ASEE Rocky Mountain Section Best Paper Award with N. Yuan and J. DePalma, for contribution entitled “LEGO Mindstorms: EV3 versus NXT 2.0 - A Laboratory Study in an Introduction to Engineering Course,” 2014 ASEE Zone IV Conference, Long Beach, CA, April 24-26, 2014
- 2013-2014 Colorado State University – Pueblo, *College of Education, Engineering, and Professional Studies Outstanding Faculty Award*, Colorado State University – Pueblo, April 21, 2014.
- 2013 ASEE-DELOS Best Paper Award in recognition of an outstanding contribution entitled: “DaNI-K: A Vision-based Robot Control Experiment with a DaNI Robot and Kinect Sensor,” 2013 ASEE Annual Conference and Exhibition, Atlanta, GA, June 23-26, 2013.
- 2012-2013 University Award for Faculty Excellence in Scholarship and Creative Activity, Colorado State University – Pueblo, April 16, 2013.
- 2009 ASEE-RMS Best Paper Award with H. Sarper and S. Imam, for contribution entitled: “Lander Design Project for Autonomous Rovers,” *Proceedings of 2009 ASEE Rocky Mountain Section Annual Conference*, Orem, UT, April 10-11, 2009.
- 2008 Outstanding Service Award in recognition of an outstanding commitment, dedication and service to “DELOS and ASEE” presented at 2008 ASEE Annual Conference and Exposition, Pittsburgh, PA, June 22-25, 2008.
- 2007 Design R&D Paper Category Finalist with Melinda M. Szabo for the application titled: “Design of an Atomic Force Microscope Using NI ELVIS and LabVIEW,” *NI Week 2007*, Austin, TX, August 7-9, 2007.
- 2006 ASEE-DELOS Best Paper Award in recognition of an outstanding contribution entitled: “A Nanotechnology Experiment: Design of Low Cost Scanning Tunneling Microscopes,” 2006 ASEE Annual Conference, Chicago, IL, June 18-21, 2006.
- Society of Manufacturing Engineers Robotics Competition, *First Prize in Robotics Sumo Competition*, Michigan 1995.