

Curriculum Vitae

Jaime A. Camelio, Ph.D.

Rolls-Royce Commonwealth Professor for Advanced Manufacturing
Director of Strategic Industry and State Partnerships – Adv. Manufacturing Initiatives
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EDUCATION

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|--------------|---|----------|
| Ph.D. | Mechanical Engineering, University of Michigan
Advisors: Dr. Jack Hu and Dr. Darek Ceglarek
Dissertation Title: <i>Modeling and Diagnosis of Dimensional Variation for Assembly Systems with Compliant Parts.</i> | Oct 2002 |
| M.S. | Industrial and Operations Engineering, University of Michigan
<i>Tauber Manufacturing Institute Alumni</i> | May 2002 |
| M.S. | Mechanical Engineering, Universidad Católica de Chile
Advisor: Dr. Luciano Chiang
Dissertation: <i>Design of a Robotic System using AC Motors</i> | Dec 1996 |
| B.S. | Mechanical Engineering, Universidad Católica de Chile | Dec 1994 |

EXPERIENCE

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| 12/13 – Present | Rolls-Royce Commonwealth Professor for Advanced Manufacturing
Grado Department of Industrial and Systems Engineering, Virginia Tech <ul style="list-style-type: none">Established a research program based on innovation. My research lab is known for actively working in areas before they become established domains. We were the pioneers working in cyber-physical security in manufacturing, data analytics for quality monitoring, genetic manufacturing systems, etc.Created a research center in innovation-based manufacturing that combined applied research work in manufacturing with entrepreneurial activities.Graduated multiple PhD students, eight of my former students have joined faculty positions around the country, including University of Arizona, Auburn, Wayne State, among others. |
| 04/16 – 07/19 | Chief Technology Officer
Commonwealth Center for Advanced Manufacturing, CCAM <ul style="list-style-type: none">Created a collaborative research strategy that incorporated the needs from universities, industrial partners, and federal agencies. The proposed strategy balances a portfolio between intermediate basic research (TRL 3-4) and application development (TRL 5-7).Increased research expenditures 20% to 40% annually.Recruited 26 additional researchers including talent from top schools in the nation, 50% of the new personnel holds a PhD with technical expertise in machine learning, automation, digital factory, additive manufacturing, and advanced thermal spray coating.Established new project management tools to track utilization, budget and milestone adherence, and members satisfaction. |
| 08/11 – 07/15 | Associate Professor with Tenure
Grado Department of Industrial and Systems Engineering, Virginia Tech |
| 11/14 – 12/16 | Emergency Medical Technician (EMT) - Basic
Blacksburg Volunteer Rescue Squad |

03/11 – 2016	Virginia Tech Director for Manufacturing Systems Member, Industrial Operations Board Commonwealth Center for Advanced Manufacturing, CCAM
07/10 – 07/14	Assistant Department Head and Graduate Program Director Director ICTAS Center for Innovation Based Manufacturing Grado Department of Industrial and Systems Engineering, Virginia Tech
08/08 – 08/11	Assistant Professor Grado Department of Industrial and Systems Engineering, Virginia Tech
07/09 - Present	Visiting Professor, ESE Business School, Universidad de los Andes , Santiago, Chile.
07/08 – 08/08	Visiting Professor, Department of Mechanical Engineering, Pontificia Universidad Católica de Chile , Santiago, Chile.
08/05 – 07/08	Assistant Professor, Department of Mechanical Engineering – Engineering Mechanics, Michigan Technological University
03/04 – 07/05	Consultant, A.T. Kearney Inc. Southfield, MI.
11/03 – 02/04	Assistant Research Scientist, Department of Mechanical Engineering, University of Michigan , Ann Arbor, MI.
10/02 – 10/03	Post Doctoral Research Fellow, Department of Mechanical Engineering, University of Michigan , Ann Arbor, MI.
09/02 – 12/02	Graduate Student Instructor, Department of Mechanical Engineering, University of Michigan , Ann Arbor, MI. Course: ME 588, Assembly Modeling for Design and Manufacturing This course was given for on-campus and off-campus students (via internet).
09/98 – 09/02	Graduate Research Assistant, Department of Mechanical Engineering, University of Michigan , Ann Arbor, MI.
05/02 – 06/02	Visiting Scholar, Chalmers University of Technology , Sweden. Department of Product and Production Development
05/01 – 08/01	Internal Consultant, General Motors Corporation , Warren, MI.
01/96 – 09/98	Full Time Instructor, Department of Mechanical Engineering, Pontificia Universidad Católica de Chile , Santiago, Chile.

RESEARCH INTERESTS

- Intelligent manufacturing systems - design, modeling, analysis, and control of complex systems
- Cyber physical security for manufacturing systems – vulnerability mapping, mitigation technologies.
- Data mining and statistical learning applications for manufacturing processes and systems, process monitoring, diagnosis, prognosis, and control.

HONORS AND AWARDS

- Rolls-Royce Commonwealth Professor for Advanced Manufacturing
- Virginia Tech Faculty Fellow, 2013 – 2015

- 2017 College Award for Outreach Excellence, College of Engineering, Virginia Tech
- 2013 Virginia Tech Illuminator Award – This award is presented to one faculty member who has outstanding abilities, innovative ideas to fuel the future, well-honed leadership skills, and a commitment to service that makes a difference.
- 2013 Virginia Tech Student Engineering Council (SEC) Undergraduate Research Advisor Award
- 2012 Executive Development Institute Scholar, Virginia Tech
- 2010 Outstanding Assistant Professor, College of Engineering, Virginia Tech
- 2007 Society of Manufacturing Engineering - Outstanding Young Manufacturing Engineer Award
- 2001 Best Paper Award from the ASME Design Engineering Technical Conference (This award was granted to a single paper selected among 64 papers in the area of design for manufacturing presented during the 2001 ASME Design Technical Engineering Conferences in Pittsburgh, PA).
- Chilean Government Scholarship, May 1998.
- Best Student in Mechanical Engineering Award, Colegio de Ingenieros de Chile, January 1996.

EDITORIAL AND OTHER APPOINTMENTS

- Guest Board Member, Genedge, NIST MEP in Virginia (2015 – present)
- Associate Editor, ASME Journal of Manufacturing Science and Engineering (2013 – 2016)
- Associate Editor, SME Journal of Manufacturing Systems (2011 – 2014)
- Member, Virginia Manufacturing Advisory Council (2012 – 2015).
- Technical Committee, North American Manufacturing Research Conference (2008 – 2016)

RESEARCH CONTRACTS AND GRANTS

- QA/QC STUDY – A Global Investigation of Quality Control Tools and Processes for Advanced Manufacturing Systems, Virginia Tech Applied Research Corporation (VTARC), Aug 2018 – May 2019, PI (Camelio - 100%), \$71,950.
- DUSTSTORM - Anomaly Insertion and Detection in Additive Manufacturing Design, The Johns Hopkins University Applied Physics Laboratory, Apr 2018 – Dec 2019, PI (Williams – 50%), Co-PI (Camelio – 50%), \$100,000.
- Surface Inspection for Advanced Composites, Rolls Royce, 2016, PI (Camelio - 100%), \$75,000.
- Capstone Senior Design – Supporting Small Enterprises, NIST/Genedge, 2016 - 2020, PI (Camelio – 100%), \$500,000.
- Cyber-Physical Security in the Manufacturing Sphere and Risk Management Strategies, LMI, 2016, PI (Camelio – 100%), \$50,000.
- Development of In-situ Tool Wear Measurement, CCAM, 2016, PI (Camelio – 100%), \$15,000.
- Shop-Floor Mitigation of Cyber Threats to Manufacturing, CCAM, 2015, PI (Camelio – 70%), Co-PI (L. Wells – 30%), \$42,000.
- Mahindra Pick and Carry Crane: Stabilization Design Concepts, Mahindra & Mahindra, Jan 2015 – Feb 2015, PI (L. Wells – 70%), Co-PI (Camelio – 30%), \$20,000
- Variation Management in Manufacturing Facilities, Rolls Royce, 2015, PI (Camelio - 80%), Co-PI (L. Wells – 20%), \$65,000.
- Cyber-Physical Approaches to Advanced Manufacturing Security, NSF & DHS, 2014-2018, PI (Camelio - 30%), Co-PI (L. Wells, J. White - Vanderbilt, C. Williams), \$999,998.

- GOALI - Robust Quality Control Tools for Cyber-Physical Manufacturing Systems: Assessing and Eliminating Cyber-Attack Vulnerabilities, NSF, 2014 – 2017, PI (Camelio - 60%), Co-PIs (B. Woodall and L. Wells), \$393,099.
- GOALI: Real-Time Detection and Mitigation of Incipient Anomalies in Additive Manufacturing, NSF, 2014 – 2017, PI (J. Kong), Co-PI (Camelio - 15%, C. Williams, R. Jin), \$300,000.
- Development of an Anomaly Detection System for Broaching Operations, Rolls Royce, Jan 2014-Dec 2014, PI (Camelio - 60%), Co-PI (L. Wells) \$75,000.
- Development of a 3D Visualization Tool for Variation Deformation Modes to be used in CM4D, ATS-Global, Jan 2014 – April 2014, PI (Camelio - 60%), Co-PI (L. Wells), \$35,000.
- Automated Assessment of 3D High Density Data, CCAM, Jan 2014e - Oct 2014, PI (Camelio - 60%), Co-PI (L. Wells), \$39,000.
- Adaptive Machining – Multi Thread Sensor Monitoring Systems, CCAM, Aug 2013 – May 2014, PI (K. Farinholt) Co-PI (Camelio - 25%, R. Cogill – U. of Virginia). \$186,000
- Tool Life Characterization Using Direct Broaching Cutting Forces, Rolls Royce, Feb 2013 - Dec 2013, PI (Camelio - 100%), \$90,000.
- Body in White Downtime Improvement, Volvo Trucks - TEMCI, Dec 2012 – Jun 2013, PI (P. Koelling), Co-PI (Camelio - 50%), \$87,000, (65% covered by TEMCI).
- Lightweight Chassis Design and Manufacturing Scale-up, Metalsa - TEMCI, Aug 2012 – Aug 2013, PI (Camelio - 80%), Co-PI (R. Jin), \$80,000 (65% covered by TEMCI).
- CREATIV: Modeling and Optimization of DNA Manufacturing Processes, NSF, \$999,531, 2012-2015, PI (J. Peccoud), Co-PI (Camelio - 30%, K. Ellis)
- Multimodal Part Inspection, CCAM, Canon, Newport News Shipbuilding, Jan 2012 – Dec 2012, PI (Camelio - 100%), \$150,000.
- Adaptive Manufacturing Exploratory Study, CCAM, Sandvik, Siemens, Jan 2012 – Dec 2012, PI (Camelio 45%), Co-PI (R. Cogill – U. of Virginia), \$177,000.
- Broaching Process Force Monitoring for Tool Wear and Failure Detection, Rolls Royce, Jan 2011 - Dec 2011, PI (Camelio - 50%), Co-PI (R. Cogill – U. of Virginia), \$120,000.
- Exploring Potential Asset Recovery Ventures, Volvo Trucks - TEMCI, Aug 2011 – Aug 2012, PI (Camelio - 100%), \$78,000 (65% covered by TEMCI).
- Capacity Modeling and Process Re-Design for Paint Plastic Parts Area, Volvo Trucks - TEMCI, Aug 2011 – Aug 2012, PI (Camelio - 100%), \$75,000 (65% covered by TEMCI).
- Incorporation of Aluminum Side Rails into Current Steel Side Rail Production Line, Metalsa - TEMCI, Aug 2011 – Aug 2012, PI (Camelio - 100%), \$79,000 (65% covered by TEMCI).
- Western Virginia Transportation Equipment Manufacturing Competitiveness Initiative (TEMCI), New River Valley Planning District Commission, Oct 2010 –Dec 2013, PI (J. Provo), CoPI (Camelio - 40%), \$1,670,000.
- Active Monitoring for Occupational Safety, Northrop Grumman, Aug 2011 – Aug 2012, PI (Camelio - 85%), Co-PI (D. Lowery – Newport News Shipbuilding) \$100,000.
- Modeling and Simulation of Painting Operations for Capacity Planning, Volvo Trucks, Jun 2010 – Dec 2010, PI (Camelio - 100%), \$35,000.
- GOALI: Quality Mining - A Novel Framework for Quality Monitoring and Control for Data-Rich Manufacturing Systems, National Science Foundation, Sept 2009 – Sept 2012, PI (Camelio -80%), Co-PI (B. Woodall), \$305,000.
- Performance Analysis of Aluminum Side Rails, PI, University of Kentucky New Product Development Grant and Metalsa Roanoke Inc., August 2009 – May 2010, PI (Camelio - 100%), \$35,000.

- A Self-Healing Approach for Smart Assembly Systems, PI, National Science Foundation, Jan 2009 – Jan 2012, PI (Camelio - 100%), \$200,000.
- Development of New Statistical Analysis Tools to be used in CM4D, QMC Inc., Jan 2009 – Dec 2009, PI (Camelio – 100%), \$30,000.
- New Equipment for the Intelligent Manufacturing Assembly System Lab at Virginia Tech, PACE/Hewlett Packard Desktop, November 2008 and January 2009, PI (Camelio – 100%), ~\$15,000.
- I/UCRC Assembly Research Center Pre-proposal Funding, National Science Foundation, Jun 2008 – Dec 2009, PI (K. Saitou - U. Michigan) Co-PI (Camelio, J. Sutherland, J. Gershenson), \$10,000.
- Elemental Mold and Die Proof of Concept, PI, Michigan Universities Commercialization Initiative, Aug 2007 – Jul 2008, PI (Camelio – 100%), \$85,000.
- Seed Grant for Collaborative Research in Self-Healing Manufacturing Systems, State of Michigan, Jun 2007 – Jul 2008, PI (Camelio – 100%), \$9,000.
- Application of Control Theory Principles to Improve the Performance of a Dynamic Trucking Close Network, Schneider National, Jan 2007 – Dec 2007, PI (Camelio - 100%), \$41,000.

OTHER FUNDING

- Seed grant from VT ICTAS to create the ICTAS Center for Innovation Based Manufacturing (CIBM) at Virginia Tech, PI, \$75,000/year. The center includes the participation of 12 faculty members from different academic units at Virginia Tech.
- VT-CCAM Operations Funds, PI, \$15,000/year.
- Rolls-Royce Commonwealth Chair, Operations Funds, \$15,000/year.

PUBLICATIONS. (Underline indicates that the co-author is a student)

Journal Papers (Published)

- J1. **Camelio, J.**, Hu, S. J., and Ceglarek, D., 2003, "Modeling Variation Propagation of Multi-Station Assembly Systems with Compliant Parts," *ASME, Journal of Mechanical Design*, **125**(4), pp. 673-681. DOI: 10.1115/1.1631574. Also won Best Paper Award by DETC2001/ASME, Pittsburgh, PA, Sept. 10-12, 2001.
- J2. **Camelio, J.**, Zhong, W., and Hu, S. J., 2004, "Diagnosis of Multiple Fixture Faults in Machining Processes Using Designated Component Analysis," *SME Journal of Manufacturing Systems*, **23**(4), pp. 309-315. DOI: 10.1016/S0278-6125(04)80043-8.
- J3. **Camelio, J.**, and Hu, S. J., 2004, "Multiple Fault Diagnosis for Sheet Metal Fixtures using Designated Component Analysis," *ASME Journal of Manufacturing Science and Engineering*, **126**(1), pp. 91-97. DOI: 10.1115/1.1643076.
- J4. **Camelio, J.**, and Hu, S. J., 2004, "Compliant Assembly Variation Analysis using Components Geometric Covariance," *ASME Journal of Manufacturing Science and Engineering*, **126**(2), pp. 355-360. DOI: 10.1115/1.1644553.
- J5. **Camelio, J.**, Hu, S. J., and Ceglarek, D., 2004, "Impact of Fixture Design on Sheet Metal Assembly Variation," *SME Journal of Manufacturing Systems*, **23**(3), pp. 182-193. DOI: 10.1016/S0278-6125(05)00006-3.
- J6. **Camelio, J.**, Hu, S. J. and Yim, H. 2005, "Sensor Placement for Effective Diagnosis of Multiple Faults in Fixturing of Compliant Parts," *ASME Journal of Manufacturing Science and Engineering*, **127**(1), pp. 68-74. DOI: 10.1115/1.1828056.

- J7. **Camelio, J.** and Heichelbech, B., 2006, "Comparison of Diagnosis Methods in Sheet Metal Assembly," *Transactions of NAMRI*, Vol XXXIV, pp. 135-142. DOI: 10.1.1.408.5852.
- J8. Hu, S.J., and **Camelio, J.**, 2006, "Modeling and Control of Compliant Assembly Systems," *Annals of the CIRP*, **55**(1), pp. 19-22. DOI: 10.1016/S0007-8506(07)60357-6.
- J9. **Camelio, J.**, and Yim, H. J., 2006, "Identification of Dimensional Variation Patterns on Compliant Assemblies," *SME Journal of Manufacturing Systems*, **25**(2), pp. 65-76. DOI: 10.1016/S0278-6125(07)00006-4.
- J10. Yue, J., **Camelio, J.**, Chin, M., and Cai, W., 2007, "Product Oriented Sensitivity Analysis for Multi-station Compliant Assemblies," *Journal of Mechanical Design*, **129**(8), pp. 844-851. DOI: 10.1115/1.2735341.
- J11. Xie, K., Wells, L., **Camelio, J.**, Youn, B.D., 2007, "Variation Propagation Analysis On Compliant Assemblies Considering Contact Interaction," *ASME Journal of Manufacturing Science and Engineering*, **129**(5), pp. 934-942. DOI: 10.1115/1.2752829.
- J12. Kumar, V., Shirodkar, P., **Camelio, J.**, and Sutherland, J., 2007, "Value flow Characterization during Product Lifecycle to Assist in Recovery Decisions" *International Journal of Production Research, Special Issue on Sustainable Design and Manufacture*, **45**(18-19), pp. 4555-4572.
- J13. Bryan, A., **Camelio, J. A.**, Hu, S. J., Joshi, N., and Malshe, A. P., 2007, "Error Analysis of a Nano-Mechanical Drill," A Chapter in *Models for Computer Aided Tolerancing in Design and Manufacturing*, pp. 277-287, Springer.
- J14. Emblom, W., Weinmann, K, **Camelio, J.**, 2008, "An Experimental Investigation of the Robustness of an Aluminum Stamping Die Using Flexible Binders and Adjustable Drawbeads Designed Using FEM," *Transactions of NAMRI/SME*, **36**, pp. 217-224.
- J15. Dreyer, J., Rickli, J., Pandit, S., **Camelio, J.**, 2008, "An Experimental Investigation of the Robustness of an Aluminum Using Piezoelectric Instrumented Fixtures for Machining of Metal Matrix Composites," *Transactions of NAMRI/SME*, **36**, pp. 81-88.
- J16. Rickli, J., **Camelio, J.**, 2009, "Damage Detection in Assembly Fixtures using Non-Destructive Electromechanical Impedance Sensors and Multivariate Statistics," *International Journal of Advanced Manufacturing Technology*, **42**(9-10), pp. 1005-1015.
- J17. Megahed, F., Camelio, J., 2010, "Real-Time Fault Detection In Manufacturing Environments Using Face Recognition Techniques," *Journal of Intelligent Manufacturing*, **23**(3), pp.393-408. DOI: 10.1007/s10845-010-0378-3.
- J18. Ng, K., Wagner, S., **Camelio, J.**, Emblom, W., 2010, "Experimental Analysis of a Micro Tube Hydroforming Process," *Transactions of NAMRI/SME*, **38**, Queen's University, Ontario, Canada
- J19. Smith, T., Rickli, J., Fleming, S., **Camelio, J.**, 2010, "Residual Stress Analysis of Punched Holes in 6013 Aluminum Alloy Commercial Vehicle Side Rails," *SAE International Journal of Commercial Vehicles*, **3**(1), pp. 32-41. DOI:10.4271/2010-01-1909.
- J20. Rickli, J., **Camelio, J.**, Dreyer, J.T., Pandit, S., 2011, "Fault detection and prognosis of assembly locating systems using piezoelectric transducers," *Journal of Intelligent Manufacturing*. **22**(6), pp. 909-918.
- J21. Zareba, M., Schuh, A. and **Camelio, J.A.**, 2011, "Accelerated Problem Solving Sessions in University Laboratory Settings," *Journal of Intelligent Manufacturing* (Engineering Education special Edition), **24**(3), pp.517-526.
- J22. Megahed, F., Woodall, W., **Camelio, J.**, 2011, "A Review and Perspective on Control Charting with Image Data," *Journal of Quality Technology*, **43**(2), pp. 83-98.
- J23. Wells, L., Megahed, F., **Camelio, J.**, Woodall, W., 2012, "A Framework for Variation Visualization and Understanding in Complex Manufacturing Systems," *Journal of Intelligent Manufacturing*, **23**(5), pp. 2025-2036.

- J24. Xie, K., Izquierdo, L. **Camelio, J.**, 2012, "Part-by-part dimensional error compensation in compliant sheet metal assembly processes," *SME Journal of Manufacturing Systems*, **31**(2), 152-161. DOI: 10.1016/j.jmsy.2011.07.005.
- J25. Megahed, F., Wells, L., **Camelio, J.**, and Woodall, W., 2012, "A Spatiotemporal Monitoring Method for Image Data," *Quality and Reliability Engineering International*. **28**(8), pp. 967 – 980. DOI: 10.1002/qre.1287.
- J26. Wells, L., Megahed, F., Niziolek, C., **Camelio, J.**, Woodall, W., 2012, "Statistical Process Monitoring Approach for High-Density Point Clouds," *Journal of Intelligent Manufacturing*, **24**(6), pp.1267-1279.
- J27. Rickli, J.L., Crawford, C., Aich, S., Camelio, J.A., 2012, "Damage Diagnosis and Fixture Classification Using Impedance-Based Sensors," *SME Journal of Manufacturing Systems*, **31**(4), pp. 388-394. DOI:10.1016/j.jmsy.2012.07.006.
- J28. Schuh A., Woodall, W.H., **Camelio, J.A.**, 2013, "The Effect of Aggregating Data When Monitoring a Poisson Process." *Journal of Quality Technology*, **45**(3), pp. 260 – 272.
- J29. Rickli, J., **Camelio, J.**, 2013, "Multi-Objective Partial Disassembly Optimization based on Sequence Feasibility," *SME Journal of Manufacturing Systems*, **32**(1), pp. 281-293.
- J30. Schuh, A., **Camelio, J.A.**, and Woodall, W.H., 2013. "Control Charts for Accident Frequency: A Motivation for Real-Time Occupational Safety Monitoring." *International Journal of Injury Control and Safety Promotion*, **21**(2), pp. 154-162. DOI:10.1080/17457300.2013.792285.
- J31. Haapala, K.R., Zhao, F., **Camelio, J.**, Sutherland, J.W., Skerlos, S.J., Dornfeld, D.A., Jawahir, I.S., Zhang, H.C., Clarens, A.F., Rickli, J.L., 2013, "A Review of Engineering Research in Sustainable Manufacturing," *ASME Journal of Manufacturing Science and Engineering*, **135**(4).
- J32. Wells, L.J., and **Camelio, J.**, 2013. "A Bio-Inspired approach for Self-Correcting Compliant Assembly Systems." *SME Journal of Manufacturing Systems, Special Issue on Assembly Technologies and Systems*, **32**(3), pp. 464 – 472.
- J33. Shafae, M. S., Dickinson, R. M., Woodall, W. H., & **Camelio, J. A.**, 2015, "Cumulative Sum Control Charts for Monitoring Weibull-distributed Time Between Events", *Quality and Reliability Engineering International*, **31**(5), 839-849.
- J34. Wells, L.J., **Camelio, J.A.**, Williams, C.B., and White, J., 2014. "Cyber-Physical Security Challenges in Manufacturing Systems," *Manufacturing Letters*, **2**(2), 74-77. DOI: [10.1016/j.mfglet.2014.01.005](https://doi.org/10.1016/j.mfglet.2014.01.005).
- J35. Hassounah, I. A., Rowland, W. C., Sparks, S. A., Orlor, E. B., Joseph, E. G., **Camelio, J. A.**, and Mahajan, R. L., 2014. "Processing of Multilayered Filament Composites by Melt Blown Spinning", *Journal of Applied Polymer Science*, **131**(18). DOI: 10.1002/APP.40786.
- J36. Rickli, J. L., **Camelio, J.**, 2014, "Partial Disassembly Sequence Considering Acquired End-of-Life Product Age Distributions," *International Journal of Production Research*, **52**(24), pp. 7496-7512. DOI: 10.1080/00207543.2014.939237.
- J37. Turner, H., White, J., **Camelio, J. A.**, Williams, C., Amos, B., and Parker, R., 2015, "Bad Parts-Are Our Manufacturing Systems at Risk of Silent Cyber-attacks?" *IEEE Security & Privacy*, **13**(3), pp. 40-47. DOI: [10.1109/MSP.2015.60](https://doi.org/10.1109/MSP.2015.60).
- J38. Azadeh-Fard, N., Schuh, A., Rashedi, E., and **Camelio, J.**, 2015, "Risk Assessment of Occupational Injuries Using Accident Severity Grade," *Safety Science*, **76**, pp. 160-167. DOI: [10.1016/j.ssci.2015.03.002](https://doi.org/10.1016/j.ssci.2015.03.002).
- J39. Vincent, H., Wells, L., Tarazaga, P., **Camelio, J.**, 2015, "Trojan Detection and Side-channel Analyses for Cyber-security in Cyber-physical Manufacturing Systems," *Procedia Manufacturing, Special Issue on the 43rd North American Manufacturing Research Conference (NAMRC 43)*, **1**, pp. 77-85. DOI: [10.1016/j.promfg.2015.09.065](https://doi.org/10.1016/j.promfg.2015.09.065).

- J40. Loizou, J., Tian, W., Robertson, J., and Camelio, J., 2015, "Automated Wear Characterization for Broaching Tools Based on Machine Vision Systems," *SME Journal of Manufacturing Systems*, **37**(2), pp. 558-563. DOI:[10.1016/j.jmsy.2015.04.005](https://doi.org/10.1016/j.jmsy.2015.04.005).
- J41. Robertson, J., Rathinam, A., Wells, L.J., and Camelio, J.A., 2015, "Statistical Monitoring for Broaching Processes Using Energy Profiles," *Submitted to SME Journal of Manufacturing Systems (Accepted)*
- J42. Wells, L.J., Shafae, M.S., and Camelio, J., 2016, "Automated Surface Inspection for High-Density Point Cloud Data" *ASME Journal of Manufacturing Science and Engineering*, **138**(7), 071001-071001-10. DOI:10.1115/1.4032391.
- J43. Azadeh-Fard, N., Ghaffarzadegan, N., Camelio, J., 2016, "Can A Patient's In-Hospital Length of Stay and Mortality Be Explained by Early-Risk-Assessments?," *PLoS ONE*, **11**(9): e0162976. DOI: [10.1371/journal.pone.0162976](https://doi.org/10.1371/journal.pone.0162976).
- J44. DeSmit, Z., Elhabashy, A. E., Wells, L. J., and Camelio, J. A., 2016, "Cyber-Physical Vulnerability Assessment in Manufacturing Systems," *Procedia Manufacturing, Special Issue on the 44th North American Manufacturing Research Conference (NAMRC 44)*, **5**, pp. 1060-1074. DOI: [10.1016/j.promfg.2016.08.075](https://doi.org/10.1016/j.promfg.2016.08.075).
- J45. Tian, W., Jin, R., Huang, T., and Camelio, J., 2017, "Statistical Process Control for Multistage Processes with Non-repeating Cyclic Profile Outputs," *IISE Transactions*, **49**(3), pp. 320-331. DOI: [10.1080/0740817X.2016.1241454](https://doi.org/10.1080/0740817X.2016.1241454).
- J46. Hedberg T. D., Jr., Krima S., Camelio J. A., 2017, "Embedding X.509 Digital Certificates in Three-Dimensional Models for Authentication, Authorization, and Traceability of Product Data," *ASME Journal of Computing and Information Science in Engineering*, **17**(1), pp. 011008-011008-11. DOI: 10.1115/1.4034131.
- J47. Wagner, S. W., Ng, K., Emblom, W. J., and Camelio, J. A., 2017, "Influence of Continuous Direct Current on the Micro Tube Hydroforming Process," *ASME Journal of Manufacturing Science and Engineering*, **139**(3), pp. 034502-034502-5. DOI: 10.1115/1.4034790.
- J48. Pan, Y., White, J., Schmidt, D. C., Elhabashy, A., Sturm, L., Camelio, J., and Williams, C., 2017, "Taxonomies for Reasoning About Cyber-physical Attacks in IoT-based Manufacturing Systems," *International Journal of Interactive Multimedia and Artificial Intelligence, Special Issue on Advances and Applications in the Internet of Things and Cloud Computing*, **4**(3), pp. 45-54. DOI: [10.9781/ijimai.2017.437](https://doi.org/10.9781/ijimai.2017.437).
- J49. Hedberg T., Jr., Feeney A. B., Helu M., Camelio J. A., 2017, "Towards a Lifecycle Information Framework and Technology in Manufacturing," *ASME Journal of Computing and Information Science in Engineering*, **17**(2), pp. 021010-021010-13. DOI: 10.1115/1.4034132.
- J50. DeSmit, Z., Elhabashy, A. E., Wells, L. J., and Camelio, J. A., 2017, "An Approach to Cyber-Physical Vulnerability Assessment in Intelligent Manufacturing Systems," *SME Journal of Manufacturing Systems, Special Issue on High Performance Computing and Data Analytics for Cyber Manufacturing*, **43, Part 2**, pp. 339-351. DOI: [10.1016/j.jmsy.2017.03.004](https://doi.org/10.1016/j.jmsy.2017.03.004).
- J51. Sturm, L. D., Williams, C. B., Camelio, J. A., White, J., and Parker, R., 2017, "Cyber-physical Vulnerabilities in Additive Manufacturing Systems: A Case Study Attack on The .STL File with Human Subjects," *SME Journal of Manufacturing Systems*, **44, Part 1**, pp. 154-164. DOI: [10.1016/j.jmsy.2017.05.007](https://doi.org/10.1016/j.jmsy.2017.05.007)
- J52. Purdy, G. T., Camelio, J. A., Ellis, K. P., and Peccoud, J., 2017, "Opportunities to Apply Manufacturing Systems Analysis Techniques in Genetic Manufacturing Systems," *Manufacturing Letters*, **13**, pp. 34-38. DOI: [10.1016/j.mfglet.2017.06.003](https://doi.org/10.1016/j.mfglet.2017.06.003).
- J53. Camelio, J. A., McCullough, D., Prosch, S., Rickli, J. L., 2018, "Energy Considerations in Assembly Operations," A chapter in *Energy Efficient Manufacturing: Theory and Applications* pp. 261-298, Scrivener Publishing and Wiley.

- J54. Hedberg T., Barnard Feeney A., **Camelio J.**, 2018, "Toward a Diagnostic and Prognostic Method for Knowledge-Driven Decision-Making in Smart Manufacturing Technologies," *Disciplinary Convergence in Systems Engineering Research*, Madni A., Boehm B., Ghanem R., Erwin D., Wheaton M. (eds), pp. 859-873. Springer, Cham. DOI: [10.1007/978-3-319-62217-0_60](https://doi.org/10.1007/978-3-319-62217-0_60).
- J55. Elhabashy, A. E., Wells, L. J., Camelio, J. A., and Woodall, W. H., 2018, "A Cyber-Physical Attack Taxonomy for Production Systems: A Quality Control Perspective," *Journal of Intelligent Manufacturing*. DOI: 10.1007/s10845-018-1408-9.
- J56. Hedberg T., Krifa, S., Camelio J., 2019, "Method for Enabling a Root of Trust in Support of Product-data Certification and Traceability," *Journal of Computing and Information Science in Engineering*, pp. 1-27. DOI: 10.1115/1.4042839.

Journal Papers (Under Review)

- J57. Purdy, G., Ellis, K., Peccoud, J., and **Camelio, J.**, 2019, "Inspection allocation strategies for mid-process quality control in genetic manufacturing systems utilizing gene synthesis," *International Journal of Production Economics*.
- J58. Komolafe, T., Tian, W., Purdy, G.T., **Camelio, J.**, and Albakri, M., 2019, "Comparison of Multiple Mounting Methods of Piezoelectric Transducers for Non-destructive Evaluation of Manufactured Parts," *Nondestructive Testing and Evaluation International*.
- J59. Komolafe, T., Fong, A., Dirazonian, Z., Ratwani, R.M., and **Camelio, J.**, 2019, "Identifying and Disambiguating Terms in Patient Safety Reports," *Journal of Healthcare Informatics Research*.

Conference Papers

- C1. **Camelio, J.**, and Chiang, L., 1996, "Path Control and Planning for a Robotic Arm" (published in Spanish), *Proceedings VII Congreso Latinoamericano de Control Automático*, Buenos Aires, Argentina. pp. 922 - 928.
- C2. **Camelio, J.**, and Contreras, A., 1997, "Path Control in a Robotic Arm using Acceleration Curves" (published in Spanish), *Proceedings III Congreso Iberoamericano de Ingeniería Mecánica*, La Havana, Cuba.
- C3. Hu, S. J., Long, Y., and **Camelio, J.**, 2000, "Variation Analysis for Compliant Assembly," *Proceedings of the 2000 ASME International Mechanical Engineering Conference and Exposition (IMECE)*, November 5-10, Orlando, FL.
- C4. **Camelio, J.**, Hu, S. J., and Ceglarek, D., 2002, "Impact of Fixture Design on Sheet Metal Assembly Variation," *Proceedings of the 2002 ASME Design Engineering Technical Conference and Computer and Information in Engineering Conference*, Montreal, Canada. DOI: 10.1115/DETC2002/DFM-34167.
- C5. **Camelio, J.**, and Hu, S. J., 2002, "Compliant Assembly Variation Analysis using Components Geometric Covariance," *Proceedings of the 2002 ASME International Mechanical Engineering Conference and Exposition (IMECE)*, November 17-22, New Orleans, LA. DOI: 10.1115/IMECE2002-32338.
- C6. **Camelio, J.**, Hu, S. J. and Yim, H. 2003, "Sensor Placement for Effective Diagnosis of Multiple Faults in Fixturing of Compliant Parts," *Proceedings of the 2003 ASME International Mechanical Engineering Conference and Exposition (IMECE)*, November 15-21, Washington, DC. DOI: 10.1115/IMECE2003-42341.
- C7. Dahlström, S., and **Camelio, J.**, 2003, "Fixture Design Methodology for Sheet Metal Assembly using Computer Simulations," *Proceedings of the 2003 ASME International Mechanical*

Engineering Conference and Exposition (IMECE), November 15-21, Washington, DC. DOI: 10.1115/IMECE2003-41370.

- C8. Joshi, N., Malshe, A., Bryan, A., **Camelio, J.** and, Hu, S. J., 2003, "Geometric Error Assessment of a Nanomechanical Drill," *Proceedings of the 2003 ASME International Mechanical Engineering Conference and Exposition (IMECE)*, November 15-21, Washington, DC. DOI: 10.1115/IMECE2003-42116.
- C9. **Camelio, J.**, Webbink, R., Hu, S.J., and Iyer, K. 2003, "Recent Advances in Compliant Assembly Variation Analysis," *Proceedings of the 8th CIRP International Seminar on Computer Aided Tolerancing*, Charlotte, NC.
- C10. Li, Z., Yue, J., Kokkolaras, M., **Camelio, J.**, Papalambros, P. and Hu, S.J., 2004 "Product Tolerance Allocation in Compliant Multistation Assembly through Variation Propagation and Analytical Target Cascading," *Proceedings of the 2004 ASME International Mechanical Engineering Conference and Exposition (IMECE)*, November 13-19, Anaheim, CA. DOI: 10.1115/IMECE2004-60521.
- C11. Bryan, A., **Camelio, J. A.**, Hu, S. J., Joshi, N., and Malshe, A. P., 2005, "Error Analysis of a Nano-Mechanical Drill," *Proceedings of the 2005 CIRP Seminar on Computer Aided Tolerancing*.
- C12. Xie, K., Wells, L., **Camelio, J.**, Youn, B.D., 2006, "Variation Propagation Analysis On Compliant Assemblies Considering Contact Interaction," *Proceedings of the 2006 ASME International Conference on Manufacturing Science and Engineering (MSEC)*, October 8-11, Ypsilanti, Michigan, USA. DOI: 10.1115/MSEC2006-21087.
- C13. Yue, J., **Camelio, J.**, and Chin, M., 2006, "Product Oriented Sensitivity Analysis for Multi-station Compliant Assemblies," *Proceedings of the 2006 ASME International Conference on Manufacturing Science and Engineering (MSEC)*, October 8-11, Ypsilanti, Michigan, USA. DOI: 10.1115/MSEC2006-21077.
- C14. Wagner, S. and **Camelio, J.**, 2007," Strain Analysis on Micro Deep Drawing Processes using Lithographic," *ICOMM 2007 International Conference on Micromanufacturing*, Clemson, SC.
- C15. Zhao, Q. and **Camelio, J.**, 2007, "Assembly Faults Diagnosis using Neural Networks and Process Knowledge," *ASME International Conference on Manufacturing Science and Engineering (MSEC)*, October 15-17, Atlanta, GA. DOI: 10.1115/MSEC2007-31095.
- C16. Rickli, J. and **Camelio, J.**, 2007, "Monitoring and Diagnosis of Assembly Fixtures Faults using Modified Multivariate Control Charts and Surface Scanning Content," *ASME International Conference on Manufacturing Science and Engineering (MSEC)*, October 15-17, Atlanta, GA. DOI: 10.1115/MSEC2007-31075.
- C17. Zhao, Q. and **Camelio, J.**, 2008, "Quality Monitoring and Fault Detection on Stamped Parts Using DCA and LDA Image Recognition Techniques," *ASME International Conference on Manufacturing Science and Engineering (MSEC)*, October 7-10, Evanston, IL. DOI: 10.1115/MSEC_ICMP2008-72218.
- C18. Xie, K., **Camelio, J.**, and Eduardo Izquierdo, L., 2008, "Dimensional Error Compensation in Compliant Assembly Processes Using Virtual Assembly Training," *ASME International Conference on Manufacturing Science and Engineering (MSEC)*, October 7-10, Evanston, IL. DOI: 10.1115/MSEC_ICMP2008-72219.
- C19. Rickli, J., Clarke, A., Haapala, K., Addo, M., **Camelio, J.**, and Sutherland, J., 2008, "Reducing the Environmental and Social Impacts of E-waste Recovery through Technology and Policy," *Proc. Global Conf. on Sustainable Product Development and Life Cycle Engineering: Sustainability and Remanufacturing IV*, Busan, Korea, pp. 201-206.
- C20. Rickli, J., **Camelio, J.**, and Zapata, G., 2009, "Partial Disassembly Sequence Optimization of End-of-Life Products for Value Recovery," *ASME International Conference on Manufacturing Science and Engineering (MSEC)*, October 4-7, West Lafayette, IN. DOI: 10.1115/MSEC2009-84171.

- C21. Gershenson, J. and **Camelio, J.**, 2009, "Designing a Smart Assembly System," *17th International Conference on Engineering Design*, Stanford University.
- C22. Rickli, J. and **Camelio, J.**, 2010, "Impacting Consumer End-of-Life Product Return Decisions with Incentives," *CIRP Lifecycle Engineering Conference*, May 19-21, Hefei, China.
- C23. Smith, T., Rickli, J., **Camelio, J.**, and Fleming, S., 2010, "Residual Stress Analysis of Punched Holes in 6013 Aluminum Alloy Commercial Vehicle Side Rails," *SAE Commercial Vehicle Engineering Congress and Exhibition*, Chicago, IL.
- C24. Megahed, F., Wells, L., and **Camelio, J.**, 2010, "The Use of 3D Laser Scanners in Process Monitoring," *SAE Aerospace Manufacturing and Automated Fastening Conference*, Wichita, Kansas.
- C25. Megahed, F., Woodall, W., and **Camelio, J.**, 2010, "The Use of Control Charts with Image Data". *INFORMS: Annual Meeting*, November 7-10, Austin, Texas. (Abstract)
- C26. Schuh, A., Megahed, F., Conoor, S., and **Camelio, J.**, 2011. "Towards a More Effective Monitoring and Dissemination of Safety Data". *Institute of Industrial Engineers Annual Conference and Expo (IERC)*, Reno, Nevada, May 2011. (Abstract)
- C27. Mashack, D., Smith, T., Rickli, J., **Camelio, J.**, and Fleming, S., 2011, "Modeling Residual Stresses Induced by Hole Punching 6013 Aluminum Alloy Side Rails," *Proceedings of the 39th North American Manufacturing Research Conference (NAMRC)*, June 13-17, Corvallis, OR.
- C28. Wells, L., **Camelio, J.**, Zapata, G., 2011, A Bio-Inspired Framework for a Self-Healing Assembly System. *Proceedings of the ASME 2011 International Manufacturing Science and Engineering Conference (MSEC)*, June 13-17, Corvallis, Oregon, USA, DOI: 10.1115/MSEC2011-50267.
- C29. Haapala, K., Zhao, F., **Camelio, J.**, Sutherland, J., Skerlos, S., Dornfeld, D., Jawahir, I., Zhang, C., and Clarens, A., 2011, "A Review of Engineering Research in Sustainable Manufacturing," *Proceedings of the ASME 2011 International Manufacturing Science and Engineering Conference (MSEC)*, June 13-17, Corvallis, Oregon, USA. DOI: 10.1115/MSEC2011-50300.
- C30. Wagner, S., Ng, K., Emblom, W., and **Camelio, J.**, 2011, "Influence of Continuous Direct Current on the Micro Tube Hydroforming Process," *Proceedings of the ASME 2011 International Manufacturing Science and Engineering Conference (MSEC)*, June 13-17, Corvallis, Oregon, USA. DOI: 10.1115/MSEC2011-50257.
- C31. Megahed, F., Wells, L., **Camelio, J.**, and Woodall, W. 2011, "A Spatiotemporal Method for the Monitoring of Image Data," *INFORMS: Annual Meeting*, November 13-16, Charlotte, NC. (Abstract)
- C32. Megahed, F., Woodall, W., and **Camelio, J.**, 2011, "A Review and Perspective on Control Charting with Image Data," *INFORMS: Annual Meeting*, November 13-16, Charlotte, NC. (Abstract)
- C33. Wells, L., and **Camelio, J.**, 2012. "A Bio-Inspired Approach for Self-Correcting Compliant Assembly Systems," *4th CIRP Conference on Assembly Technologies and Systems*, Ann Arbor, MI. May 2012.
- C34. Rickli, J.L., Crawford, C., Aich, S., and **Camelio, J.**, 2012, "Damage Diagnosis and Fixture Classification Using Impedance-Based Sensors," *40th Annual SME North American Manufacturing Research Conference (NAMRC XL)*, June 4-8, South Bend, IN.
- C35. Wagner, S., Ng, K., Emblom, W., and **Camelio, J.**, 2012, "Effects of Continuous Direct Current on the Yield Stress of Stainless Steel 304 Micro Tubes," *ASME Manufacturing Science and Engineering Conference (MSEC)*, June 4-8, South Bend, IN. DOI: 10.1115/MSEC2012-7309.
- C36. Wells, L., Megahed, F., Camelio, J., and Woodall, W., 2012, "A Framework for Variation Visualization and Understanding in Complex Manufacturing Systems," *INFORMS: Annual Meeting*, October 14-17, Phoenix, AZ. (Abstract)

- C37. Wells, L. J., and **Camelio, J. A.** (2012). "Automated Monitoring and Inspection Systems for High-Density Dimensional (HDD) Data," *INFORMS: Annual Meeting*, October 14-17, Phoenix, AZ. (Abstract)
- C38. Robertson J., Rathinam, A. C., Wells, L. J., and **Camelio, J. A.**, 2013, "Statistical Process Monitoring Methodology Using Energy Signatures for Machining Processes," *Innovation in Manufacturing Conference*, Roanoke, Virginia. April 2013. (Abstract)
- C39. Tian, W., Huang, T., **Camelio, J. A.**, and Jin, R., 2013, "Broaching Process Monitoring based on Global and Cyclic Signals," *Proceedings of the Industrial and Systems Engineering Research Conference*, May 18-22, San Juan, Puerto Rico.
- C40. Schuh, A. and **Camelio, J.A.**, 2013, "Including Accident Severity in Statistical Monitoring Systems for Occupational Safety," *Proceedings of the Industrial and Systems Engineering Research Conference*, May 18-22, San Juan, Puerto Rico.
- C41. Robertson. J., Rathinam, A., Wells, L., and **Camelio, J.**, 2013. "Statistical Monitoring for Broaching Processes Using Energy Features Extracted From Cutting Force Signatures," *41st Annual SME North American Manufacturing Research Conference (NAMRC 41)*, June 10 – 14, Madison, WI.
- C42. Wells, L.J., Shafae, M.S., and **Camelio, J.A.**, 2013. "Automated Part Inspection Using 3D Point Clouds," *Proceedings of the ASME International Manufacturing Science and Engineering Conference (MSEC)*, June 10-14, Madison, WI. DOI: 10.1115/MSEC2013-1212.
- C43. Wagner, S., Ng, K., Emblom, W., **Camelio, J.**, 2013. "Novel high pressure sealing system for tube hydroforming operations," *Proceedings of the ASME International Manufacturing Science and Engineering Conference (MSEC)*, June 10-14, Madison, WI. DOI: 10.1115/MSEC2013-1194.
- C44. Azadeh-Fard,N., Shuh, A., and **Camelio, J.**, 2013, "On Improving Occupational Safety Monitoring," *Region VI American Society of Safety Engineers Professional Development Conference*, Sep. 18-19, Myrtle Beach, SC. (Abstract)
- C45. Shafae, M. S., Dickinson, R. M., Woodall, W. H., and **Camelio, J. A.**, 2013. "CUSUM Control Charts for Monitoring Weibull-Distributed Time between Events," *INFORMS: Annual Meeting*, October 6-9, Minneapolis, MN. (Abstract)
- C46. Shafae, M. S., Wells, L. J., Woodall, W. H., and **Camelio, J. A.**, 2013. "Machining System Design, Analysis, and Monitoring via Process Data Point Clouds," *INFORMS: Annual Meeting*, October 6-9, Minneapolis, MN. (Abstract)
- C47. Tian, W., Huang, T., **Camelio, J.**, and Jin, R., 2013. "Broaching Process Monitoring based on Global and Cyclic Signals," *INFORMS: Annual Meeting*, October 6-9, Minneapolis, MN. (Abstract)
- C48. Azadeh-Fard,N., Shuh, A., and **Camelio, J.**, 2014, "Risk Assessment of Occupational Injuries Using Accident Severity Grade," *ISERC*, Montreal, Canada. (Abstract)
- C49. Sturm, L. D., Williams, C. B., **Camelio, J. A.**, White. J., and Parker, R., 2014, "Cyber-physical Vulnerabilities in Additive Manufacturing Systems," *25th Annual Solid Freeform Fabrication Symposium*, August 4-6, Austin, TX.
- C50. Shafae, M. S., Wells, L. J., and **Camelio, J. A.**, 2014, "Monitoring and Analysis of Machining Processes using In-process Data Point Clouds," *INFORMS Annual Meeting*, November 9-12 San Francisco, CA. (Abstract)
- C51. Azadeh-Fard,N., Shuh, A., and **Camelio, J.**, 2014, "Risk Assessment of Occupational Injuries Using Accident Severity Grade," *INFORMS Annual Meeting*, Nov. 9-12, San Francisco, CA. (Abstract)
- C52. Azadeh-Fard,N., and **Camelio, J.**, 2014, "Regression Modeling Strategies and Statistical Process Control Charts: Predicting and Monitoring Patients' Hospital Length of Stay and Mortality," *INFORMS Annual Meeting*, Nov. 9-12, San Francisco, CA. (Abstract)

- C53. Loizou, J., Tian, W., Robertson, J., and Camelio, J., 2015, "Automated Wear Characterization for Broaching Tools Based on Machine Vision Systems," *Proceedings of the 43rd North American Manufacturing Research Conference (NAMRC)*, June 8-12, Charlotte, NC.
- C54. Vincent, H., Wells, L., Tarazaga, P., and Camelio, J., 2015, "Trojan Detection and Side-Channel Analyses for Cyber-Security in Cyber-Physical Manufacturing Systems," *Proceedings of the 43rd North American Manufacturing Research Conference (NAMRC)*, June 8-12, Charlotte, NC.
- C55. Elhabashy, A. E., Abdelhamid, S. E., Reid, K. J., and Camelio, J. A., 2015, "Factors Affecting Better Use of Laboratory Courses in Engineering," *7th Annual First Year Engineering Experience (FYEE) Conference*, August 2-4, Roanoke/Blacksburg, VA.
- C56. Elhabashy, A. E., Wells, L. J., Camelio, J. A., and Woodall, W. H., 2015, "Designing Quality Control Tools for Enhanced Cyber-Security in Manufacturing," *INFORMS Annual Meeting*, November 1-4, Philadelphia, PA. (Abstract)
- C57. Azadeh-Fard, N., Ghaffarzadegan, N., and Camelio, J., 2015, "Can Objective Early Warning Scores and Subjective Risk Assessments Predict a Patient's Hospital Length of Stay and Mortality," *INFORMS Annual Meeting*, November 1-4, Philadelphia, PA. (Abstract)
- C58. Tian, W., Jin, R., and Camelio, J., 2015 "Broaching Process Monitoring based on Non-repeating Cyclic Signals," *INFORMS Annual Meeting*, November 1-4, Philadelphia, PA. (Abstract)
- C59. Shafae, M., Wells, L. J., Ferreira, M., and Camelio, J., 2015 "Modeling In-Process Data of Machining Operations: Time Series vs. Spatial Point Cloud," *INFORMS Annual Meeting, INFORMS Annual Meeting*, November 1-4, Philadelphia, PA. (Abstract)
- C60. DeSmit, Z., Elhabashy, A. E., Wells, L. J., and Camelio, J. A., 2016, "Cyber-Physical Vulnerability Assessment in Manufacturing Systems," *Proceedings of the 44th North American Manufacturing Research Conference (NAMRC)*, June 27-July 1, Blacksburg, VA.
- C61. Tian, W., Wells, L. J., and Camelio, J. A., 2016, "Broaching Tool Degradation Characterization based on Functional Descriptors," *Proceedings of the 2016 Manufacturing Science and Engineering Conference (MSEC2016)*, June 27-July 1, Virginia Tech, Blacksburg, VA.
- C62. Azadeh-Fard, N., Ghaffarzadegan, N., and Camelio, J., 2016, "Analyzing the Predictive Power of Early Warning in Healthcare," *INFORMS Annual Meeting*, November 13-16, Nashville, TN. (Abstract)
- C63. Liu, C., Komolafe, T., Kong, Z., and Camelio, J., 2016, "Online Detection for Cyber Attacked Additive Part by Real-time Sensing and Analysis," *INFORMS Annual Meeting*, November 13-16, Nashville, TN. (Abstract)
- C64. Tian, W. and Camelio, J., 2016, "Data Fusion for Degradation Modeling in Multi-edged Machining Processes," *INFORMS Annual Meeting*, November 13-16, Nashville, TN. (Abstract)
- C65. DeSmit, Z., Elhabashy, A. E., Purdy, G. T., Wells, L. J., and Camelio, J. A., 2016, "Cyber-Physical Vulnerability Assessment for Advanced Manufacturing," *Defense Manufacturing Conference (DMC)*, November 28 – December 1, Denver, CO. (Abstract)
- C66. Komolafe, T., Purdy, G. T., and Camelio, J. A., 2016, "Using Side Channels for Quality Loss Detection Due to Cyber Related Events," *Defense Manufacturing Conference (DMC)*, November 28 – December 1, Denver, CO. (Abstract)
- C67. Shafae, M. and Camelio, J. A., 2016, "In-Process Data Point Clouds: A Novel Approach for Machining Data Visualization for Process Monitoring, Diagnosis, and Control," *Defense Manufacturing Conference (DMC)*, November 28 – December 1, Denver, CO. (Abstract)
- C68. Hedberg T., Jr., Feeney A. B., Camelio J., 2017, "Towards a Diagnostic and Prognostic Method for Knowledge-Driven Decision Making in Smart Manufacturing Technologies," *Proceedings of the 15th Annual Conference on Systems Engineering Research (CSER 2017)*, 23-25 March, Redondo Beach, CA.

- C69. Tian W., Wells, L. J., and **Camelio, J. A.**, 2017, "Remaining Useful Life Prediction Based on Model Integration for Broaching Tools," *INFORMS Annual Meeting*, 22-25 October, Houston, TX, USA. (Abstract)
- C70. Shafae, M., Wells, L. J., Purdy, J. T., and **Camelio, J. A.**, 2017, "Physics-based Attacks Detection in Machining Cyber-physical Systems using In-situ Sensors as Side Channels," *INFORMS Annual Meeting*, 22-25 October, Houston, TX, USA. (Abstract)
- C71. Wells, L. J., Elhabashy, A. E., Woodall, W. H., and **Camelio, J. A.**, 2017, "Introducing Randomness into Control Chart Sampling Strategies to Better Protect against Cyber-Physical Attacks on Production Systems," *INFORMS Annual Meeting*, 22-25 October, Houston, TX, USA. (Abstract)
- C72. Elhabashy, A. E., Wells, L. J., Woodall, W. H., and **Camelio, J. A.**, 2018, "Misuse of Quality Control Tools in Manufacturing," *IISE Annual Conference and Expo*, 19-22 May, Loews Royal Pacific Resort, Orlando, FL, USA. (Abstract)

PROFESSIONAL SERVICE ACTIVITIES

- Reviewer for the ASME Journal of Manufacturing Science and Engineering, ASME Journal of Mechanical Design, IEEE/ASME Transactions on Mechatronics, IEEE Transactions on Automation Science and Engineering, ASME Journal of Computing and Information Science in Engineering, International Journal of Machine Tools and Manufacture, and International Journal of Production Research
- Reviewer National Science Foundation – CMMI Division (Unsolicited, CCLI, SBIR, and MRI)
- Reviewer Chilean National Science Foundation (CONICYT)
- Host/Organizer MSEC/NAMRC 2016 at Virginia Tech.
- Session Organizer, System Informatics for Quality and Reliability Improvements in Manufacturing Systems, 2013 ASME Manufacturing Science and Engineering Conference, Wisconsin, Madison.
- ASME Manufacturing Engineering Division – Manufacturing Systems Technical Committee-Chair and Vice Chair, 2011-2013.
- Track Organizer - Sustainable Manufacturing, 2012 ASME Manufacturing Science and Engineering Conference, Notre Dame.
- Chair Manufacturing Systems Session, 2011 North American Manufacturing Research Conference, Oregon State, Corvallis, OR.
- ASME - Manufacturing Engineering Technical Division Leadership Team, Newsletter Editor, 2009-2010.
- Session Chair - Advances in Diagnostics in Multistage Manufacturing Systems, 2009 Industrial Engineering Research Conference (IERC), Miami, FL.
- Organizer of Symposium "Advances in Multistage Manufacturing Systems – Modeling, Analysis and Control", 2009 ASME Manufacturing Science and Engineering Conference, Purdue University, West Lafayette, IN.
- ASME Manufacturing Engineering Division – Life Cycle Engineering Technical Committee-Chair and Vice Chair, 2008-2009.
- Session Chair - Model-Based Control and Quality, 2008 ASME Manufacturing Science and Engineering Conference, Northwestern University, Chicago, IL.
- ASME - Manufacturing Engineering Technical Division Leadership Team, Web Liaison, 2007-2008.

- Manufacturing Process and Systems Track Organizer, 2008 ASME Manufacturing Science and Engineering Conference, Northwestern University, Chicago, IL.
- Organizer of Symposium “Smart Assembly”, 2008 ASME Manufacturing Science and Engineering Conference, Northwestern University, Chicago, IL.
- Track co-Chair – Processing 2008 ASME Manufacturing Science and Engineering Conference, Northwestern University, Chicago, IL.
- Technical Committee - IEEE International Symposium on Assembly and Manufacturing (ISAM 2007), July 22-25, 2007, Ann Arbor, Michigan, USA.
- Faculty Advisor – Michigan Tech Chapter of Society of Hispanic Professional Engineers (SHPE), 2006 – 2008.
- Organizer of Symposium “Advances in Quality Control in Multistage Manufacturing Systems” 2006 ASME International Mechanical Engineering Conference and Exposition, Chicago, IL.
- Organizer of Symposium “New Developments in Sensors Integration” 2006 ASME International Conference on Manufacturing Science & Engineering, Ypsilanti, MI.
- Organizer of Symposium “Assembly Systems – Design, Modeling and Analysis” 2005 International Mechanical Engineering Conference and Exposition, Orlando, FL.

Michigan Tech Internal Service

2005 – 2006 Graduate Seminar Committee
 2006 – 2007 Faculty Development Committee
 2007 – Present Graduate Committee
 2006 – Present Faculty Advisor – Michigan Tech Chapter of Society of Hispanic Professional Engineers

Virginia Tech Internal Service

2016 – 2018 Member, College of Engineering Diversity and Inclusion Committee
 2016 – 2018 Member, ISE Diversity and Inclusion Committee
 2015 – 2016 Chair, ISE Diversity and Inclusion Committee
 2012 – 2013 Faculty Search Committee, Manufacturing Systems Position
 2012 – 2013 Virginia Tech – University of Nottingham Working Group
 2012 – Present Faculty Advisor, Virginia Tech Society of Manufacturing Engineers
 2011 – Present Member, ISE Strategic Planning Committee
 2010 - 2014 ISE Graduate Program Director

- Responsible for graduate recruiting and graduate admissions for the Grado Department of Industrial and Systems Engineering.
- Worked actively to increase the quality and quantity of applicants for our graduate programs (with a particular focus on domestic and underrepresented students)
- Responsible for complying with Graduate School policies in our programs.
- Worked on the incorporating a concentration scheme into our graduate programs with an emphasis on interdisciplinary research.

 2010 – 2014 Chair, ISE Graduate Policy Committee
 2010 – 2014 Chair, ISE Graduate Admissions Committee
 2011 – Present Director, ICTAS Center for Innovation Based Manufacturing at Virginia Tech
 2010 – 2011 ISE Faculty Search Committee, Manufacturing Position (Successfully recruited Dr. Jin)
 2009 – 2010 ISE Undergraduate Curriculum Committee

INVITED PRESENTATIONS

December 2018	Private-Public Partnerships - Manufacturing Roundtable, Panel Discussion, MEP National Network 30th Anniversary Recognition Commemoration, Washington DC.
November 2018	“Conexiones con Impacto 2: modelos colaborativos para promover encadenamientos productivos basados en I+D+I – CCAM Experience.” VII Encuentro Chile: Ciencia, Tecnología, y Empresa, Santiago, Chile.
May 2018	““Process Monitoring and Diagnosis – Building Virginia’s manufacturing capabilities with industrial partners – CCAM Experience,” NIST, Industry Forum: Monitoring, Diagnostics, and Prognostics at the National Institutes of Standards and Technology (NIST).
April 2018	“Security for next generation Intelligent Manufacturing Systems,” CPS Security Workshop, University of Georgia.
February 2016	“Cyber-Security Challenges in Manufacturing,” New River Valley ASQ Chapter, Blacksburg, VA.
November 2015	“Cyber-Security Challenges in Manufacturing,” Virginia Manufacturing Association Annual Conference, Charlottesville, VA.
September 2014	“Producing Bad Parts – A Case Study on Cyber-Security Challenges in Manufacturing,” Industrial Engineering, Auburn University, Auburn, AL.
March 2014	“Cyber-Security Challenges in Manufacturing – From Digital to Physical Vulnerabilities,” National Academy of Engineering Regional Symposium, Charlottesville, VA.
November 2013	“Cyber-Security Challenges in Manufacturing – From Digital to Physical Vulnerabilities,” National Defense Industry Association – Panel Discussion
October 2013	“Virginia Tech Manufacturing Program,” University of Science and Technology Beijing, Beijing, China.
October 2013	“Quality Monitoring Applications using High-Density Data,” Graduate Seminar, Department of Industrial Engineering, Tsinghua University, Beijing, China.
October 2013	“Quality Monitoring using High-Density Data - From Discrete Measurements to Multi-Layer Process Maps,” Graduate Seminar, Industrial and Systems Engineering, University of Wisconsin, Madison, WI.
November 2012	“Factory of the Future – An Open Discussion,” New River Valley ASQ Chapter, Blacksburg, VA.
October 2012	“The Use of Spatial Statistical Analysis for Image Based Part Inspection,” Data Fusion for Manufacturing System Performance Improvement Session, INFORMS Annual Conference, Phoenix, AZ.
May 2011	“Manufacturing Innovation,” Universidad Interamericana, San Juan, Puerto Rico.
Mar 2011	“Manufacturing Innovation,” Pontificia Universidad Católica de Chile, Santiago, Chile.
July 2010	“Quality Monitoring using Data Mining Tools,” ATK Arsenal, Radford, VA
June 2009	“A Bio-inspired Self-Healing Manufacturing System Framework,” Institute of Industrial Engineers (IIE) Annual Conference, Miami, FL.
July 2008	Presentation “Decision Making in Data Rich Environments,” Invited Presentation, Business School, Universidad de los Andes, Santiago, Chile.

July 2008	Presentation “A Self-Healing Approach towards Smart Assembly Systems,” Invited Presentation, Industrial Engineering Department, Universidad de los Andes, Santiago, Chile.
May 2008	Presentation “Smart Assembly Systems Lab at MTU,” Invited Presentation, General Motors, Warren, MI.
February 2008	Presentation “A Self-Healing Approach towards Smart Assembly Systems,” Invited Presentation, Virginia Tech.
March 2006	Presentation “Manufacturing Systems Lab at MTU,” Invited Presentation, General Motors, Warren, MI.
February 2005	Presentation “Dimensional Variation on Assembly Systems: Modeling, Analysis and Control,” Invited Presentation, State University of New York – Stony Brook.
February 2005	Presentation “Dimensional Variation on Assembly Systems: Modeling, Analysis and Control,” Invited Presentation, Michigan Technological University.
November 2003	Presentation “Dimensional Variation Analysis in Multi-Station Assembly Systems,” Graduate Seminar, Michigan Technological University.
October 2003	Presentation “Dimensional Variation Analysis in Multi-Station Assembly Systems,” Manufacturing Research Seminar, University of Michigan.
March 2003	Presentation “Variation Analysis for Assembly Systems,” National Manufacturing Week, Chicago, IL.
September 2002	Presentation “Modeling Variation Propagation of Multi-Station Assembly Systems with Compliant Parts,” Laboratory for Manufacturing System Realization and Synthesis, University of Wisconsin.

GRADUATE AND UNDERGRADUATE STUDENTS ADVISING

Current Ph.D. Students

Scott Bolar Research Topic: Cyber Physical Vulnerabilities in Machining Operations

Previous Students

Ph.D. Students

Tomilayo Komolafe	Ph.D. in Industrial and Systems Engineering – Virginia Tech – Dec 2018 Dissertation: <i>Data Analytics for Statistical Learning</i> Presales Solutions Architect at Qlik
Ahmed Elhabashy	Ph.D. in Industrial and Systems Engineering – Virginia Tech – Nov 2018 Dissertation: <i>Quality Control Tools for Cyber-Physical Security of Production Systems</i> Assistant Lecturer, Alexandria University
Thomas Hedberg	Ph.D. in Industrial and Systems Engineering – Virginia Tech – Oct 2018 Dissertation: <i>Enabling Connections in the Product Lifecycle using the Digital Thread</i> Program Manager of the Model-Based Enterprise Program, NIST
Mohamed Shafae	Ph.D. in Industrial and Systems Engineering – Virginia Tech – July 2018 Dissertation: <i>Advancing the Utility of Manufacturing Data for Modeling, Monitoring, and Securing Machining Processes</i> Assistant Professor. University of Arizona

- Zach Desmit Ph.D. in Industrial and Systems Engineering – Virginia Tech – July 2018
Dissertation: *Cyber-Physical Security for Advanced Manufacturing*
Northrop Grumman
- Wenmeng Tian Ph.D. in Industrial and Systems Engineering – Virginia Tech – July 2018
Dissertation: *Monitoring and Prognostics for Broaching Processes by Integrating Process Knowledge*
Assistant Professor. Mississippi State University
- Greg Purdy Ph.D. in Industrial and Systems Engineering – Virginia Tech – November 2016
Dissertation: *Resource Allocation and Process Improvement of Genetic Manufacturing Systems (co-advisor: Dr. Ellis)*
Assistant Professor. Auburn University
- Nasibeh Azadeh -Fard Ph.D. in Industrial and Systems Engineering – Virginia Tech – December 2015
Dissertation: *Essays on Risk Indicators and Assessment: “Theoretical, Empirical, and Engineering Approaches” (co-advisor: Dr. N. Ghaffarzadegan)*
Visiting Professor, Rochester Institute of Technology
- Lee Wells Ph.D. in Industrial and Systems Engineering – Virginia Tech – December 2013
Dissertation: *Advancing Manufacturing Quality Control Capabilities Through The Use Of In-Line High-Density Dimensional Data*
Assistant Professor. Western Michigan University
- Jeremy Rickli Ph.D. in Industrial and Systems Engineering – Virginia Tech – July 2013
Dissertation: *The Effect of Uncertain End-of-Life Product Quality and Consumer Incentives on Partial Disassembly Sequencing in Value Recovery Operations*
Assistant Professor – Wayne State University
- Anna Schuh Ph.D. in Industrial and Systems Engineering – Virginia Tech – May 2013
Dissertation: *Occupational Safety Surveillance Using a Statistical Monitoring Approach*
Engineer – US Army Public Health Command
- Fadel Megahed Ph.D. in Industrial and Systems Engineering – Virginia Tech - March 2012
Dissertation: *The Use of Image and Point Cloud Data in Statistical Process Control (co-advisor: Dr. W. Woodall)*
Assistant Professor – Miami University
- Kang Xie Ph.D. in Mechanical Engineering – Michigan Technological University - Dec 2009
Dissertation: *Analysis, Prediction and Control of Variation Propagation and Accumulation in Non-Linear Sheet Metal Assembly Processes.*
Working at Caterpillar, Shanghai, China
- Jianpeng Yue Ph.D. in Mechanical Engineering - University of Michigan - April 2006
Dissertation: *Uncertainty and Sensitivity Analysis of Assembly Systems (co-advisor with Dr. Jack Hu)*

M.S. Students – Thesis Option

- Arvinth Chandar Rathinam M.S. in Industrial and Systems Engineering – Virginia Tech – May 2013
Implementation and Use of In-Process Sensor Data for Monitoring Broaching and Turning Processes: A Multi - Sensor Approach
- Fadel Megahed M.S. in Industrial and Systems Engineering – Virginia Tech – Dec 2009
Towards the Utilization of Machine Vision Systems as an Integral Component of Industrial Quality Monitoring Systems

Kenny Ng	M.S. in Mechanical Engineering – Michigan Technological University – Aug 2009 <i>Experimental Analysis of Micro Tube Hydroforming Processes</i>
Jeremy Rickli	M.S. in Mechanical Engineering – Michigan Technological University – July 2008 A <i>Modified Hotelling T² Multivariate Control Chart For Enhanced Assembly Fixture Fault Detection</i>
Lee Wells	M.S. in Mechanical Engineering – Michigan Technological University – July 2008 <i>Enhanced Dimension-Reduction (rDR) Method for Quality and Sensitivity-Free Reliability Assessment</i>
John Q. Zhao	M.S. in Mechanical Engineering – Michigan Technological University – April 2008 <i>Advanced Manufacturing Fault Diagnosis: Integrating Adaptive Learning and Modeling Approaches</i>

M.S. Students – Non-Thesis Option

Andwele Grant	VT M.S. Non-Thesis, Dec 2015
Chris Rowland	VT M.S. Non-Thesis, Dec 2015
Christina Knopf	VT M.S. Non-Thesis, Dec 2015
Halil Dalipi	VT M.S. Non-Thesis, Dec 2015
Juan Folgar	VT M.S. Non-Thesis, May 2014
Greg Purdy	VT M.S. Non-Thesis, May 2012
Mandar Bulakh	VT M.S. Non-Thesis, May 2011
Marek Zareba	VT M.S. Non-Thesis, Dec 2010
Jeff Ahn	VT M.S. Non-Thesis, Dec 2010
Mohit Mujumdar	VT M.S. Non-Thesis, Dec 2010

Doctoral Committee Service

Kimberly Zeitz	VT Electrical and Computer Engineering, Advisor Dr. Tront – May 2019
Logan Sturn	VT Mechanical Engineering, Advisor Dr. Williams – January 2019
Jia Liu	VT Industrial and Systems Engineering, Advisor Dr. Kong – July 2017
Hongyue Sun	VT Industrial and Systems Engineering, Advisor Dr. Jin – April 2017
Bandar Alkahlan	VT College of Architecture and Urban Studies, Advisor Dr. Jones – May 2016
Negar Kalantar	VT College of Architecture and Urban Studies, Advisor Dr. Jones – May 2016
Kaveh Bastani	VT Industrial and Systems Engineering, Advisor Dr. Kong – February 2015
Daniel Steeneck	VT Industrial and Systems Engineering, Advisor Dr. Sarin – Sep 2014
Johana Madrigal	VT Wood Science and Forest Products, Advisor Dr. Quesada - Jul 2012
Jeonghan Ko	(U of Michigan Mechanical Engineering, Advisor Dr. Hu – April 2006
Xiaoxia Lai	MTU Mechanical Engineering, Advisor Dr. Gershenson – Jul 2008
Xiaoli Ye	MTU Mechanical Engineering, Advisor Dr. Gershenson – Jul 2008

Master Thesis Committee Service

Chino Imediegwu	(U. of Michigan – Advisor Dr. Hu) - Committee Member - 2002
Prasad Shirodkar	(MTU - Advisor: Dr. Sutherland) – Committee Member – Sept. 2006
Hector Delgadillo	(MTU - Advisor: Dr. Narain) – Committee Member– Sept. 2006
Dan Adler	(MTU - Advisor: Dr. Sutherland) – Committee Member – Dec 2006
Drew Vettel	(MTU - Advisor: Dr. Gershenson) – Committee Member – Dec 2006
Nikhil Sanyal	(MTU - Advisor: Dr. Gershenson) – Committee Member – Dec 2006
Anil Kothari	(MTU - Advisor: Dr. Sutherland) – Committee Member – Feb 2007
Eryn Devola	(MTU - Advisor: Dr. Pandit) – Committee Member – Nov 2007
Jonathan Granstrom	(MTU - Advisor: Dr. Sodano) – Committee Member – Dec 2007
Mehulkumar Patel	(MTU - Advisor: Dr. Friedrich) – Committee Member – Dec 2007
David Bateman	(VT – Advisor: Dr. Sturges) – Committee Member – Dec 2010

Student Awards

- Dr. Camelio's senior design team obtained the First Place in the Design Competition in the 2007 ASME Manufacturing Science and Engineering Conference in Atlanta, GA, with their work on "Automatically Indexing Insert Toolholder".
- Fadel Megahed, Third Place, Paul E. Torgersen, Research Excellence Award, Virginia Tech College of Engineering, April 2010.
- Greg Purdy, Outstanding Graduate Student Leader Award (2016)

TEACHING

Teaching Interests

- Capstone Senior Design
- Assembly Systems
- Design Optimization
- Manufacturing Processes
- Design and Analysis of Manufacturing Systems
- Data Mining in Manufacturing Systems
- Smart Manufacturing
- Statistics for Manufacturing Systems
- Design of Experiments

Courses Taught

Dynamics – Universidad Catolica de Chile (Fall 1996, Fall 1997, and Fall 1998)

Manufacturing Processes – Universidad Catolica de Chile (Spring 1996 and Spring 1997)

Metal Forming - Graduate Student Instructor – University of Michigan

Assembly Systems - Graduate Student Instructor – University of Michigan

Senior Design – Advisor – Michigan Tech (Fall 2005 – Spring 2006, Spring 2008)

Production Planning – Michigan Tech (Spring 2006, Spring 2007, Spring 2008)

Metal Forming – Michigan Tech (Fall 2006)

Optimization – Michigan Tech (Fall 2007)

Manufacturing Processes, Virginia Tech (Fall 2008, Spring 2009, Spring 2010, Spring 2012, Spring 2013, Spring 2014, Spring 2015)

Manufacturing Systems, Virginia Tech (Fall 2009, Fall 2011, Fall 2012)

Data Mining in Industrial Engineering, Virginia Tech (Fall 2010)

Smart Manufacturing, Virginia Tech (Fall 2014)

Capstone Senior Design (Fall 2015, Spring 2016, Fall 2016, Spring 2017)

Senior Design Accomplishments: The senior design projects that I advised in 2006 got the first and second place in the MTU College of Engineering design competition.

Underrepresented Groups Accomplishments: I was the faculty advisor for the Society of Hispanic Professional Engineers at MTU for three years. I have provided technical as well as personal advice to minority undergraduate/graduate students in the College of Engineering and advised minority students planning to transfer from Delta Community College (MI) and Grand Rapids Community College (MI). I have also worked with SHPE group at Virginia Tech participating in the 2010 National SHPE Conference in Washington, DC.

PROFESSIONAL MEMBERSHIPS

- American Society of Mechanical Engineers (ASME)
- Society of Manufacturing Engineers (SME)
- Institute for Operations Research and the Management Sciences (INFORMS)
- Society of Hispanic Professional Engineers (SHPE)