

# GORDON G. PARKER

John & Cathi Drake Chair Professor of Mechanical Engineering

Michigan Technological University, 815 R.L. Smith, 1400 Townsend Dr., Houghton, MI 49931  
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## RESEARCH EXPERTISE

### **Mechatronics and Nonlinear Controls**

Application areas include future naval shipboard technologies, diesel engine exhaust aftertreatment, and microgrid modeling, optimization and control for civilian and defense sectors.

## EDUCATION

### **Ph.D. in Mechanical Engineering, 1994**

*SUNY Buffalo, Buffalo, NY*

Dissertation: Control Techniques for Multibody Flexible Structures Modeled by a Method of Quadratic Modes

Advisor: Dr. Daniel Inman

### **M.S. in Aerospace Engineering, 1988**

*University of Michigan, Ann Arbor, MI*

### **B.S. in Systems Engineering, 1987**

*Oakland University, Rochester, MI*

## EXPERIENCE

### **Professor, 2006-Present**

*Michigan Technological Univ., Houghton, MI*

### **AIM Center co-Director, 2011-Present**

### **Director of Research, 2007-2011**

### **Associate Professor, 2001-2006**

### **Assistant Professor, 1996-2001**

Developed a funded research program in mechatronics and controls, and established the Intelligent Systems and Control Laboratory and Michigan Tech's center for Agile and Interconnected Microgrids (AIM). AIM has 18 researchers spanning seven academic units whose customers include NSF, ONR, NAVSEA, ARL, TARDEC, AFRL, DOE, Sandia National Laboratories. Advised both M.S. and Ph.D. students, teaching approximately 3 courses and 120 students annually. Developed undergraduate laboratories for both control systems and mechatronics courses. Created a popular, 64 segment, open source, video series on control system analysis and design used by students internationally via YouTube.

### **Senior Member of Tech. Staff, 1995-1996**

*Sandia National Labs, Albuquerque, NM*

### **Post Doctoral Researcher, 1994-1995**

### **Dept. of Energy Fellow, 1992-1994**

Developed control design research projects in several technical areas including: large angle spacecraft reorientation, fault-tolerant robots and flexible, multibody systems.

### **Aerospace Engineer, 1989-1991**

*General Dynamics Space Sys., San Diego, CA*

Designed trajectories for new launch vehicle systems.

## AWARDS AND HONORS

- John & Cathi Drake Chair Professor of Mechanical Engineering, 2007- Present
- Fellow, Society of Automotive Engineers (SAE), 2014-Present
- Guest Speaker, US Army TARDEC Innovation Talk series, 2015
- Guest Speaker, US Army Microgrid Working Group Meeting, 2015
- Guest Speaker, US ONR / DOE / FSU Center for Advanced Power Systems Controls Workshop, 2015
- Guest Speaker, US Navy R&D Symposium, 2009
- Guest Speaker, 2006, European Space Agency Workshop on Innovative System Design Concepts
- Best Paper Award, 2004, *8th World Multi-Conference on Systemics, Cybernetics and Informatics*, 'Anti-Swing Control of Suspended Loads on Shipboard Robotic Cranes,' Session: Robotics and Computer Security
- Ralph R. Teetor Award, 2003, *Society of Automotive Engineers*
- Distinguished Teaching Award, 2001, *Michigan Technological University*

**PROFESSIONAL SOCIETIES**

American Institute of Aeronautics and Aerospace (AIAA), American Society of Engineering Educators (ASEE), American Society of Mechanical Engineers (ASME), Institute of Electrical and Electronic Engineers (IEEE), Society of Automotive Engineers (SAE)

**GRANTS**

1. **US Army Research Laboratory**, \$1,153,580, *Distributed Agent-Based Management of Agile Microgrids*, 2013-2017, with W. Weaver, L. Brown, and S. Goldsmith.
2. **John Deere, Cummins, Detroit Diesel, Johnson Matthey, Corning, Tenneco**, \$817,620, *MTU Consortium in Diesel Engine Aftertreatment Research*, 2013-2017, with J. Johnson and J. Naber.
3. **US Army Tank Automotive Research Development and Engineering Center (TARDEC)**, \$148,433, *Vehicle-to-Vehicle Resource Sharing*, 2013-2014, with W. Weaver and S. Goldsmith.
4. **Quantum Engineering Design**, \$75,000, *Ramp Motion Compensation Platform Analysis*, 2015.
5. **IMECO**, \$37,598, *SGAS Drivetrain Model Calibration*, 2013-2014.
6. **Argonne National Laboratory**, \$250,000, *Modeling and Control Technologies for Near-Term and Long-Term Networked Microgrids*, 2013-2014, with W. Weaver and C-W. Ten.
7. **Sandia National Laboratories**, \$450,000, *Agent Based Control of Microgrids with High-Penetration Renewables*, 2012-2013, with W. Weaver.
8. **Sandia National Laboratories**, \$358,745, *Modeling and Control of Microgrids with High-Penetration Renewables*, 2011-2013, with W. Weaver.
9. **Craft Engineering**, \$210,292 *Control System Development for Extending Boom Cranes*, 2011-2014.
10. **US Department of Energy**, \$2,800,000, *Experimental Studies for DPF and SCR Model, Control System, and OBD Development for Engines Using Diesel and Biodiesel Fuels*, 2009-2013, with J. Johnson, J. Naber, J. Keith, and H. Yang.
11. **National Science Foundation**, \$144,604 *Weaving Threads of Sustainability into the Fabric of the Mechanical Engineering Curriculum : Impacting the Fundamental Manner in which Students Solve Problems*, 2009-2011, with M. Miller, J. Gershenson, C. Margraves, and I. Miskioglu.
12. **Naval Surface Warfare Center**, \$156,799, *Automated Rider Block Tagline System Research*, 2008-2009, with J. Blough.
13. **Craft Engineering**, \$159,000, *Ship Launched Aerial Delivery System Control System Research*, 2009-2011.
14. **Navistar**, \$120,000, *SCR and DOC System Modeling*, 2009, with J. Johnson.
15. **Naval Surface Warfare Center, Carderock**, \$245,000, *Automatic Rider Block Tagline Control System*, 2007, with J. Blough.
16. **Michigan Economic Development Corporation**, \$1,300,000, *Optimizing Mechanical, Chemo, and Electrical Characteristics of MEMS Chemical Sensors*, 2007-2009, with M. Miller, H. Sodano, P. Bergstrom, S. Green, and H. Li.
17. **Sandia National Laboratories**, \$20,000, *Modeling and Control of an RF MEMS Switch*, 2007.
18. **Naval Surface Warfare Center**, \$192,000, *Ship Motion Cancellation Crane Control*, 2006, with J. Blough.
19. **Craft Engineering, Inc.**, \$46,000, *Ship-to-Shore Cargo Transfer Systems Development*, 2006.
20. **Intelligent Automation Inc.**, \$23,000, *Modeling and Control of a Dynamically Positioned Ship*, 2006.
21. **International Truck and Engine**, \$356,000, *SCR Catalyst Modeling and Evaluation of Control Strategies for NO<sub>x</sub> Reduction in Diesel Engine Exhaust Aftertreatment Systems*, 2005-2008, with J. Johnson.
22. **Ford Motor Company**, \$94,689, *Variable Cam Timing Engine Control Strategy Optimization*, 2005, with J. Naber.

GRANTS  
CONTINUED

23. **Naval Surface Warfare Center**, \$85,157, *Ship Motion Testbed Development*, 2004-2005.
24. **Rolls Royce Marine**, \$141,713, *High Capacity At-Sea Transfer of Materials, Personnel, and Equipment*, 2004, with J. R. Blough.
25. **Whirlpool**, \$50,000, *Development of a Compliant Floor Test Stand*, 2004, with C. Van Karsen.
26. **Caterpillar**, \$29,855, *Nonlinear Model Correlation with Application to Tracked Vehicles*, 2003-2004.
27. **Naval Surface Warfare Center**, \$288,258, *System Identification of Hydrostatic Transmissions*, 2003-2004.
28. **General Motors**, \$47,013, *Active Road Noise Suppression*, 2002-2003, with J. Blough
29. **Air Force Office of Scientific Research**, \$207,388, *Optimal Design of Smart Structures*, 2001-2003, with B. Bettig.
30. **Army Research Office**, \$780,181, *Engine Research Collaboration with the University of Wisconsin-Madison*, 2000-2003, with C. Anderson, O. Arici, S. Bagley and J. Johnson.
31. **Sandia National Laboratories**, \$210,016, *Crane Payload Sway Control*, 1999-01.
32. **State of Michigan**, \$65,775, *High Speed Electromagnetic Bearing Spindle Control Research*, 1998.
33. **Engineered Machine Products**, \$59,926, *A Study Using VECSS Software*, 1998-99, with O. Arici and J. Johnson.
34. **Ford Motor Company**, \$90,589, *SI Engine Air/Fuel Ratio Control*, 1998-00.
35. **Naval Surface Warfare Center, Carderock**, \$38,232, *Ship Based Crane Control*, 1997-1998.
36. **Society of Manufacturing Engineering**, \$23,069, *Command Filtering for Automated Movement of Compliant Payloads*, 1997-1998.
37. **Sandia National Laboratories**, \$27,992, *Vibration Control Research*, 1996-1997.
38. **National Science Foundation**, \$24,560, *Flexible Robot Test-Bed*, 1995-1996, with E. Baumgartner.
39. **Boeing Corp. and Waya Research**, \$20,000 equipment gift, January 1997.
40. **dSPACE, Inc.**, \$5,000 equipment gift, November 1996.

CURRENT  
GRADUATE  
STUDENTS

1. **V. Chundru, Ph.D.**, Expected Graduation: Fall 2016, *Experimentally Validated Modeling of a Diesel Engine Exhaust Aftertreatment Component with Combined DPF and SCR Functions*
2. **R. Jane, Ph.D.**, Expected Graduation: Fall 2016, *Modeling, Simulation and Agent Control for Vehicle-to-Vehicle Resource Sharing*
3. **M. Cook, Ph.D.**, Spring 2017, *Agent-Based Control of Microgrids*
4. **Z. Bagheri, Ph.D.**, Expected Graduation: Fall 2017, *Modeling and Active Control of Ocean Structures*

GRADUATE  
STUDENTS  
ADVISED

1. **D. Rizzo, Ph.D.**, Fall 2014, *Military Vehicle Optimization and Control*
2. **H. Surenahalli, Ph.D.**, Fall 2013, *Dynamic Model Based State Estimation in a Heavy Duty Diesel Aftertreatment System for Onboard Diagnostics and Controls*
3. **J. Blecke, Ph.D.**, Spring 2011, *Control Design and Genetic Algorithm Optimization for Electrostatic MEMS*
4. **A. Puranik, Ph.D.**, Spring 2011, *Dynamic Modeling, Simulation and Control Design of a Parafoil Payload System for Ship Launched Cargo Delivery System*
5. **J. Gonzalez-Diaz, Ph.D.**, Spring 2010, *Closed Loop Docking with a Nearly Periodic Moving Target*

6. **L. Zhu, Ph.D.**, Spring 2008, *System Identification and Adaptive Control of Brushless D.C. Motors*
7. **J. Tang, Ph.D.**, Fall 2007, *Control of Nonminimum Phase Systems*
8. **M. Devarakonda, Ph.D.**, Fall 2007, *SCR Catalyst Control for Diesel Engine Aftertreatment*
9. **Z. Shi, Ph.D.**, Spring 2006, *Nonlinear System Identification with Application to Hydrostatic Transmissions*
10. **W. Chen, Ph.D.**, Fall 2004, *Optimal Design of Smart Structures*
11. **J. Doering, Ph.D.**, May 2000, *Improved Disturbance Rejection and Tracking Control of Time Delayed Systems: Application to Engine Air-Fuel Ratio Control*
12. **H. Kucuk, Ph.D.**, November 1999, *Vision Aided Path Planning for Flexible Link Robots*
13. **E. Little, Ph.D.**, October 1999, *The Application of Magneto-Rheological Fluids to Intelligent Helmholtz Resonators*
14. **M. Heath, M.S.**, Fall 2013, *Realization of a DC Microgrid Using a Hamiltonian Based Controls Solution*
15. **K. Bourdeau, M.S.**, Fall 2013, *Agent Based Distributed Control Strategies and Optimization of Plug-In Hybrid Electric Vehicles on Micro/Smart Grid Architectures*
16. **C. Abis, M.S.**, December 2012, *Kalman Filter Load Swing State Estimation*
17. **E. Trinklein, M.S.**, Summer 2011, *Post Processing of Multiple GPS Receivers to Enhance Baseline Accuracy*
18. **N. Borate, M.S.**, Fall 2011, *Parameter Identification of a Copper-Zeolite SCR Catalyst Model Using Reactor Data*
19. **A. Pethe, M.S.**, Summer 2011, *Dynamic Modeling of Active Regeneration in Catalyzed and Non-Catalyzed Diesel Particulate Filters*
20. **S. DeLand, M.S.**, Fall 2010, *Development and Parameter Identification of an Iron-Zeolite SCR Catalyst Model Using Reactor Data*
21. **T. Schoenherr, M.S.**, Summer 2010, *Modeling, Simulation, and Experimental Studies of Asymmetric Beam Vibration Using the Method of Quadratic Modes*
22. **M. Farmer, M.S.**, Fall 2008, *3-Axis Control System Development of a Nano-satellite*
23. **M. Graziano, M.S.**, Fall 2007, *Development of a Controlled Rider Block Tagline System for Marine Cranes*
24. **J. Tang, M.S.**, Summer 2006, *Trajectory Generation for Nonminimum Phase Systems*
25. **K. Bulgakov, M.S.**, Spring 2006, *Design and Fabrication of a Crane with Differentially Controlled Tagline System*
26. **A. Sharma, M.S.**, Fall 2005, *Optimal Trajectories for Robotic Repositioning of Flexible Payloads*
27. **B. Vande Hei, M.S.**, Fall 2004, *Model Correlation of a Tracked Vehicle*
28. **J. Gan, M.S.**, Summer 2004, *Adaptive Noise Control*
29. **N. Singh, M.S.**, Fall 2003, *Active Control for Diesel Particulate Filter Regeneration*
30. **S. Ng, M.S.**, Fall 2003, *Robot Trajectory Design for High-Speed Flexible Payloads*
31. **R. Petteys, M.S.**, Fall 2003, *Modelling, Simulation and Adaptive Control of an Electromagnetic Bearing System*
32. **A. Dhaliwal, M.S.**, Fall 2003, *Active Structural Acoustic Control of Road Noise in a Vehicle*
33. **W. Chen, M.S.**, Fall 2003, *Optimal Sensor Design and Control of Piezoelectric Laminate Beams*
34. **S. Frait, M.S.**, Fall 2003, *Parameter Effects in Magnetic Speed Sensing Through a Rotating Element*
35. **B. Luptowski, M.S.**, Summer 2003, *Development and Evaluation of an all Electric Active Cooling System in a Heavy Duty Diesel Truch using the Vehicle Engine Cooling System Simulation Enhanced with GT-Power*
36. **J. Chong, M.S.**, August 2002, *Dynamic Behavior of Spacecraft Formation Flying Using Coulomb Forces*

37. **C.-W. Chiu, M.S.E.**, December 2001, *Genetic Algorithm Development and Application to Smart Material Optimization*
38. **E. Kruse, M.S.**, December 2001, *Nonlinear Modeling and Simulation of a Hydrostatic Drive System*
39. **R. Chalgren, M.S.**, December 2000, *A Controlled EGR Cooling System for Heavy-Duty Diesel Applications Using the Vehicle Engine Cooling System Simulation*
40. **C. Lehner, M.S.**, May 1999, *Design and Development of a Model Based Feedback Controlled Cooling System for Heavy Duty Diesel Truck Applications Using a Vehicle Engine Cooling System Simulation*
41. **M. Agostini, M.S.**, May 1999, *Command Shaping Control for Repositioning Flexible Payloads*
42. **D. Lewis, M.S.**, November 1998, *Sway Suppression for Operator Induced Disturbances in a Rotary Boom Crane*
43. **A. Banka, M.S.**, May 1998, *Dynamic Analysis and Control System Development for a Multi-Staged Stewart Platform Manipulator*
44. **J. Suthakorn, M.S.**, May 1998, *Anti-Sway Control of Suspended Loads on Shipboard Cranes*
45. **N. Klymyshyn, M.S.**, November 1996, *Optimal Camera Configuration for Vision-Based Robot Positioning*
46. **W. Van Marion, M.S.**, November 1996, *Spark Ignition Engine Idle Speed Control*

1. Kantamneni, A., Brown, L. E., Goldsmith, S., Weaver, W. and Parker, G., 2015, "Survey of Multi-Agent Systems Based Control of Microgrids," *International Journal of Engineering Applications of Artificial Intelligence*, Vol. 45, pp. 192-203.
2. Weaver, W., Robinett, R. D., Parker, G. G., and Wilson, D. G., 2015, "Distributed Control and Energy Storage Requirements of Networked Dc Microgrids," *Control Engineering Practice*, Vol. 44, pp. 10-19.
3. Weaver, W., Robinett, R., Parker, G., and Wilson, D., 2015, "Energy Storage Regulation of a Dc Microgrid with High Penetration Renewables Under Droop Control," *International Journal of Electrical Power and Energy Systems*, Vol. 68, pp. 203-209.
4. Tang, Y., Ten, C.-W., Wang, C., and Parker, G., 2015, "Image-Extracted Energy Information Based on Existing Electromechanical Analog Meters," *IEEE Transactions on Smart Grid*, Vol. 6, No. 4, pp. 2032-2040.
5. Leban, F. A., Diaz-Gonzalez, J., Parker, G. G., and Zhao, W., 2015, "Inverse Kinematic Control of a Dual Crane System Experiencing Base Motion," *IEEE Transactions on Control System Technology*. Vol. 23, No. 1, pp. 331-339.
6. Rizzo, D. and Parker G. G., 2014, "Determining Optimal State of Charge for a Military Vehicle Microgrid," *International Journal of Powertrains*, Vol. 3, No. 3, pp. 303-318.
7. Song, X., Parker, G., Johnson, J., Naber, J., and Pihl, J., 2014, "A SCR Model Calibration Approach with Spatially Resolved Measurements and NH<sub>3</sub> Storage distributions," *Emission Control Science and Technology* Vol. 1, No. 1 pp. 98-107.
8. Kramer, D. and Parker, G. G., 2011, "Current State of Military Hybrid Vehicle Development," *International Journal of Electric and Hybrid Vehicles*, Vol. 3, No. 3.
9. Devarakonda, M. N., Parker, G. G., Johnson, J. J., and Strots, V., 2010, "Model Based control System Design in a Urea-SCR Aftertreatment System Based on NH<sub>3</sub> Sensor Feedback," *International Journal of Automotive Technology*, Vol. 10, No. 6, pp. 653-662.
10. Shi, Z., Parker, G. G., and Granstrom, J., 2010, "Kinematic Analysis of a Swash-Plate Controlled Variable Displacement Axial-Piston Pump with a Conical Barrel," *ASME Journal of Dynamic Systems, Measurement, and Control*, Vol. 132, No. 1.
11. Blecke, J., Epp, D. S., Sumali, H., and Parker, G. G., 2009, "A Simple Learning Control to Eliminate RF-MEMS Switch Bounce," *Journal of Microelectromechanical Systems*, Vol. 18, No. 2, pp. 458-465.
12. Devarakonda, M., Parker, G., Johnson, J. H., Strots, V., and Santhanam, S., 2009, "Model-Based Estimation and Control System Development in a Urea-SCR Aftertreatment System", *SAE Transactions Journal of Fuels and Lubricants*, Vol. 1, No. 1, pp. 646-661.

13. Natarajan, A., Schaub, H., and Parker, G., 2007, "Reconfiguration of a Nadir-Pointing 2-Craft Coulomb Tether", *Journal of the British Interplanetary Society*, Vol. 60, No. 6, pp. 209-218.
14. Parker, G., Schaub, H., Natarajan, A., and King, L., 2007, "Coulomb Force Virtual Space Structures," *ACTA Futura*, No. 2, pp. 39-44.
15. Miller, M. H., Perrault, J. A., Parker, G. G., Bettig, B. P., and Bifano, T. G., 2006, "Simple Models for Piston-Type Micromirror Behavior," *Journal of Micromechanics and Microengineering*, Vol. 16, pp. 303-313.
16. Singh, N., Johnson, J. H., Parker, G. G., and Yang, S.-L., 2005, 'Vehicle Engine Aftertreatment System Simulation (VEASS) Model: Application to a Controls Design Strategy for Active Regeneration of a Catalyzed Particulate Filter,' *SAE 2005 Transactions Journal of Fuels and Lubricants*, SAE Paper No. 2005-01-0970.
17. Dhaliwal, A., Parker, G.G., and Blough, J.R., 2004, "Active Structural Acoustic Control of Road Noise in a Passenger Vehicle," *International Journal of Vehicle Autonomous Systems*, Vol. 2, No. 3/4, pp. 168-188.
18. Kucuk, H., Parker, G. G., Baumgartner, E. T., and Klymyshyn, N. A., 2004, "Desensitization of Camera-Aided Manipulation to Target Specification Errors," *Presence, Teleoperators and Virtual Environments*, Vol. 13, No. 4, pp. 385-394.
19. Kucuk, H., Parker, G., and Baumgartner, E., 2004, "Robot Positioning of Flexible-Link Manipulator Using Vision," *Robotica*, Vol. 22, pp. 301-307.
20. Schaub, Hanspeter, Parker, G. G., and King, L. B., 2004, 'Challenges and Prospects of Coulomb Satellite Formation Flying,' *The Journal of the Astronautical Sciences*, Vol. 52, No 1/2, pp. 169-193.
21. Chen, W., Buehler, M., Parker, G. G., and Bettig, B., 2004, 'Optimal Sensor Design and Control of Piezoelectric Laminate Beams,' *IEEE Transactions on Control System Technology*, Vol 12, No. 1 pp. 148-155.
22. Kladopoulou, E. A., Yang, S. L., Johnson, J. H., and Konstandopoulos, A. G, 2003, "A Study Describing the Performance of Diesel Particulate Filters During Loading and Regeneration - A Lumped Parameter Model for Control Applications," *SAE Journal of Fuels and Lubricants*, pp. 647-668.
23. Buehler, M. J., Bettig, B. P., and Parker, G. G., 2003, 'Numerical Homogenization of Smart Material Finite Element Cells,' *Communications on Numerical Methods in Engineering*, Vol. 19, No. 12, pp. 977-989.
24. Buehler, M. J., Bettig, B. P., and Parker, G. G., 2003, 'Topology Optimization of Smart Structures using a Homogenization Approach', *Journal of Intelligent Material Systems and Structures*, Vol. 15, No. 8, pp. 655-667.
25. Wilson, D. G., Starr, G. P., Parker, G. G., and Robinet, R. D., 2003, 'Nonlinear Adaptive Control for Slewing Flexible Active Structures,' *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 27, No. 1, pp. 142-145.
26. King, L. B., Parker, G. G., and Chong, J.-H., 2003, 'Coulomb Controlled Spacecraft Formation Flying,' *AIAA Journal of Propulsion and Power*, Vol. 19, No. 3, pp. 497-505.
27. Agostini, M., Parker G. G., Schaub, H., and Groom, K., 2003, 'Generating Swing Suppressed Maneuvers for Crane Systems with Rate Saturation,' *IEEE Transactions on Control Systems Technology*, Vol 11, No. 4, pp. 471-481.
28. Agostini, M. and Parker, G., 2002, 'Command Shaping Nonlinear Inputs Using Basis Functions', *Journal of Intelligent Materials Systems and Structures*, Vol. 13, No. 2, pp. 181.
29. Wilson D. G, Robinett, R. D., Parker, G. G., and Starr, G., 2002, 'Augmented Sliding Mode Control for Flexible Link Manipulators,' *Journal of Intelligent and Robotic Systems*, Vol. 34, No. 4, pp. 415-430.
30. Lehner, C., Parker, G. G., Arici, O., and Johnson, J., 2001, 'Design and Development of a Model Based Feedback Controlled Cooling System for Heavy Duty Diesel Truck Applications Using a Vehicle Engine Cooling System Simulation,' *SAE 2001 Transactions, Journal of Engines*, SAE Paper Number 2001-01-0336, Vol. 110, pp. 321-340.

JOURNAL  
PUBLICATIONS  
CONTINUED

31. Driessen, B.J., Sadegh, N., Parker, G. G., and Eisler, G. R., 1999, 'A Fast and Robust Algorithm for General Inequality/Equality Constrained Minimum-Time Problems,' *ASME Journal of dynamic Systems, Measurement and Control*
32. Robinett, R. D. and Parker, G. G., 1997, 'Least Squares Sliding Mode Control Tracking of Spacecraft Large Angle Maneuvers, *Journal of the Astronautical Sciences*, Vol. 45, No. 4, pp. 433-450.
33. Parker, G. G., Eisler, G. R., Robinett, R. D., and Feddema, J., 1997, 'Optimal Trajectories for Flexible-Link Manipulator Slewing Using Recursive Quadratic Programming: Experimental Verification,' *ASME Journal of Dynamic Systems, Measurement and Control*, Vol. 199, No. 4, pp. 833-835.
34. Robinett, R. D., Parker, G. G., Schaub, H., and Junkins, J., 1997, 'Lyapunov Optimal Saturated Control for Nonlinear Systems,' *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 20, No. 6, pp. 1083-1088.
35. Feddema, J. T., Dohrmann, C. R., Parker, G. G., Robinett, R. D., Romero, V. J., and Schmitt, D. J., 1997, 'Control for Slosh-Free Motion of an Open Container,' *IEEE Control Systems*, Vol. 17, No. 1, pp. 29-36.
36. Parker, G. G., Segalman, D. J., Robinett, R. D., and Inman, D. J., 1996, 'Decentralized Sliding Mode Control of Nonlinear Flexible Robots,' *Journal of Intelligent & Robotic Systems: Theory and Applications*, Vol. 17, pp. 61-79.
37. Redmond, J. M. and Parker, G. G., 1996, 'Actuator Placement Based on Reachable Set Optimization,' *International Journal of Optimization Theory and Application*, Vol. 90, No. 2, pp. 279-300.
38. Robinett, R. D. and Parker, G. G., 1996, 'Spacecraft Euler Parameter Tracking of Large Angle Maneuvers via Sliding Mode Control,' *AIAA Journal of Guidance, Control and Dynamics*, Vol. 19, No. 3, pp. 702-703.
39. Redmond, J. M., Parker, G. G., and Hennerichs, T., 1995, 'Optimal Load Limiting Parachute Inflation Control,' *The Aeronautical Journal*, Vol. 99, No. 987, pp.306-312.

CONFERENCE  
PUBLICATIONS

1. Trinklein, E. and Parker, G., 2016, "Optimal Control of a Networked Ship Microgrid," *Proceedings of the ASNE Advanced Machinery Technology Symposium 2016*, Philadelphia, PA.
2. Jane, R. S., Parker, G. G., Weaver, W. W. and Rizzo, D. M., 2016, "Fuel-Optimal Strategies for Vehicle Supported Military Microgrids," *Proceedings of the SAE 2016 World Congress & Exhibition*, Detroit, MI.
3. Trinklein, E., Parker, G., and Blough, J., 2016, "Stiffness Characterization of an Inflated Airbag Based Three Axis Motion Platform," *Proceedings of the IMAC-XXXIV Conference & Exposition on Structural Dynamics*, Orlando, FL.
4. Parker, G., Weaver, W., Robinett, R. D., and Wilson, D. G., 2015, "Optimal DC Microgrid Power Apportionment and Closed Loop Storage Control to Mitigate Source and Load Transients," *Proceedings of the Resilient Control Systems Conference: Resilience Week*, Philadelphia, PA.
5. Hassell, T., Weaver, W., Robinett, R., Parker, G. G., and Wilson, D. G., 2015, "Modeling of Inverter Based Ac Microgrids for Control Development," *Proceedings of the 2015 IEEE Multi-Conference on Systems and Control*, Sydney, Australia, September.
6. Weaver, W. and Parker, G., 2014, "Global Optimization of DC Microgrids Through Local Control of Energy Storage Sources", *Proceedings of the 15th IEEE Workshop on Control and Modeling for Power Electronics*, Santander, Spain, June.
7. Surenahalli, H., Parker, G. G., and Johnson, J. H., 2014, "Extended Kalman Filter to Estimate NO, NO2, Hydrocarbon and Temperatures in a DOC during Active Regeneration and Under Steady State Conditions," *Proceedings of the 2014 SAE World Congress* SAE Paper 2015-01-1059.
8. Jane, R., Parker, G. G., Weaver, W., Goldsmith, S., 2014, "Vehicle-to-Vehicle Resource Sharing", *Proceedings of the Ground Vehicle Systems Engineering and Technology Symposium*, Dearborn, MI, Aug.
9. Weaver, W. W., and Parker, G. G., 2014, "Real-Time Hardware-in-the-Loop Simulation for Optimal Dc Microgrid Control Development," *Proceedings of the 15th IEEE Workshop on Control and Modeling for Power Electronics (COMPEL)*, Santander, Spain, June.

10. Song, X., Parker, G. G., Johnson, J. H., Naber, J. D., Pihl, J., 2013, "A Modeling Study of SCR Reaction Kinetics from Reactor Experiments", *2013 SAE World Congress & Exhibition*, Paper Number 2013-01-1576, Detroit, MI, April.
11. Song, X., Naber, J. D., Johnson, J. H., Parker, G. G., 2013, "An Experimental and Modeling Study of Reaction Kinetics for a Cu-Zeolite SCR Catalyst Based on Engine Experiments", *2013 SAE World Congress & Exhibition*, Paper Number 2013-01-1054, Detroit, MI, April.
12. Song, X., Surenahalli, H., Naber, J. D., Parker, G. G., Johnson, J. H., 2013, "Experimental and Modeling Study of a Diesel Oxidation Catalyst (DOC) under Transient and CPF Active Regeneration Conditions", *SAE 2013 World Congress & Exhibition*, Paper Number 2013-01-1046, Detroit, MI, April.
13. Stevens, A., Sun, Y., Lian, J., Devarakonda, M., Parker, G. G., 2013, "Optimal SCR Control Using Data- Driven Models", *SAE 2013 World Congress & Exhibition*, Paper Number 2013-01-1573, Detroit, MI, April.
14. Surenahalli, H., Parker, G. G., Johnson, J. H., 2013, "Extended Kalman Filter Estimator for NH<sub>3</sub> Storage, NH<sub>3</sub> Estimation in a SCR", *SAE 2013 World Congress & Exhibition*, Paper Number 2013-01-1581, Detroit, MI, April.
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**COURSES  
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