

Journal Publications

1. Clanton, J., Bevly, D.M., Hodel, S., "A Low Cost Solution for an Integrated, Multi-Sensor Lane Departure Warning System," accepted for publication in *IEEE Transaction on Intelligent Transportation Systems*
2. Anderson, R., and Bevly, D. M., "Using GPS with a Model Based Estimator to Estimate Critical Vehicle States," submitted to *Journal of Vehicle System Dynamics*.
3. Gartley, E., and Bevly, D.M., "On-line Estimation of Implement Dynamics for Adaptive Steering Control of a Farm Tractor," submitted to the *IEEE/ASME Transactions on Mechatronics*.
4. Travis, W. and Bevly, D.M., " Compensation of Vehicle Dynamic Induced Navigation Errors with Dual Antenna GPS Attitude Measurements," accepted to the *International Journal of Measurement, Identification, and Control* special issue on Advanced Control Systems in Automotive Applications, 2008.
5. Bevly, D. M., Gebre-Egziabher, D., and Parkinson, B. W., "Error Analysis of a Dead Reckoning Navigator for Ground Vehicle Guidance and Control," *Journal of Navigation*, Vol. 53, No. 3, Fall 2006.
6. Daily, R., Travis, W., and Bevly, D.M., "Cascaded Estimators to Improve Lateral Vehicle State and Tire Parameter Estimates," accepted for publication in the *International Journal of Vehicle Autonomous Systems*.
7. Daily, R., Travis, W., Bevly, D.M., et. al., "SciAutonics-Auburn Engineering's Low-Cost, High-Speed ATV for the 2005 DARPA Grand Challenge," *International Journal of Field Robotics*, Vol. 23, No. 8, August 2006, pp. 579-597.
8. Bevly, D. M., Ryu, J., Gerdes, J. C., "Integrating INS Sensors with GPS Velocity Measurements for Continuous Estimation of Vehicle Side-Slip and Tire Cornering Stiffness," *IEEE Transactions on Intelligent Transportation Systems*, Vol. 7, No. 4, December 2006, pp. 483-493.
9. Bevly, D.M. and Parkinson, B.W., "Cascaded Kalman Filters for Accurate Estimation of Multiple Biases, Dead-Reckoning Navigation, and Full State Feedback Control of Ground Vehicles," accepted for publication in the *IEEE Journal of Control Systems Technology*.
10. Plumlee, J., Hodel, S., and Bevly, D. M., "Control Allocation in Ground Vehicles," *International Journal of Vehicle Design*, Vol. 42, No. 3, 2006, pp. 215-243.
11. Daily, R., Bevly, D. M., "The Use of GPS for Vehicle Stability Control Systems," *IEEE Transactions on Industrial Electronics*, Vol. 51, No. 2, April 2004, pp. 270-277. Daily, R., Bevly, D. M., "The Use of GPS for Vehicle Stability Control Systems," *IEEE Transactions on Industrial Electronics*, Vol. 51, No. 2, April 2004, pp. 270-277.

12. Bevly, D. M., "GPS: A Low Cost Velocity Sensor for Correcting Inertial Sensor Errors on Ground Vehicles," *Journal of Dynamic Systems, Measurement, and Control*, Vol. 126, No. 2, June 2004, pp. 255-264.
13. Bevly, D.M., Gerdes, J.C., Wilson, C., "The Use of GPS Based Velocity Measurements for Measuring Side Slip and Wheel Slip," *Vehicle System Dynamics*, Vol. 38, No. 2, August 2002, pp. 127-147.
14. Bevly, D. M., Gerdes, J. C., Parkinson, B., "A New Yaw Dynamic Modeling for Improved High Speed Control of a Farm Tractor," *Journal of Dynamic Systems, Measurement, and Control*, Vol. 124, No. 4, December 2002.
15. Bevly, D. M., Dubowsky, D., Mavroidis, C, "A Simplified Cartesian Computed Torque Controller and its Application to an Experimental Climbing Robot," *Journal of Dynamic Systems, Measurement and Control*, Vol. 122, No. 1, March 2000, pp. 27-32.
16. Bevly, D. M., Rekow, A., Parkinson, B., "Comparison of an INS vs. Carrier Phase DGPS Attitude in the Control of Off-Road Vehicles," *Journal of Navigation*, Vol. 42, No. 4, Winter 2000.
17. Rekow, Bell, Bevly, Parkinson, "System Identification and Adaptive Steering of Tractors Utilizing Differential Global Positioning System", *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 22, No. 5, September 1999, pp.671-674.

Conference Publications

1. Lashley and D. Bevly, "Analysis of Discriminator Based Vector Tracking Algorithms," Proceedings of the ION National Technical Meeting, 2007
2. D. Hodo, J.Y. Hung, D.M. Bevly, S. Millhouse, "Linear Analysis of Trailer Lateral Error with Sensor Noise for a Mobile Robot-Trailer System." Proceedings of the 2007 International Symposium on Industrial Electronics. Vigo, Spain.
3. D. Hodo, J.Y. Hung, D.M. Bevly, S. Millhouse. "Effects of sensor placement and errors on path following control of a mobile robot-trailer system." To be published in Proceedings of the 26th American Controls Conference. 2007, New York, NY
4. B.J. Clark, D.M. Bevly, S. Farritor, Analysis of Improvement to Two-Wheel Robot Navigation Using Low-Cost GPS/INS Aids, Proceedings of the ION GNSS, Fort Worth, TX, Sept. 26-29, 2006.
5. Clanton, J., Bevly, D. M., Hodel, S., "Highway Lane Tracking Using GPS in Conjunction With Onboard IMU and Vision-based Lane Tracking Measurements," Proceedings of the ION GNSS, Fort Worth, TX, Sept. 26-29, 2006.
6. Wall, J. and Bevly, D. M., "Characterization of Inertial Sensor Measurements for Navigation Performance Analysis," Proceedings of the Institute of Navigation GNSS Conference, Fort Worth, TX, September 2006.

7. Bevly, D.M., Daily, R., and Travis, W, "Estimation of Critical Tire Parameters Using GPS Based Sideslip Measurements," *Proceedings of the 2006 SAE Automotive Dynamics Stability and Controls Conference and Exhibition*, P-395, SAE Paper No. 2006-1-1965, Novi, MI, February, 2006, pp. 87-94.
8. Whitehead, R. J., Bevly, D. M., and Clark, B., "ESC Effectiveness During Property Variations on Scaled Vehicles," *Proceedings of the 2005 ASME IMECE*, Orlando, FL, November 5-11, 2005.
9. Heffernan, M. E., Bevly, D. M., "Validation of Longitudinal Vehicle Estimation Techniques on a Heavy Truck Test Bed," *Proceedings of the 2005 ASME IMECE*, Orlando, FL, November 5-11, 2005.
10. Gartley, Evan and Bevly, D.M., "On-line Adaptive Control of a Farm Tractor by Compensation of Parameter Variations," *Proceedings of the 2005 ASME IMECE*, Orlando, FL, November 5-11, 2005.
11. Pearson, P., Bevly, D.M., "Comparison of Analytical and Empirical Models to Capture Variations in Off-Road Vehicle Dynamics," *Proceedings of the 2005 ASME IMECE*, Orlando, FL, November 5-11, 2005.
12. Travis, W., Bevly, D.M., "Navigation Errors Introduced By Ground Vehicle Dynamics," *Proceedings of the 2005 ION GNSS*, Long Beach, CA, September 13-16, 2005.
13. Hamm, C., Bevly, D.M., "Simulated Performance Analysis of a Composite Vector Tracking and Navigation Filter," *Proceedings of the 2005 ION GNSS*, Long Beach, CA, September 13-16, 2005.
14. Flenniken, W., Wall, J., Bevly, D.M., "Characterization of Various IMU Error Sources and the Effect on Navigation Performance," *Proceedings of the 2005 ION GNSS*, Long Beach, CA, September 13-16, 2005.
15. Behringer, R., Travis, W., Daily, R., Bevly, D.M., Kubinger, W., Herzner, W., Fehlberg, V., "RASCAL - An Autonomous Ground Vehicle for Desert Driving in the DARPA Grand Challenge 2005," *Proceedings of the 2005 ITSC*.
16. Travis, W., Simmons, A., Bevly, D.M., "Corridor Navigation with a Lidar-INS Kalman Filter Solution," *Proceedings of the 2005 IEEE Intelligent Vehicles Conference*, Las Vegas, NV, June 6-8, 2005, pp. 343-348.
17. Anderson, R., Bevly, D.M., "Estimation of Tire Cornering Stiffness Using GPS to Improve Model Based Estimation of Vehicle States," *Proceedings of the 2005 IEEE Intelligent Vehicles Conference*, Las Vegas, NV, June 6-8, 2005, pp. 801-806.
18. Hamm, C., Flenniken, W., Bevly, D.M., Lawrence, D., "Comparative Performance Analysis of Aided Carrier Tracking Loop Algorithms in High Noise/High Dynamic Environments," *Proceedings of the 2004 ION-GNSS Conference*, September 12-24, 2004.

19. Anderson, R., Bevly, D.M., "Estimation of Vehicle Slip Angle using GPS/INS Measurements with a Model Based Estimator," *Proceedings of the 2004 American Control Conference*, Boston, MA, June 2004, pp. 2122 – 2127.
20. Plumlee, J., Bevly, D.M., and Hodel, S., "Control of a Ground Vehicle using Quadratic Programming Based Control Allocation," *Proceedings of the 2004 American Control Conference*, Boston, MA, June 2004, pp. 4704 – 4709.
21. Travis, Whitehead, Bevly, and Flowers, "Using Scaled Vehicles to Investigate the Influence of Various Properties on Rollover Propensity," *Proceedings of the 2004 American Control Conference*, Boston, MA, June 2004, pp. 3381-3386.
22. Whitehead, Travis, Bevly, and Flowers, "A Study of the Effect of Various Vehicle Parameters on Rollover Propensity," *Proceedings of the 2004 SAE Automotive Dynamics Stability & Controls Conference*, SAE Paper No. 2004-01-2094, Detroit, MI, May 2004.
23. R. Behringer, B. Gregory, V. Sundareswaran, B. Addison, R. Elsley, W. Guthmiller, J. deMarchi, R. Daily, D. Bevly, C. Reinhart. Development of an Autonomous Road Vehicle for the DARPA Grand Challenge. IFAC Symposium on Intelligent Autonomous Vehicles 2004, Lisbon, July 5-7, 2004.
24. Behringer, V. Sundareswaran, B. Gregory, R. Elsley, B. Addison, W. Guthmiller, R. Daily, D. Bevly. The DARPA Grand Challenge "Development of an Autonomous Vehicle. IEEE Symposium on Intelligent Vehicles 2004, Parma, June 14-17, 2004.
25. Van der Loos, Kautz, Schwandt, Anderson, Chen, and Bevly, "A Split-Crank, Servomotor-Controlled Bicycle Ergometer Design for Studies in Human Biomechanics," *Proceedings of the 2002 IEEE/RSJ Conference on Intelligent Robotics and Systems*, October 2002, pp. 1409-1414.
26. Bevly, D. M., Ryu, J., Sheridan, R., Gerdes, J. C., "Integrating INS Sensors with GPS Velocity Measurements for Continuous Estimation of Vehicle Sideslip and Tire Cornering Stiffness," *Proceedings of the 2001 American Controls Conference*, June 2001, Arlington, VA.
27. Bevly, D. M., Rekow, A., Parkinson, B., "Evaluation of a Blended Dead-Reckoning and Carrier Phase Differential GPS System for control of an Off-Road Vehicle," *Proceedings of the 1999 ION-GPS Meeting*, Nashville, TN, September 1999
28. Bevly, D.M., Parkinson, B.W., "Carrier-Phase Differential GPS for Control of a Tractor Towed Implement," *Proceedings of the 2000 ION-GPS Meeting*, Salt Lake City, Utah, September 2000 (best paper of session award).
29. Bevly, D.M., Rekow, A., Parkinson, B., "Incorporating INS with Carrier-Phase Differential GPS for Automatic Steering Control of a Farm Tractor," Presented at the 1999 SAE Intl. Off-Highway and Powerplant Congress & Exposition, Indianapolis, IN, September 1999, Reprinted in *Agricultural Machinery, Tires, Tracks, and Traction (SP-1472)*, Paper No. 1999-01-2851 (received the 2000 SAE Myers Award for Outstanding Student Paper).

30. Bevly, D. M., Farritor, S., Dubowsky, S., "Action Module Planning and its Application to an Experimental Climbing Robot," *Proceedings of the IEEE International Conference on Robotics and Automation*, Sept. 2000, San Francisco, CA.
31. Bevly, D. M., Rekow, A., Parkinson, B., "Comparison of an INS vs. Carrier Phase DGPS Attitude in the Control of Off-Road Vehicles," *Proceedings of the 1999 ION Annual Meeting*, Cambridge, MA, June 1999.
32. Bevly, D. M., et. al., "The Use of GPS Based Velocity Measurements for Improved Vehicle State Estimation," *Proceedings of the 2000 American Control Conference*, June 2000, Chicago, IL.
33. Bevly, D. M., Gerdes, J. C., Parkinson, B., "Yaw Dynamic Modeling for Improved High Speed Control of a Farm Tractor," *Proceedings of the 2000 ASME IMECE*, Orlando, FL.