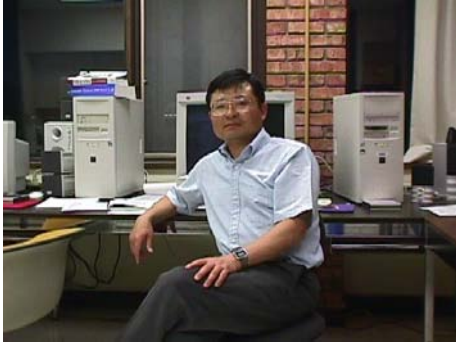


Last Updated: 1/12/2012

**Curriculum Vita**  
**TAEK MU KWON, Ph.D.**



Office Address: ECE Dept. 271 MWAH, 1023  
University Drive, Duluth, MN 55812.  
Phone: Office (218) 726-8211; Fax: (218) 726-7267  
Citizenship: U.S.A.  
Email: tkwon@d.umn.edu  
Home Page URL: <http://www.d.umn.edu/~tkwon>

**EDUCATION**

- Ph.D. in Electrical Engineering, June 1988, Department of Electrical and Computer Engineering, Florida Institute of Technology, Melbourne, FL  
Dissertation: An Elementary Processor for a Digital Neural Computer.
- M.S. in Electrical Engineering, June 1985, Department of Electrical and Computer Engineering, Florida Institute of Technology, Melbourne, FL.  
Thesis: Consonant Recognition Using Linear Predictive Coding.

**PROFESSIONAL EXPERIENCE**

- September 2002 to present: **Professor**, Department of Electrical and Computer Engineering, University of Minnesota, Duluth.
- September 1995 to August 2002: **Associate Professor**, Department of Electrical and Computer Engineering, University of Minnesota, Duluth.
- 1997 to 2000: **Associate Editor** of the International Journal on Intelligent Automation and Soft Computing.
- September 1988 to August 1995: **Assistant Professor**, Department of Electrical and Computer Engineering, University of Minnesota, Duluth.
- March 1984 to August 1988: Teaching Assistant and Research Associate, Department of Electrical and Computer Engineering, Florida Institute of Technology.

## **RESEARCH INTERESTS**

My present research focus is on developing intelligent transportation data analysis systems, new sensor developments, and intelligent traffic video surveillance. Current research projects include large-scaled transportation data archival/retrieval systems, new optical/magnetometer based vehicle sensors, development of portable weigh-in-motion systems, remote renewable power stations, digital vehicle photography database and classification, and wireless sensor networks.

## **PROFESSIONAL AFFILIATIONS AND ACTIVITIES**

Member of IEEE Computer Society  
Member of IEEE Systems, Man, and Cybernetics Society  
Member of International Neural Network Society  
Member of IEEE ITS  
Reviewer of IEEE Transactions on Signal Processing  
Reviewer of IEEE Transactions on Image Processing  
Reviewer of IEEE Transactions on Neural Networks  
Reviewer of IEEE Transactions on Circuits and Systems  
Reviewer of IEEE Transactions on Fuzzy Systems

## **HONORS**

- Received “Research Partnership Award” with a plaque from the Center for Transportation Studies, University of Minnesota, Twin Cities, April 24, 2001. Mn/DOT Partners involved in this award: Ed Fleege, Curt Pepe, and Roberta Dwyer. The plaque reads “To recognize research projects within the CTS program that result in significant impacts on transportation, and to reward teams of individuals who draw on the strengths of their diverse partnerships to achieve those results.”
- Listed in Marquis Who's Who in the Media and Communication, 1997.
- Listed in Marquis Who's Who in the Midwest, 24th Edition.
- Received the Distinguished Achievement in Scientific Research Award from KSEA Florida Chapter, 1984.

## US PATENTS

- “Video Camera-Based Visibility Measurement system,” US Patent #7,016,0456, United States Patent and Trademark Office. March. 21, 2006. Continuation of prior patent and includes “Relative visibility measurement system”
- “Video Camera-Based Visibility Measurement system,” US Patent #6,853,453, United States Patent and Trademark Office. Feb. 8, 2005.

## TEACHING

### Courses regularly taught in recent years

ECE 4321: Computer Networks  
ECE 4301: Computer Architecture  
ECE 5801: Introduction to Artificial Neural Networks  
ECE 5315: Multiprocessor-Based System Design  
ECE 3325: Microcomputer System Design

## RESEARCH GRANTS

- T.M. Kwon (PI), “Advanced LED Warning Signs for Rural Intersections Powered By Renewable Energy, Phase II” LRRB, Dec. 14, 2011- Jun 30, 2014, CON000000033797, Contract #: 99008, Project#:00026616, \$86,596.
- T.M. Kwon (PI), “New reporting capabilities for continuous vehicle class and WIM data,” Minnesota Department of Transportation, Nov 2010, \$35,268.
- T.M. Kwon (PI), “Migration of ATR and Short-Duration Traffic Data Warehouse at UMD Data Center to Mn/DOT TDA,” Minnesota Department of Transportation, March 25, 2009 – May 15 2010, Contract# 89261-WO138., \$15,869.
- T.M. Kwon(coPI) and Brent Auverman (PI), “Visibility-Based Measurement of Fugitive Dust from Open-Lot Livestock Operations” National Research Initiative Competitive Grant Program (NRICGP), Awarded from Air Quality Program. Texas A&M University, Jan 2009-2011, \$507,244.
- T.M. Kwon (PI), “Development of a Weigh-Pad Based Portable WIM System,” Minnesota Department of Transportation, \$135,000. Jan 2009 – Jan 2012. Mn/DOT Contract No. 89261, Work Order No. 114, CFMS Contract # B23013.

- T.M. Kwon (PI), “Advanced Dynamic LED Warning Signals for Rural Intersections Powered By Renewable Energy,” LRRB, Feb. 14, 2008-Feb 28, 2011, 20100485-A01, \$125,476.42.
- T.M. Kwon (PI), “Development and Field Test of Advanced Dynamic LED Warning Signals for Unsignalized High-Speed Rural Blind Intersections Powered By Renewable Energy,” LRRB, 2007-2009, \$99,940.
- T.M. Kwon (PI), “Development and Field Evaluation of Renewable Electric Power Station for Rural ITS Applications,” ENTERPRISE Multi-State Pool Fund, \$65,000, 2006-2008.
- T.M. Kwon (PI), “Cellular Wireless Mesh Sensor Network for Comprehensive Spatial Traffic Movement Detection and Data Fusion,” NATSRL, \$104,000, 2006-2007, funded.
- T.M. Kwon (PI), “TDRL Projects: Data Support for Access to Destinations Project and Mn/DOT Wigh-in-Motion Archive Design,” NATSRL, \$73,135, 2006-2007, funded.
- T.M. Kwon (PI), “Development of Data Warehouse and Applications for Continuous Vehicle Class and Weigh-in-Motion (WIM) Data,” Minnesota Department of Transportation, \$91,388, 2006-8, Funded.
- T.M. Kwon (PI), “Integrated TDRL Projects, DLL Traffic Software Development Package, Gravel-Road Traffic Counter, Intersection Movement Counter, and Hybrid Renewable Light Pole,” NATSRL, \$101,900, 2005-2006.
- T.M. Kwon (PI), “Development of Portable Eight-Channel WIM Analysis System Based on Analog WIM Signals,” Minnesota Department of Transportation, P2006015, \$89,611, 2005-2007.
- T.M. Kwon (PI), “Development of Transportation Data Center at TDRL: Archival of Large-Scaled Transportation Data, Analysis Tool Developments, and On-Line Data Support,” NATSRL, \$89,908, 2004-2005.
- T.M. Kwon (PI), “Development of Transportation Data Center at TDRL: Archival of Large-Scaled Transportation Data, Analysis Tool Developments, and On-Line Data Support,” \$101,900, 2003-2004.
- T.M. Kwon (PI), “Development of Transportation Data Center at TDRL: Archival of Large-Scaled Transportation Data, Analysis Tool Developments, and On-Line Data Support,” \$141,660, 2002-2003.

- T.M. Kwon (PI), “Section Travel-Time Measurement and Vehicle Classification Using Inductance Signatures of Loop Detectors,” Minnesota Department of Transportation, Nov 2003- Dec 2006, (\$51,000 direct)
- T.M. Kwon, S. Burns, D.B. Crouch, D.A. Wyrick, J.P. Riehl, “Development of Northland Advanced Transportation Systems Research Lab,” 2001, \$3,691,200.
- T.M. Kwon (PI), “TMC Traffic Data Automation for Mn/DOT’s Traffic Monitoring Program,” Guide Star Fund, Minnesota Department of Transportation, Jan 2001 – Dec 2001. (\$79,819)
- T.M. Kwon (coPI), Max Donath (PI), Craig Shankwitz (coPI), “Intelligent Vehicle Initiative (IVI) - Specialty Vehicle Field Operational Test Program: Visibility Evaluation," FWAH, Mn/DOT, Oct. 1, 1999 - open, Total: \$6,550,000, (Funded by FHWA: \$3.89mil, Mn/DOT: \$0.97mil, Partners: \$1.69mil, \$194,475.84 for myself), 2000-2003.
- T. M. Kwon (PI), “World Wide Web Based Pavement Condition Reporting System,” Minnesota Department of Transportation, Sep. 1, 1999 - 2000, \$44,094.
- T. M. Kwon (PI), “An automatic visibility measurement system based on video cameras: Phase II," Minnesota Department of Transportation, \$65,000, Funded, Nov. 1999-Present.
- T. M. Kwon (PI), “Integration of RTMS and SQL to Mn/DOT Next Generation R/WIS,” Minnesota Department of Transportation, Mn/DOT Agreement No., 74708, Work Order No. 101, \$66,359, Dec. 20, 1998 -2000.
- T. M. Kwon (PI), “Design and Construction of Testing Equipment for Load Dump, Inductive Load Switching, Alternator Field Decay, Mutual Coupling,” *Development Grant*, Hibbing Electronics, July 1996 – July 1997. (\$8,600)
- T. M. Kwon (PI), “Next Generation R/WIS: Video Clip Based Integrated Visual R/WIS,” Minnesota Department of Transportation, Mn/DOT Agreement No. 74708, Work Order No. 47 and Supplement No. 1, \$54,000, July 1997-1999.
- T. M. Kwon (PI), “Automatic Low-Visibility Warning System Based on Video Cameras,” *Research Grant*, Mn/DOT Contract # 74708, Work Order No. 10}, Minnesota Department of Transportation, Aug. 1996 - open. (\$28,191)

- T. M. Kwon (PI) and W. Marko, "WAN and LAN design and installation for Schott Power Corporation," *Development Grant*, Schott Corporation, Dec. 95 - Mar. 96. (\$7,600)
- T. M. Kwon (PI) and M. G. Kang, "High Resolution Image Reconstruction for Honeywell," *Development Grant*, Honeywell Inc., Summer 1995. (\$6,854)
- T. M. Kwon (PI), "Intelligent Image Compression Based on Human Priority," *Grant-in-Aid of Research, Artistry, and Scholarship*, Graduate School, University of Minnesota, TC, submitted Mar. 6, 1995. (\$14,600)
- T. M. Kwon (co-PI), M. Zervakis, N. Shehadeh, "Design of RWIS Mobile Measurement System for Mn/DOT," *Development Grant*, Minnesota Department of Transportation, June 1994 - Dec. 1995. (\$24,872)
- T. M. Kwon (co-PI), M. Zervakis, N. Shehadeh, M. Patyra, and P. Cheung, Jiann-Shiou Yang, "Characterization of Contaminants in Wastepaper Bales Based on Physical Characteristics of Contaminants," *Development Grant*, Superior Recycled Fiber Industries, June 1994-September 1994. (\$35,794)
- T. M. Kwon (PI), "Image Restoration Using a Complementary Neural Network," *Faculty Summer Research Fellowship*, under the research proposal #16038, Graduate School, University of Minnesota, TC, Summer-II, 1994. (\$4,800)
- T. Kwon (co-PI), C. Carroll, P. Cheung, L. Garber, M. Patyra, J. Yang, K. Yin, and M. Zervakis, "Wastepaper Classification and Processing," *Development Grant*, Superior Recycled Fiber Industries, May 25, 1993-Sep. 30, 1993. (\$71,000)
- T. M. Kwon (PI), "Development of a Self-Organizing and Trainable Fuzzy Logic Controller," *Grant-in-Aid of Research, Artistry, and Scholarship*, Graduate School, University of Minnesota, TC, under the research proposal #15463, Dec. 1, 1992 - June. 1, 1994. (\$11,197)
- T. M. Kwon (PI), "An Efficient Learning Algorithm for Gaussian Neural Networks," *Faculty Summer Research Fellowship*, Graduate School, University of Minnesota, TC, under the research proposal #15065, Summer 1992. (\$4,500)
- T. M. Kwon (PI), "Synthesis of Threshold Networks Using Convexity and Decomposition," *Grant-in-Aid of Research, Artistry, and Scholarship*, Graduate School, University of Minnesota, TC, under the research proposal #14305, Feb. 20, 1991 - Jun. 1992. (\$7,985)

- T. M. Kwon (PI), “A Stable Learning Algorithm in Feedforward Network for Binary Logic,” *Faculty Summer Research Fellowship*, Graduate School, University of Minnesota, TC, Summer 1990. (\$4,300.00)
- T. M. Kwon (PI), “Development of General Purpose Network Memory,” *Faculty Summer Research Fellowship*, College of Science and Engineering, University of Minnesota, Duluth, Summer 1989. (\$3,555.00)
- T. M. Kwon (PI), *Research Set-up Fund*, College of Science and Engineering, University of Minnesota, Duluth, Sep. 1989. (\$30,000.)
- T. M. Kwon (PI) and C. R. Carroll, “Development and Construction of Monitoring and Control Instruments for Minnesota Power Co.,” *Development Grant*, Minnesota Power Co., Sep. 1989 - Sep. 1990 (\$12,500)

## PUBLICATIONS

### A. Research Reports, Books, Chapters

- T.M. Kwon, *Advanced LED Warning Signs for Rural Intersections Powered by Renewable Energy*, Minnesota Department of Transportation, Final Report Mn/DOT 2011-04, Dec 2010. (98 pages)
- T.M. Kwon, *Development of Data Warehouse and Applications for Continuous Vehicle Class and Weigh-in-Motion Data*, Minnesota Department of Transportation, Mn/DOT 2009-33, Oct 2009.
- T.M. Kwon and R. Weidemann, *Solar/Wind Hybrid Renewable Power Generator for a Dynamic Message Sign*, Multi-state ENTERPRISE Pooled Study. March 2009.
- T.M. Kwon, *Transportation Data Research Laboratory: Data Acquisition and Archiving of Large Scaled Transportation Data, Analysis Tool Developments, and On-Line Data Support*, CTS 09-07, ITS Institute, Center for Transportation Studies, Minneapolis, MN, March 9, 2009.
- T.M. Kwon and R. Weidemann, *Portable Cellular Wireless Mesh Sensor Network for Vehicle Tracking in an Intersection*, CTS 08-29, ITS Institute, Center for Transportation Studies, Minneapolis, MN, Dec 2008. (CTS Project # 2007039)
- T.M. Kwon, R. Weidemann, and D. Cinnamon, *TDRL Projects: Solar/Wind Hybrid Renewable Light Pole, Gravel-Road Traffic Counter, DLL-Based Traffic Software Development Kit*, CTS 08-21, ITS Institute, Center for Transportation Studies, Minneapolis, MN, Dec 2008. (CTS Project # 2007026)

- T.M. Kwon and S. Klar, *Access to Destinations: Computation of Travel Time Data for Access to Destination Studies*, Report # 2008-38 (Report #8 in the series), ITS Institute, Center for Transportation Studies, Minneapolis, MN, Nov 2008. (CTS Project # 2007037)
- T.M. Kwon and Bibhu Aryal, *Development of a PC-Based Eight-Channel WIM System*, Final Report, Mn/DOT 2007-45, Minnesota Department of Transportation, St. Paul, MN, Oct 2007
- T.M. Kwon, *Development of Efficient Data Archival/Retrieval Model for R/WIS, RTMS, and Loop Traffic Data*, Minnesota Department of Transportation, MN/RC-2006-22, 59 pages, June 2006. (C#:81655, WO#:142)
- T.M. Kwon, *Annual Report: Transportation Data Research Laboratory 2004*, CTS 06-03, 80 pages, April 2006. (CTS P# 2004023)
- T.M. Kwon, *Blind Deconvolution of Vehicle Inductance Signatures for Travel-Time Estimation*, Minnesota Department of Transportation, MN/RC-2006-06, 63 pages, Feb, 2006, (C# 81665, W.O. #40).
- T.M. Kwon, *Atmospheric Visibility Measurements Using Video Cameras: Relative Visibility*, Minnesota Department of Transportation and Center for Transportation, Report No. CTS 04-03, July, 2004.
- T.M. Kwon, *TMC Traffic Data Automation for Mn/DOT's Traffic Monitoring Program*, Minnesota Department of Transportation, Report No. MN-RC-02004-29, July, 2004.
- T.M. Kwon, *An Automatic Visibility Measurement System Based on Video Cameras*, Minnesota Department of Transportation, MN/RC-1998-25, Sep. 1998

#### B. Journal Papers

- T.M. Kwon, R. Weidemann and V. Lund, "Intersection Safety: All the stops," *Roads & Bridges*, pp. 48-53, Jan 2012.
- T.M. Kwon and R. Weidemann, "Portable cellular wireless mesh sensor network for vehicle tracking in an intersection," *IEEE Trans. On Intelligent Transportation Systems*, Mar 14, 2011, T-ITS-11-03-0093, under Review.
- R. Weidemann, T.M. Kwon, V. Lund, and B. Boder, "Determining the effectiveness of an advanced LED warning system for rural intersections," *Transportation*

- Research Record (TRR): Journal of the Transportation Research Board*, Vol. 2250/2011, pp. 25-31, ISSN: 0361-1981, DOT: 10.3141/2250-04, Dec 15, 2011.
- T.M. Kwon and A Parsekar, ““Blind deconvolution processing of loop inductance signals for vehicle reidentification,” *Journal of Civil Engineering and Architecture*, Vol 5, No. 11 (serial No. 48), pp. 957-966, ISSN 1934-7359, Nov 2011.
  - T.M. Kwon, “Beyond the loop: Researchers develop the next generation of vehicle detectors,” *Sensor, Publication of the ITS Institute: Sensor*, University of Minnesota, Vol. 10, Issue 1, 2009.
  - T.M. Kwon, N. Dhruv, S. Patwardhan, E. Kwon “Common Data Format Archiving of Large-Scale Intelligent Transportation Systems Data for Efficient Storage, Retrieval, and Portability,” *Journal of the Transportation Research Board: Transportation Research Record 1836*, pp. 111-117, National Academy of Science, 2003.
  - T.M. Kwon and E. Fleege, “R/WIS Architecture for Integration and Expansion,” *Journal of the Transportation Research Board: Transportation Research Record 1700*, pp. 1-4, The National Research Council, The National Academies, 2000.
  - E.H. Feroz, T.M. Kwon, V.S. Pastena, and K. Park, “The Efficacy of Red Flags in Predicting the SEC's Targets: An Artificial Neural Network Approach,” *International Journal of Intelligent Systems in Accounting, Finance and Management*, vol. 9, No 3, pp. 145-157, July 2000.
  - T.M. Kwon and E. H. Feroz, “Self-Organizing Fuzzy and MLP Approaches to Detecting Fraudulent Financial Reporting,” *Soft Computing in Financial Engineering*, Springer-Verlag Co. Feb. 1999, pp. 499-506, (edited by R. Ribeiro, R.R. Yarger, H-J Zimmermann and J. Kacprzyk.).
  - T.M. Kwon, P. Agrawal, and D. Crouch, “A ROI Search Method for Still Images Based on Set Descriptions,” *International Journal on Multidimensional Systems and Signal Processing*, vol. 9, pp 93-106, 1998.
  - T. M. Kwon and E. Feroz, “A Multi-layered Perceptron Approach to Prediction of the SEC's Investigation Targets,” *IEEE Trans. on Neural Networks*, vol. 7, no. 5, pp. 1286 - 1290, Sep. 1996
  - T. M. Kwon and Hui Cheng, “Contrast Enhancement for Back-Propagation Network,” *IEEE Trans. on Neural Networks*, vol. 7, no. 2, pp. 515 - 524, Mar. 1996.
  - M. J. Patyra and T. M. Kwon, “A Degenerated Fuzzy-Number Processing System Based on Artificial Neural Networks,” *Information Science*, vol. 86, pp. 211-226, 1995.

- M. E. Zervakis, T. M. Kwon, and J. Yang "Multiresolution Image Restoration in the Wavelet Domain," *IEEE Trans. on Circuits and Systems II: Analog and Digital Signal Processing*, vol. 42, No. 9, pp. 578-591, Sep. 1995.
- M. E. Zervakis, A. K. Katsaggelos, and T. M. Kwon, "A Class of Robust Entropic Functionals for the Enhancement of Images," *IEEE Trans. on Image Processing*, vol. 4, No 6, pp. 752-773, June, 1995.
- T. M. Kwon and M. E. Zervakis, "KWTA Networks and Their Applications," *International Journal on Multidimensional Systems and Signal Processing*, vol. 6, pp. 331-344, 1995.
- T. M. Kwon, M. E. Zervakis, and A. N. Venetsanopoulos, "Design and Analysis of a Class of Self-Organizing and Trainable Fuzzy Controllers," *Journal of Intelligent and Robotic Systems*, vol. 12, pp. 1-15, 1995.

### C. Conference Papers

- T.M. Kwon and V. Lund, "Minnesota research program uses solar-powered signs to make rural intersection safer," *Traffic Technology Today, News* (on line <http://www.traffictotechnologytoday.com/news.php>), Aug. 3. 2011.
- T.M. Kwon, R. Weidemann, V. Lund, and B. Border, "Development and evaluation of an advanced LED warning system for rural intersections," The 22<sup>nd</sup> Annual Transportation Research Conference, Minneapolis, MN, May 24-25, 2011, Sponsored by CTS.
- R. Weidemann, T.M. Kwon, V. Lund, and B. Border, "Determining the effectiveness of an advanced LED warning system for rural intersections," *Transportation Research Board 90<sup>th</sup> Annual Meeting*, Washington D.C., Jan 23-27, 2011.
- Sakirkin, S. L. P., B. W. Auvermann, T.M. Kwon, G. W. Marek, K. Heflin, and K. J. Bush, "Photometric measurement of ground-level fugitive dust emissions from concentrated animal feeding operations," *International Symposium on Air Quality and Manure Management for Agriculture*, September 13-16, 2010 in Dallas, Texas.
- Scott Klar, Taek Kwon, Brent Auvermann, "Development of low-cost dust generator, wireless test chamber, and wireless nephelometers for a feedlot dust study," *International Symposium on Air Quality and Manure Management for Agriculture*, September 13-16, 2010 in Dallas, Texas.

- T.M. Kwon, “Data warehouse integration of WIM and vehicle class data and application developments of MEPDG, adjustment factors, and reporting,” TRB Conference: *North American Travel Monitoring Exposition and Conference (NATMEC 2010)*, June 21-24 2010, Seattle, WA.
- T.M. Kwon, “Wireless mesh sensor network for vehicle turning movement counting in an intersection,” *National Rural ITS Conference*, Seaside, Oregon, August 23-27, 2009.
- T.M. Kwon and R. Weidemann, “Wireless mesh sensor network for vehicle tracking in an intersection,” 20<sup>th</sup> Annual Transportation Research Conference, Minneapolis, MN, May 19-20, 2009.
- T.M. Kwon, “Embedded Systems Design: V10.1 EDK with MicroBlaze,” Professor Seminar, Xilinx University Program, University of Wisconsin Madison, WI, Aug 14-15, 2008.
- T.M. Kwon, R. Weidemann, R. Sowder, K. Schmidt, R. Starr, “Solar/Wind Hybrid Renewable Energy Generator for Powering Rural Dynamic Message Signs,” 2008 *National Rural ITS Conference (NRITS08)*, Anchorage, Alaska, Sep 1-5, 2008.
- T.M. Kwon, Matthew Oman, Oscar Martinson, and Mark Novak, “Development of a PC-based weigh-in-motion system using off-the-shelf components,” *NATMEC 2008*, Washington D.C., June 2008, Aug 5-8, 2008.
- T.M. Kwon and R. Weidemann, “Experiments with solar/wind integrated renewable light pole,” 2007 National Rural ITS Conference (NRITS07), Traverse City, Michigan, Oct. 7-10, 2007.
- T.M. Kwon and Bibhu Aryal, “Hardware-in-the-loop simulator for weigh-in-motion system development environment,” *Transportation Research Board 87<sup>th</sup> Annual Meeting*, Washington D.C., Jan 13-17, 2008.
- H. Tang and T.M. Kwon, “Designing CMOS Hardware Processor for Vehicle Tracking,” *IEEE International Symposium on Circuits and Systems (MWSCAS 2007)*, Montreal, Canada, Aug 5-8, 2007.
- T.M. Kwon, “Signal processing of piezoelectric weigh-in-motion systems,” *Proceedings of the Fifth IASTED International Conference on Circuits, Signals, and Systems (CSS 2007)*, Banff, Canada, pp. 233-238, Banff, Canada, July 2-4, 2007.
- Session Chair: Applications and CAD.

- T.M. Kwon and L. Nookala, "Utilization of RWIS data on traffic analysis," *Transportation Research Board 86<sup>th</sup> Annual Meeting*, Washington D.C., submitted July, 2006.
- T.M. Kwon, "Wireless mesh sensor networks for comprehensive traffic monitoring," *Research Day*, Sponsored by NATSRL and Mn/DOT District-1, Duluth Minnesota, Nov. 16, 2006.
- T.M. Kwon and L. Nookala, "Weather impact on freeway traffic flow in relation to R/WIS pavement conditions," 7<sup>th</sup> CTS Transportation Research Conference, St. Paul, Minnesota, May 24-25, 2006.
- T.M. Kwon and Mark Flinner, "Automating acquisition of short-duration and continuous count data from ITS generated 30sec loop detector data," Session: *Acquiring ITS Data in Concert with Your Traffic Data Program, North American Travel Monitoring Exposition and Conference (NATMEC)*, June 4-7, 2006, Minneapolis, Minnesota, organized by TRB and sponsored by FHWA.
- T.M. Kwon and P. Nelson (ed), "Ensuring the integrity of critical ITS data," *Sensor*, Intelligent Transportation Institute, Vol 6, issue 2, 2005
- T.M. Kwon and A. Parsekar, "Blind deconvolution processing of loop inductance signals for vehicle reidentification," *Transportation Research Board 85<sup>th</sup> Annual Meeting*, Washington D.C., Jan. 2006.
- T.M. Kwon, "Introduction of TDRL projects: gravel road traffic counter, intersection movement counter, and renewable street light pole," *Research Day*, Sponsored by NATSRL and Mn/DOT District-1, Duluth Minnesota, Nov. 3, 2005.
- T.M. Kwon, "Route tracking of border crossing vehicles using inductance signatures of loop detectors," IMS-5016, *2005 IEEE International Workshop on Measurement Systems for Homeland Security, Contraband Detection and Personal Safety*, IEEE Instrumentation and Measurement Society. 29-30 March 2005, Orlando, FL.
- T.M. Kwon, A. Parsekar, and J. Fischer, "Identification and classification of detector problems using freeway loop data," *Transportation Research Board 83<sup>rd</sup> Annual Meeting*, Washington D.C., Jan. 2005. (not accepted)
- T.M. Kwon and A. Parsekar, "Deconvolution of vehicle inductance signature for vehicle reidentification," *Transportation Research Board 84<sup>th</sup> Annual Meeting*, Washington D.C., Jan. 2005.

- T.M. Kwon, “Development of WIM probe for WIM equipment diagnostics and data quality control,” *Research Day*, Sponsored by NATSRL and Mn/DOT District-1, Duluth Minnesota, Nov. 4, 2004.
- T.M. Kwon, “Blind Deconvolution of vehicle inductance signatures for vehicle reidentification,” *Research Day*, Sponsored by NATSRL and Mn/DOT District-1, Duluth Minnesota, Nov. 4, 2004.
- T.M. Kwon, “Signal probe and processing methods for improving weigh-in-motion data,” Session: Data Quality Procedures for Weigh in Motion and Classification, *North American Travel Monitoring Exposition and Conference (NATMEC)*, June 27-30, 2004, Loews Coronado Bay, San Diego, California, sponsored by TRB and FHWA.
- T.M. Kwon and Anushri Parsekar, “A decision tree for classification of loop detector faulty status,” Session: Traffic Data Tools, *15<sup>th</sup> Annual Transportation Research Conference*, River Center, St. Paul, Minnesota, (sponsored by Center for Transportation Study), May 4, 2004.
- T.M. Kwon, “Ground rural transportation: What are the issues?” *2004 James Oberstar Forum*, Challenges and Opportunities in Rural Transportation, March 14-15, 2004, UMD, Duluth, Minnesota.
- T.M. Kwon, “Unified transportation sensor data format (UTSDF) for efficient archiving and sharing of statewide transportation sensor data,” *Research Day*, Sponsored by NATSRL and Mn/DOT District-1, Duluth Minnesota, Nov. 13, 2003.
- Anushri Parsekar and TM Kwon, “Identification and classification of loop detector faulty status by analysis of volume and occupancy data,” *Research Day*, Sponsored by NATSRL and Mn/DOT District-1, Duluth Minnesota, Nov. 13, 2003. Poster Presentatoin.
- T.M. Kwon and N. Dhruv, “Unified transportation sensor data format (UTSDF) for efficient archiving and sharing of statewide transportation sensor data,” *Proc. of the Transportation Research Board 83<sup>nd</sup> Annual Meeting*, Washington D.C., Jan. 2004.
- T.M. Kwon, “New efforts in dealing with missing data for Mn/DOT’s short-duration and continuous count traffic monitoring program,” *14<sup>th</sup> Annual Transportation Research Conference*, River Center, St. Paul, Minnesota, (sponsored by Center for Transportation Study), April 29, 2003.
- T.M. Kwon, “Data archive in Minnesota using common data format (CDF),” *Archived Data User Service (ADUS): System Designs and Implementation Examples*, Jan 2003, sponsored by Urban Transportation Data and Information

- Systems (AID08), Statewide Transportation Data and Information Systems (AID09), and information Systems and Technology (A5003).
- N. Dhruv, T.M. Kwon, and S. Patwardhan, “CDF archival of large-scaled ITS data for efficient archival, retrieval, and portability, ,” *Proc. of the Transportation Research Board 82<sup>nd</sup> Annual Meeting*, Washington D.C., Jan. 2003.
  - T.M. Kwon, “Measurement of motorist’s relative visibility index (MRVI) through video images,” *Proc. of the Transportation Research Board 81<sup>st</sup> Annual Meeting*, Washington D.C., Jan. 2002.
  - E. Kwon, S. Kim, and T.M. Kwon, “Pseudo real-time evaluation of adaptive traffic control strategies using hardware-in-loop simulation,” *Proc. of the 27<sup>th</sup> Annual Conference of the IEEE Industrial Electronics Society*, Denver, Colorado, Nov 29-Dec. 2, 2001, pp. 1910-1914, IECON 2001.
  - T.M. Kwon, “R/WIS architecture for integration and expansion,” *Proc. of the Transportation Research Board 79<sup>th</sup> Annual Meeting*, Washington D.C., Jan. 2000.
  - T.M. Kwon and Ed Fleege, “Automatic visibility measurement methods based on video cameras,” *Proceedings of the Xth PIARC International Winter Road Congress*, March 1998, Sweden.
  - E.J. Fleege and T.M. Kwon, “Thermal mapping at Mn/DOT,” *Proc. of the Fourth International Symposium on Snow Removal and Ice Control Technology*, pp. mm00-mm12, Reno, Nevada, Aug. 11-16, 1996.
  - E. H. Feroz and T.M. Kwon, “Self-organizing fuzzy and MLP approaches to detecting fraudulent financial reporting,” *Proc. of the IEEE/IAFE Computational Intelligence for Financial Engineering*, pp. 279-285, Mar. 1996.
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## **INVITED SEMINARS**

- “An Automatic Visibility Measurement System Based on Video Cameras,” Feb 22, 2001, As a part of Advanced Transportation Technologies Seminar Series, sponsored by Intelligent Transportation Systems (ITS) Institute, broadcasted to Twin Cities Campus through ITV (Interactive Television). Well received by industry participants and Twin Cities researchers.
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- “A New Histogram Equalization Technique for a Back-Propagation Network,” 5th KSEA Midwest Region Meeting, University of Minnesota Twin Cities, May 21, 1994.
- “An Introduction to Neural Network,” As a section of the CpE presentation to Minnesota Power Co. on Intelligent Approaches to Power System Problems, May 5, 1994.
- “Neural Networks and Pattern Classification,” Natural Resources Research Institute, April 20, 1993.