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SatCom Today in Canada: Significant Research: Broadband Satellite Communications List of CITR related Publications (1998-2003)

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BROADBAND SATELLITE COMMUNICATIONS List of CITR related Publications (1998-2003)

Journal Papers

- [J1] G. Cote, M. Gallant, B. Erol and F. Kossentini, "H.263+: Video Coding at Low Bit Rates," IEEE Transactions on Circuits and Systems for Video Technology, vol. 8, no. 7, pp. 849-866, Nov. 1998.
- [J2] P.C.M. Wong, V.C.M. Leung and P. Nasiopoulos, "An MPEG2-to-ATM converter to optimize performance of VBR video broadcasting over ATM networks," IEEE Trans. Consumer Electronics, vol. 44, no. 3, pp. 750-759, Aug. 1998.
- [J3] Le-Ngoc, T. and Mohammed, I.J., "Performance Analysis of CFDAMA-PB Protocol for Packet Satellite Communications," IEEE Transactions on Communications, Vol. 46, No.9, pp.1206-1214, September 1998.
- [J4] H.C.B. Chan, H. Alnuweiri and V.C.M. Leung, "A framework for optimizing the cost and performance of distributed and parallel IP routers," IEEE J. Sel. Areas in Commun., vol. 17, no. 6, pp. 1013-1029, June 1999.
- [J5] H. Le Pocher, V.C.M. Leung and D. Gillies, "Explicit delay/jitter bounds for real-time traffic over wireless ATM," Computer Networks, vol. 31, no. 9-10, pp. 1029-1048, May 1999.
- [J6] H. Le Pocher and V.C.M. Leung, "Real-time multimedia scheduling policies for end-to-end delay jitter and loss guarantees across ATM satellite systems," IEEE J. Sel. Areas in Commun., vol. 17, no. 2, pp. 314-325, Feb. 1999.
- [J7] H. Le Pocher, V.C.M. Leung and D. Gillies, "An efficient ATM voice service with flexible jitter and delay guarantees," IEEE J. Sel. Areas in Commun., vol. 17, no. 1, pp. 52-63, Jan. 1999.
- [J8] H. Le Pocher, V.C.M. Leung and D. Gillies, "An application and management based approach to ATM scheduling," Telecomm. Systems, vol.12, no. 2, pp. 103-122, Jan 1999.
- [J9] A.B. Zhang and V.C.M. Leung, "Rate-based congestion control for ABR service over satellite ATM networks," Int'l J. of Parallel and Distributed Systems and Networks, vol. 2, no. 4, pp. 265-273, Sep. 1999.
- [J10] G. Cote, M. Gallant and F. Kossentini, "Semi-Fixed-Length Motion Vector Coding for H.263-Based Low Bit Rate Video Compression," IEEE Transactions on Image Processing, vol. 8, no. 10, Oct. 1999.

- [J11] Le-Ngoc, T., Subramanian, S.N., "Pareto Modulated Poisson Process (PMPP) Model for Long-Range Dependent Traffic," Computer Communications, Vol. 23, No. 2, pp. 123-132, January 2000.
- [J12] B. Erol and F. Kossentini, "Automatic Key Video Object Plane Selection Using the Shape Information in the MPEG-4 Compressed Domain," IEEE Transactions on Multimedia, vol. 2, no. 2, pp.129-138, June 2000.
- [J13] Bravo, A., J. Monera-Llorca and V. K. Bhargava, "Implementation of the decorrelating receiver for synchronous DS-CDMA systems over multi-path fading channels," Wireless Personal Communications, vol. 15, no.1, pp. 79-95, Oct. 2000.
- [J14] B. Erol, F. Kossentini, and H. Alnuweiri, "Efficient Coding and Mapping Algorithms For Software-only Real-Time Video Coding at Low Bit Rates," IEEE Transactions on Circuits and Systems for Video Technology, vol. 10, no. 6, pp. 843-856, Sept. 2000.
- [J15] Shah-Heydari, S., Le-Ngoc, T., "MMPP Models for Multimedia Traffic," Telecommunication Systems, Vol. 15, No. 3-4, pp.273-293, December 2000.
- [J16] Ganesh Babu, T.V.J., Le-Ngoc, T., Hayes, J.F., "Performance of a Priority-Based Dynamic Capacity Allocation Scheme for WATM Systems," IEEE JSAC, Vol. 19, No. 2, pp. 355-369, Feb. 2001.
- [J17] Le-Ngoc, T., Elshabrawy, T., "Broadband Satellite Access For Interactive Multimedia Services," Space Communications Journal (Special Issue on On-Board Processing), Vol. 17, No.1-3, pp. 35-48, 2001.
- [J18] Xue, GQ, Weng, J.F., Le-Ngoc, T., "Impact of Imperfect Power Control and Channel Estimation on the Performance of Multiuser Detectors in Synchronous DS-CDMA Systems," Wireless Personal Communications, Vol 19, No 2, pp. 163-177, Nov. 2001.
- [J19] Huang, J., Le-Ngoc, T., "Tunable Leaky Bucket Flow Control in Broadband Satellite Communications for Multimedia Services," Dynamics of Continuous, Discrete and Impulsive Systems (DCDIS Journal) special issue: Dynamic Systems in Communications Networks, 2003.
- [J20] Nicolae Iuoras, Tho Le-Ngoc, Mohamed Ashour, Tallal Elshabrawy, "An IP-Based Satellite Communication System Architecture For Interactive Multimedia Services," International Journal of Satellite Communications (Special Issue on QoS for Satellite IP), accepted, to be published in 2003.

- [J21] Ganesh Babu, T.V.J., Le-Ngoc, T., Hayes, J.F., "Performance Evaluation of a Switch Using Priority-Based Dynamic Capacity Allocation Scheme," Trans. on Communications, accepted, to be published in 2003.
- [J22] Tho Le-Ngoc, Victor Leung, Peter Takats, Peter Garland, "Interactive Multimedia Satellite Access Communications," IEEE Communications Magazine, accepted to be published in 2003.

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Conference Papers

- [C1] Salhary, D., Le-Ngoc, T., Loo, C., "Effects of Filter Quantization on a Multistage Multicarrier Demultiplexer/Demodulator," ICC'98, June 7-11, 1998, Atlanta, Georgia.
- [C2] Ganesh Babu, T.V.J., Le-Ngoc, T., Hayes, J.F., "Performance Analysis of OBP-Based Multimedia Multibeam Satellite Networks," ICC'98, June 7-11, 1998, Atlanta, Georgia.
- [C3] Shah-Heydari, S., Le-Ngoc, T., "Pdf-Based Modeling of ATM Traffic by Multi-State MMPP," 19th Biennial Sym. on Comm., Kingston, May 31-June 3, 1998.
- [C4] Shah-Heydari, S., Le-Ngoc, T., "Multiple-State MMPP Models for Multimedia ATM Traffic," International Conference on Telecommunications (ICT'98), Porto Carras, Greece, June 22-25, 1998.
- [C5] Ganesh Babu, T.V.J., Le-Ngoc, T., Hayes, J.F., "Performance of a Priority-Based Dynamic Capacity Allocation Scheme for WATM Systems," GLOBECOM'98, Sydney, Australia, November 8-12, 1998.
- [C6] Le Pocher, V.C.M. Leung and D. Gillies, "An ATM scheduler supporting all adaptation alternatives for real-time services," in Proc. IEEE Globecom'98, Sydney, Australia, Nov. 1998.
- [C7] P.C.M. Wong, V.C.M. Leung and P. Nasiopoulos, "An MPEG2-to-ATM converter to optimize performance of VBR video broadcasting over ATM networks," in Proc. ICCE'98, Los Angeles, CA, pp. 262--263, June 1998.
- [C8] H. Le Pocher, V.C.M. Leung and D. Gillies, "Real-time broadband services with jitter control over ATM satellite bridges," in Proc. ICC'98, Atlanta, GA, June 1998.

- [C9] M. Kayali, H. Alnuweiri and V.C.M. Leung, "Interoperability among explicit rate congestion control algorithms for the ABR service in ATM networks," in Proc. IEEE ATM'98 Workshop, Fairfax, VA, pp. 112-121, May 1998.
- [C10] H. Le Pocher, V.C.M. Leung and D. Gillies, "Providing explicit delay/jitter bounds for real-time traffic over wireless ATM networks," in Proc. wmATM'98, Hangzhou, China, pp. 194-204, Apr. 1998.
- [C11] Le-Ngoc, T., Tsingotjidis, P., "Provision of Video -on-Demand Services via Broadband GEO Satellite Systems," 3rd European Workshop on Mobile/Personal Satcoms, Venice, Italy, November 4-5, 1998.
- [C12] Ho, V. Szwarc, and T. Kwasniewski, "Design and PLD Implementation of a Group Demultiplexer," 42nd Midwest Symposium on Circuits and Systems, 1998.
- [C13] Chandrasekhara, V. Szwarc, T. Kwasniewski and C. Loo, "DSP Hardware Implementation with Radiation -Hardened Antifuse FPGAs," The 5 th Canadian Workshop on Field-Programmable Devices (FPD'98), pp. 115-120.
- [C14] H. Ho, V. Szwarc, and T. Kwasniewski, "FPGA Based Implementation of Pipeline and Parallel Pipeline FFTs," The 5 th Canadian Workshop on Field-Programmable Devices (FPD'98), pp. 195-200.
- [C15] Chandrasekhara, V. Szwarc, T. Kwasniewski, and C. Loo, "FPGA Based Implementation of a Group Demultiplexer for Satellite Applications," 19 th Biennial Symposium on communications, Queen's University, pp. 181-184, May 1998.
- [C16] Morawski, R., Caouras, N., Le-Ngoc, T., "Data-Aided Fast Symbol Timing Recovery for TDMA/TDM Point-to-Multipoint Radio Communications Systems," CCECE'99, May 9-12, 1999, Edmonton, Alberta, Canada.
- [C17] Zhu-an John Yi and P. Takis Mathiopoulos, "Satellite tracking and handover techniques for LEO/MEO satellite systems," Proceedings of IEEE VTC, 1999.
- [C18] H.C.B. Chan, H. M. Alnuweiri and V.C.M. Leung, "Cost and performance optimization in IP switched routers," in Proc. IEEE 1999 Pacific Rim Conf. on Communications, Computers and Signal Processing, Victoria, BC, Aug. 1999.
- [C19] Cote and F. Kossentini, "A Standard-Based System for Robust Video Transmission Over the Internet," in Proc. IEEE CCECE, Edmonton, Alberta, Canada, May, 1999.

- [C20] Caouras, N., Morawski, R., Le-Ngoc, T., "Fast Carrier Recovery for Burst-Mode Coherent Demodulation Using Feedforward Phase and Frequency Estimation Techniques," CCECE'99, May 9-12, 1999, Edmonton, Alberta, Canada.
- [C21] Garjani, A., Le-Ngoc, T., Khendek, F., "Inter-LAN Services over Broadband Satellite Systems," International Conference on Telecommunications (ICT 2000), Acapulco, Mexico, May 22-25, 2000.
- [C22] Erol and F. Kossentini "Partitioning of video objects into temporal segments using local motion information," in Proc. IEEE ICIP Conference, Sep. 2000.
- [C23] Erol and F. Kossentini "Video object summarization in the MPEG-4 compressed domain," in Proc. IEEE ICASSP Conference, June 2000.
- [C24] B. Erol and F. Kossentini "Error concealment for MPEG-4 video communication in an error prone environment," in Proc. IEEE ICASSP Conference, June 2000.
- [C25] M. Mobasseri and V.C.M. Leung, "Bandwidth Assignment for VBR Traffic in Broadband Satellite Networks," in Proc. IEEE CCECE'00, Halifax, NS, May 2000.
- [C26] Elshabrawy, T.O, Le-Ngoc, T., Tahar, S., "Two-way Broadband Satellite Access for Interactive Multimedia Services," International Conference on Telecommunications (ICT 2000), Acapulco, Mexico, May 22-25, 2000.
- [C27] Besbes, H., Le-Ngoc, T., "A Fast Adaptive Predistorter for Nonlinearly Amplified M-QAM Signals," Globecom'2000, San Francisco, Nov.27-Dec.1, 2000.
- [C28] Ganesh Babu, T.V.J., Le-Ngoc, T., Hayes, J.F., "Performance Evaluation of A Wireless ATM Switch Using Priority-Based Dynamic Capacity Allocation Scheme," Globecom'2000, San Francisco, Nov.27-Dec.1, 2000.
- [C29] Besbes, H., Le-Ngoc, T., Lin, H., "Fast Adaptive Digital Predistortion Techniques," Third International Symposium on Wireless Personal Multimedia Communications WPMC'00, Bangkok, Thailand, November 12 15, 2000.
- [C30] Besbes, H., Le-Ngoc, T., Lin, H., "A Fast Adaptive Polynomial Predistorter for Power Amplifiers," Globecom'01, San Antonio, Texas, Nov. 25-29, 2001.
- [C31] Y. Pourmohammadi, K. Asrar Haghighi, A. Mohamed and H.M. Alnuweiri, "Streaming MPEG-4 over IP and Broadcast Networks: DMIF based

- Architectures," in Proc. International Packet Video workshop (PV2001), Seoul, Korea, pp. 218-227, May 2001.
- [C32] M. Mohamed and H. M. Alnuweiri, "MPEG4 Broadcast: A Client/Server Framework for Multi-Service Streaming Using Push Channels," in Proc. Workshop on Multimedia Signal Processing (MMSP2001), Tokyo, Japan, Aug. 2001.
- [C33] K. Asrar Haghighi, Y. Pourmohammadi and H.M. Alnuweiri, "Realizing MPEG-4 Streaming Over the Internet: A Client/Server Architecture using DMIF," in Proc. International conf. on Information Technology, Coding and Computing (ITCC2001), Las Vegas, NV, April 2001.
- [C34] Y. Pourmohammadi, K. Asrar Haghighi, A. Kaheel, H.M. Alnuweiri and S.T. Vuong, "On the Design of a QoS-aware MPEG-4 Multimedia Server," in Proc. International Symposium on Telecommunications (IST2001), 2001.
- [C35] Kaheel and H. M. Alnuweiri, "Analysis of the Delay of Expedited Forwarding Traffic in Differentiated Services Networks," in Proc. IEEE Int'l Symp. On Signal Processing and Information Technology (ISSPIT), 2001.
- [C36] C. Wang and V.C.M. Leung, "A reliable multicast transport protocol for broadband satellite networks," to be presented at ICCCAS'02, Chendu, China, June 2002.
- [C37] Z. Jiang, Y. Li and V.C.M. Leung, "A predictive demand assignment multiple access protocol for broadband satellite networks supporting internet applications," in Proc. IEEE ICC'02, New York, NY, Apr. 2002.
- [C38] F. Peng and V.C.M. Leung, "Fast backward congestion notification mechanism for TCP congestion control," in Proc. IEEE IPCCC'02, Phoenix, AZ, Apr. 2002.
- [C39] Y. Li, Z. Jiang and V.C.M. Leung, "Performance evaluations of PRR-CFDAMA for TCP traffic over geosynchronous satellite links," in Proc. IEEE WCNC'02, Orlando, FL, Mar. 2002.
- [C40] M. Mobasseri and V.C.M. Leung, "A new buffer management scheme for multimedia terminals in broadband satellite networks," in Proc. 35th Hawaii International Conference on System Sciences, Hawaii, Jan. 2002.
- [C41] Z. Wang and P. T. Mathiopoulos, "Analysis and Performance Evaluation of Dynamic Channel Reservation Techniques for LEO Mobile Satellite Systems," IEEE VTC2001 Spring, VTS 53rd, vol. 4, pp. 2985 -2989, 2001.

- [C42] Cardinal, C., Haccoun, D., Gagnon, F., Batani, N., "Turbo Decoding Using Convolutional Self Doubly Orthogonal Codes," International Conference on communication, ICC'99, Vancouver, British Colombia, Canada, pp. 113-117, Juin 1999.
- [C43] Hani Z. Sorial, William E. Lynch and Andre Vincent, "Joint Transcoding of Multiple MPEG Video Bitstreams," IEEE International Symposium on Circuits and Systems, 1999.
- [C44] Hani Z. Sorial, William E. Lynch and Andre Vincent, "Joint Bit-Allocation for MPEG Encoding of Multiple Video Sequences with Minimum Quality Variation," IEEE International Symposium on Circuits and Systems, 2000.
- [C45] Hani Z. Sorial, William E. Lynch and Andre Vincent, "Estimating Laplacian Parameters of DCT Coefficients for Requantization in the Transcoding of MPEG-2 Video," IEEE International Conference on Image Processing, 2000.
- [C46] Hani Z. Sorial, William E. Lynch and Andre Vincent, "Selective Requantization for Transcoding of MPEG Compressed Video," IEEE International Conference on Multimedia and Expo, 2000.
- [C47] Cheng-yu Pai, William E. Lynch, "Subjective Quality Based MPEG 2 Video Compression," International Conference on Information Technology: Coding and Computing, 2002.
- [C48] M.-Llorca, J., W. -S. Lu and V. K. Bhargava, "Wavelet-packet-based signatures for asynchronous CDMA systems," Proc. of IEEE PACRIM'99, pp. 499-502, Aug. 1999.
- [C49] M.-Llorca, J., W. -S. Lu and V. K. Bhargava, "An improved wavelet-packet-division multiple access system," Proc. of IEEE PACRIM'99, pp. 495-498, Aug. 1999.
- [C50] Zhiwei Mao, and V. K. Bhargava, "Effect of Imperfect Channel Estimation on the Performance of Multiuser Detectors over Multipath Rayleigh Fading Channel," Proc. 7th Canadian Workshop on Inform. Theory, pp. 134-137, June 2001.
- [C51] Zhiwei Mao, and V. K. Bhargava, "Fast converging blind adaptive multiuser detector," Proc. Globecom'2001, pp.772-775, Nov. 2001.
- [C52] D. Djonin, and V. K. Bhargava, "Low Complexity Receivers for Over-Saturated CDMA System," Proc. Globecom'2001, vol. 2, pp. 846-850, Nov. 2001.

- [C53] D. Djonin, V. K. Bhargava, "Asymptotic Analysis of the Conventional Decision Feedback Receiver in Flat Fading Channels," in Proc. of ICC 2002, pp. 1368 -1372, April-May 2002.
- [C54] Zhiwei Mao, and V. K. Bhargava, "Power Allocation for DS-CDMA System Supporting Heterogeneous Traffic with Decorrelaing Detector," Proc. IEEE VTC Spring 2002, May 2002.
- [C55] D. V. Djonin, V.K. Bhargava, "Asymptotical Analysis of the Optimal Sequence Allocation in Flat Fading Channels," accepted for IEEE VTC'2002-Fall, September 2002.
- [C56] Ho, V. Szwarc, C. Loo, and T. Kwasniewski, "Design and Implementation of a Multi-Carrier Demodulator," the 6 th World Multiconference on Systematics, Cybernetics and Information, 7-14 July, 2002.
- [C57] Z. Wang and P. T. Mathiopoulos, "Novel and effective handover techniques for LEO Mobile Satellite Systems," IEEE VTC 2002 Fall, 2002.
- [C58] M. Ghotbi and M.R. Soleymani, "Multistage Parallel Interference Cancellation with Power and Phase Estimation," VTC2002.
- [C59] M. Ghotbi and M.R. Soleymani, "Partial Parallel Interference Cancellation of DS-CDMA Satellite Signals with Amplitude and Phase Estimatio,n" Globecom 2002.
- [C60] D. N. Vo, T. Le-Ngoc, "Fast Symbol Timing Recovery Techniques for Burst-mode Digital Demodulators," VTC 2003-Spring, International Convention Center, Jeju, Korea, April 22-25, 2003.
- [C61] D. N. Vo, T. Le-Ngoc, "Optimal Interpolators for Flexible Digital Receivers," VTC 2003-Spring, International Convention Center, Jeju, Korea, April 22-25, 2003.
- [C62] F. Yang, T. Le-Ngoc, "Dynamic Assignment of Probability Distributions of Extrinsic Information for Turbo Decoding over AWGN and Rayleigh Fading Channels," VTC 2003-Spring, International Convention Center, Jeju, Korea, April 22-25, 2003.
- [C63] Thai Hoa Vo, Tho Le-Ngoc, "Power and Bandwidth-Efficient Circular Mary APK Schemes with low PAR," Canadian Conference on Electrical and Computer Engineering CCECE'03, Montreal, May 4-7, 2003.
- [C64] Nicolae Iuoras, Tho Le-Ngoc, Mohamed Ashour, Tallal Elshabrawy "IP-Based Broadband Satellite Access Systems For Multimedia Services," Canadian

Conference on Electrical and Computer Engineering CCECE'03, Montreal, May 4-7, 2003.

[C65] YingLin Xu, J. Weng, Tho Le-Ngoc, "DS-CDMA For Uplink Low Data Rate Transmission In Multi-Beam Satellite Communications: Radio Capacity Performance," Canadian Conference on Electrical and Computer Engineering CCECE'03, Montreal, May 4-7, 2003.

[C66] Nguyen Doan Vo and Tho Le-Ngoc, "Fast Symbol Timing Recovery Techniques for Flexible PAM and QAM Modems," Canadian Conference on Electrical and Computer Engineering CCECE'03, Montreal, May 4-7, 2003.

[C67] Robert Morawski, Tho Le-Ngoc, Osman Naeem, "Wireless And Wireline MIMO Testbed," Canadian Conference on Electrical and Computer Engineering CCECE'03, Montreal, May 4-7, 2003.

[C68] Mohammad Ashour, Bassel Kassem, Tho Le-Ngoc, Tallal El-Shabrawy, "A Path Tuning Algorithm for Short-Term Traffic Engineering of QoS Differentiated MPLS Networks," Canadian Conference on Electrical and Computer Engineering CCECE'03, Montreal, May 4-7, 2003.

[C69] Nguyen Doan Vo and Tho Le-Ngoc, "Low-Complexity Optimal Symmetric Interpolation Filters For SDR Receivers," Canadian Conference on Electrical and Computer Engineering CCECE'03, Montreal, May 4-7, 2003.

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Contributions to Standards

[S1] Y. Pourmohammadi, K. Asrar Haghighi and H.M. Alnuweiri, "Addition of DMIF Remote Instance Code to Im1: Core 5.5," contribution to ISO/IEC JTC1/SC29/WG11, Oct. 2001.

[S2] M. Gallant, G. Cote and F. Kossentini, "Description of and Results for Rate-Distortion Based Coder," ITU-T Study Group 16, Video Experts Group, Document Q15-B-49, Tampere, April 1998.

[S3] M. Gallant, G. Cote and F. Kossentini, "Proposal for New H.263++/H.26L Anchors," ITU-T Study Group 16, Video Experts Group, Document Q15-B-50, Tampere, April 1998.

[S4] Cote and F. Kossentini, "Description of and Results for Rate-Distortion Based Quantization," ITU-T Study Group 16, Video Experts Group, Document Q15-B-51, Tampere, April 1998.

[S5] M. Gallant, G. Cote, B. Erol and F. Kossentini, "Current release of H.263+ software from UBC," ITU-T Study Group 16, Video Experts Group, Document Q15-B-52, Tampere, April 1998.

[S6] G. Cote, M. Gallant, B. Erol and F. Kossentini, "IEEE CSVT Manuscript - H.263+: Video Coding at Low Bit Rates," ITU-T Study Group 16, Video Experts Group, Document Q15-B-58, Tampere, April 1998.

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Canadian Space Agency Recent Publications

G. SÉguin, C.X. Qiu, S.N. Qiu, I. Shih, P. Maltais, D. Gratton, G. Brassard, "Electrodeposition of multilayer cantilevers for MEMs applications," ANTEM, Montreal, Canada, July-August 2002.

L.Martins-Camelo, M.Gimersky, E.Amyotte, R.Girard, "Wide Scan Angle Lens Antenna, Proceedings of 20th AIAA International Communication Satellite Systems Conference and Exhibit," MontrÉal, QuÉbec, Canada, 12-15 May, 2002.