

# CSSIP Publications: July 2000 - June 2001

## Book Chapters

1. Manton JH and Hua Y,  
**Blind channel identifiability with an arbitrary linear precoder,**  
*Signal Processing Advances in Communications,*  
Volume 1, Chapter 10, Prentice-Hall, 2000.
2. Vo B and Cantoni A,  
**Envelope constrained filter design: Robustness issues,**  
*Optimization Methods and Applications,*  
edited by XQ Yang, KL Teo and L Caccetta, Kluwer, pp 369-397, 2001.

## Journals - Appeared

1. Abed-Meraim K, Xiang Y, Manton JH and Hua Y,  
**Blind source separation using second-order cyclostationary statistics,**  
*IEEE Trans. on Signal Processing,*  
Vol 49, No 4, pp 694-701, April 2001.
2. Dogancay K and Krishnamurthy V,  
**Application of extreme value theory to level estimation in nonlinearly distorted Hidden Markov Models,**  
*IEEE Trans. on Signal Processing,*  
Vol 48, No 8, pp 2289-2298, Aug 2000.
3. Doucet A, Gordon NJ and Krishnamurthy V,  
**Particle filters for state estimation of Jump Markov Linear systems,**

*IEEE Trans. on Signal Processing*,  
Vol 49, No 3, pp 613-624, Mar 2001.

4. Krishnamurthy V, Yin G and Singh S,  
**Adaptive step size algorithms for blind interference suppression in DS/CDMA systems**,  
*IEEE Trans. on Signal Processing*,  
Vol 49, No 1, pp 190-201, Jan 2001.
5. Vo B and Cantoni A,  
**Continuous-time envelope constrained filter design with input uncertainty**,  
*IEEE Trans. on Circuits and Systems*,  
Vol 47, No 10, pp 1445-1454, Oct 2000.
6. Weyer E,  
**Finite sample properties of system identification of ARX Models under mixing conditions**,  
*Automatica*,  
Vol 36, No 9, pp 1291-1299, Sept 2000.

## Journals - Accepted

1. Arulampalam S,  
**Evans RJ and Ben-Latief K, Importance of sampling for error event analysis of HMM frequency line trackers**,  
*IEEE Trans. Signal Processing, Special issue on MC Methods*,  
accepted 2001.
2. Challa S and Pulford GW,  
**Joint target tracking and classification using radar and ESM sensors**,  
*IEEE Trans. on Aerospace & Electronic Systems*,  
to appear Oct 2001.
3. Elliott RJ, Krishnamurthy V and Poor HV,

**A filtered EM algorithm for maximum likelihood estimation Benes nonlinear systems,**

*Stochastic Processes and their Applications,*

accepted 2000.

4. Evans JS and Krishnamurthy V,

**Optimal sensor scheduling for Hidden Markov Model state estimation,**

*International Journal of Control, Special issue on Parameter Identification and State Estimation for Nonlinear Models,*

accepted 2000.

5. Halpern M and Evans RJ,

**Robustness with integrators,**

*Systems and Control Letters,*

accepted 2001.

6. Johnston LA and Krishnamurthy V,

**Derivation of a sawtooth iterated extended Kalman smoother via the AECM algorithm,**

*IEEE Trans. on Signal Processing,*

Vol 49, No 9, 11pp, to appear Sept 2001.

7. Johnston LA and Krishnamurthy V,

**An improvement to the Interacting Multiple Model (IMM) algorithm,**

*IEEE Trans. on Signal Processing,*

accepted 2001.

8. Krishnamurthy V and Evans RJ,

**Beam scheduling for electronically scanned array tracking systems using multi-arm bandits,**

*IEEE Trans. on Signal Processing,*

accepted 2001.

9. Krishnamurthy V and Yin G,

**Recursive algorithms for estimation of autoregressive Models with Markov regime,**

*IEEE Trans. on Information Theory,*

accepted 2001.

10. Logothetis A, Krishnamurthy V and Holst J,  
**A Bayesian EM algorithm for optimal tracking of a maneuvering target in clutter,**  
*Signal Processing,*  
accepted 2001.
11. Rajagopal R, Chakka V and Challa S,  
**DOA estimation and tracking of passive targets - a subspace based approach,**  
*Signal Processing Journal,*  
In Press 2001.
12. Reinschke J, Cantoni MW and Smith MC,  
**A robust control framework for linear time-invariant spatially distributed systems,**  
*SIAM Journal on Control and Optimization,*  
accepted 2001.
13. Savkin A and Evans RJ,  
**Robust switched sensor estimation,**  
*Systems and Control Letters,*  
accepted 2001
14. Weyer E,  
**System identification of an open water channel,**  
*Control Engineering Practice,*  
accepted 2001.

## Journals - Submitted

1. Brockwell A, Polak E, Evans RJ and Ralph D,  
**Dual sampling rate moving horizon control for input constrained linear systems,**  
submitted to IEEE Trans. on Automatic Control.

2. Cantoni MW and Vinnicombe G,  
**Linear feedback systems and the graph topology,**  
submitted to IEEE Trans. on Automatic Control
3. Hong S and Evans RJ,  
**Optimisation and multiple waveform parameters for tracking in clutter,**  
submitted to IEEE Trans. on Aerospace and Electronic Systems.
4. Johnston LA and Krishnamurthy V,  
**Performance analysis of a dynamic programming track before detect algorithm,**  
submitted to IEEE Trans. on Aerospace and Electronic Systems.
5. Krishnamurthy V and Evans RJ,  
**Continuous multiple target tracking using Hidden Markov Models,**  
submitted to Automatica.
6. Krishnamurthy V and Evans RJ,  
**The data association problem for Hidden Markov Models,**  
*IEEE Trans. on Signal Processing,*  
in review 1999.
7. Musicki D and Evans RJ,  
**Clutter map information for data association and tracking,**  
submitted to IEEE Trans. on Aerospace and Electronic Systems.
8. Vo B and Cantoni A,  
**Continuous-time envelope constrained filter design via DSP approach,**  
submitted to IEE Proc. Vision Image and Signal Processing.
9. Wang X, Challa S and Evans RJ,  
**Gating techniques for maneuvering target tracking in clutter,**  
submitted to IEEE Trans. on Aerospace and Electronic Systems

10. Wang X, Challa S and Evans RJ,  
**Mimumum sub-model set switching algorithm for multi-model estimation,**  
submitted to IEEE Trans. on Aerospace and Electronic Systems

## Commercial-in-confidence Reports - Appeared

1. Challa S and Pulford GW,  
**Sensor report generation and tracking for the air picture compilation problem,**  
*Report to DSTO (SSD), CSSIP & The University of Melbourne,*  
38pp, Dec 1999. [Commercial-in-confidence technical report]
2. Djukic D,  
**Air picture compilation test-bed users manual and APC test-bed CD software,**  
*Report to DSTO (SSD), CSSIP & The University of Melbourne,*  
24pp, Jul 2000. [Commercial-in-confidence technical report CR 15/00]
3. Filar J, Manyem P,  
**Panton D and White K, Tactical air traffic management benefits of optimization,**  
*Report to the Sir Ross and Sir Keith Smith Fund, CSSIP & The University of South Australia,*  
20pp, Oct 2000. [Commercial-in-confidence technical report 21/00]
4. Musicki D and Challa S,  
**Situation assessment,**  
*Report to DSTO (SSD), CSSIP & The University of Melbourne,*  
18pp, Apr 2001. [Commercial-in-confidence technical report CR 6/01]
5. Okello N and Challa S,  
**Registration techniques for target tracking: A literature survey,**  
*Report to DSTO (SSD), CSSIP & The University of Melbourne,*  
52pp, Mar 2001. [Commercial-in-confidence technical report CR 4/01]

6. Okello N, Scoullar P and Challa S,  
**Association and identity inference methods for the air picture compilation problem,**  
*Report to DSTO (SSD), CSSIP & The University of Melbourne,*  
66pp, Jul 2000. [Commercial-in-confidence technical report CR 16/00]
  
7. Vo B,  
**Distributed sensor data fusion models and architectures,**  
*Report to DSTO (SSD), CSSIP & The University of Melbourne,*  
22pp, Apr 2001. [Commercial-in-confidence technical report CR 5/01]

## Commercial-in-confidence Reports - To Appear

1. Challa S, Evans R, Vo B, Okello N, Wang X and Scoullar P,  
**Issues in distributed networked sensor tracking and data fusion,**  
*Report to DSTO (SSD Division), Air Picture Compilation Work package 2 - Distributed Surveillance Systems, CSSIP / The University of Melbourne,*  
60pp, to appear July 2001. [Commercial-in-confidence technical report]

## In-house Publications

1. E Weyer,  
**Controller experiments at the Haughton Main Channel,**  
December 2000, January 2001.
  
2. E Weyer,  
**Design of robust PI controllers for the Haughton Main Channel,**  
September 2000.

3. E Weyer,  
**PI control of the Houghton Main Channel. Discussion and comparisons,**  
January 2001.

## Conferences - Appeared

1. Brockwell A, Evans RJ and Mareels I,  
**Stability of a trajectory based control law for unknown non-linear non-minimum phase systems,**  
*Proceedings of the 3rd Asian Control Conference (ASCC'00),*  
pp 1218-1222, Shanghai, P.R. China, Jul 2000.
2. Cantoni MW and Vinnicombe G,  
**Discretisation of feedback controllers in a pointwise gap metric,**  
*Proceedings of the 39th IEEE Conference on Decision and Control 2000 (CDC'00),*  
Vol 1, Paper no 1784, CD-ROM, pp 1918-1924, Sydney, Australia, Dec 2000.
3. Challa S, Arulampalam S and Bergman N,  
**Target tracking incorporating flight envelope information,**  
*Proceedings of the 3rd International Conference on Information Fusion,*  
FUSION 2000, CD-ROM, ThC2-4, Paris, France, Jul 2000.
4. Challa S and Gordon NJ,  
**Target tracking in particle filtering,**  
*Proceedings of the ONR/GTRI Workshop on Target Tracking and Sensor Fusion,*  
Monterey, California, USA, May 2001.
5. Doucet A, Neil G and Krishnamurthy V,  
**Sequential simulation based estimation of Jump Markov Linear systems,**  
*Proceedings of the 39th IEEE Conference on Decision and Control 2000 (CDC'00),*  
CD-ROM, pp 1166-1171, Sydney, Australia, Dec 2000.

6. Filar JA, Gondzio J, Haurie AB, Moresino F and Vial JP,  
**Decomposition and parallel processing techniques for two-time scale controlled Markhov chains,**  
*Proceedings of the 39th IEEE Conference on Decision and Control 2000 (CDC'00),*  
Vol 1, Paper no 1902, CD-ROM, pp 711-717, Sydney, Australia, Dec 2000.
7. Fradkov A,  
**A nonlinear philosophy for nonlinear systems,**  
*Proceedings of the 39th IEEE Conference on Decision and Control 2000 (CDC'00),*  
Vol 1, Paper no 2043, CD-ROM, pp 4397-4403, Sydney, Australia, Dec 2000.
8. Hua Y, An S and Xiang Y,  
**Blind identification and evaluation of FIR MIMO channels by BIDS,**  
*Proceedings of the 2001 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP'01),*  
Salt Lake City, Utah, USA, May 2001.
9. Hua Y and Xiang Y,  
**The bid for blind equalization of FIR MIMO channels,**  
*Proceedings of the 2000 IEEE Workshop on Neural Networks for Signal Processing X (NNSP'2000),*  
pp 415-424, Sydney, Australia, Dec 2000.
10. Johnston LA, Krishnamurthy V and Davis L,  
**On the formation of extrinsic information in Turbo-decoding,**  
*Proceedings of the 2001 IEEE International Symposium on Information Theory,*  
Washington DC, USA, Jun 2001.
11. Krishnamurthy V and Dey S,  
**Reduced complexity estimation for Poisson processes modulated by nearly decomposable Markhov chains,**  
*Proceedings of the 2001 IEEE International Symposium on Information Theory,*  
Washington DC, USA, Jun 2001.
12. Krishnamurthy V and Elliot RJ,  
**Robust continuous-time smoothers - without two-sided stochastic integrals,**  
*Proceedings of the 39th IEEE Conference on Decision and Control 2000 (CDC'00),*

CD-ROM, pp 286-291, Sydney, Australia, Dec 2000.

13. Krishnamurthy V and Wahlberg B,  
**Finite dimensional algorithms for optimal scheduling of Hidden Markov model sensors,**  
*Proceedings of the 2001 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP'01),*  
pp 119-122, Salt Lake City, Utah, USA, May 2001.
14. Krishnamurthy V and Yin G,  
**Analysis of recursive MAP algorithms for state estimation of bilinear systems,**  
*Proceedings of the 39th IEEE Conference on Decision and Control 2000 (CDC'00),*  
Vol 1, Paper no 1797, CD-ROM, pp 3799-3800, Sydney, Australia, Dec 2000.
15. Lanzon A and Cantoni MW,  
**A state-space algorithm for the simultaneous optimisation of performance weights and controllers in u-synthesis,**  
*Proceedings of the 39th IEEE Conference on Decision and Control 2000 (CDC'00),*  
Vol 1, Paper no 1310, CD-ROM, pp 611-617, Sydney, Australia, Dec 2000.
16. Lim E and Mareels IMY,  
**Identification of a 1-dimensional chaotic system: Expectations and limitations of control,**  
*Proceedings of the 39th IEEE Conference on Decision and Control 2000 (CDC'00),*  
Vol 1, Paper no 1583, CD-ROM, pp 4823-4824, Sydney, Australia, Dec 2000.
17. Manton J and Hua Y,  
**Convolutional reduced rank weiner filtering,**  
*Proceedings of the 2001 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP'01),*  
Salt Lake City, Utah, USA, May 2001.
18. Musso C and Challa S,  
**Extended target tracking with regularised particle filters,**  
*Proceedings of the European Radar Conference 2000 (RADAR'00),*  
Berlin, Germany, Aug 2000.
19. Nikpour M, Ali H, Manton JH and Hua Y,

- A fast on-line algorithm for computing reduced-rank Weiner filters,**  
*Proceedings of the 2000 IEEE Workshop on Neural Networks for Signal Processing X (NNSP'00),*  
pp 75-84, Sydney, Australia, Dec 2000.
20. Polderman JW,  
**Sequential continuous time adaptive control: A behavioural approach,**  
*Proceedings of the 39th IEEE Conference on Decision and Control 2000 (CDC'00),*  
Vol 1, Paper no 3501, CD-ROM, pp 2484-2488, Sydney, Australia, Dec 2000.
21. Wang X and Challa S,  
**Comparison of three gating techniques in IMM-PDAF for maneuvering target tracking in clutter,**  
*3rd Australasian Workshop on Signal Processing Applications (WOSPA'00),*  
Brisbane, Australia, Dec 2000.
22. Weyer E and Campi MC,  
**Non-asymptotic confidence ellipsoids for the least square estimates,**  
*Proceedings of the 39th IEEE Conference on Decision and Control 2000 (CDC'00),*  
Vol 1, Paper no 1382, CD-ROM, pp 2688-2694, Sydney, Australia, Dec 2000.
23. Xiang Y, Hua Y, An S and Acero A,  
**Experimental investigation of delayed instantaneous dextimer for speech enhancement,**  
*Proceedings of the 2001 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP'01),*  
Salt Lake City, Utah, USA, May 2001.
24. Yin G and Krishnamurthy V,  
**Averaging blind sign algorithms for adaptive multiuser detection,**  
*Proceedings of the 2001 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP'01),*  
pp 350-353, Salt Lake City, Utah, USA, May 2001.

**Conferences - To Appear**

1. Cantoni MW,  
**Necessity of a sampled-data approximation result,**  
*40th IEEE CDC,*  
Orlando, Florida, USA, to appear Dec 2001
2. Cantoni MW,  
**On model reduction in the nu-gap metric,**  
*40th IEEE CDC,*  
Orlando, Florida, USA, to appear Dec 2001
3. Challa S and Evans RJ,  
**Multisensor multitarget tracking,**  
*International Radar Symposium,*  
Bangalore, to appear Dec 2001. [Invited Conference Paper]
4. Challa S, Evans RJ and Wang X,  
**A fixed lag smoothing framework for target tracking in clutter using out of sequence measurements,**  
*Proceedings of the Defence Applications of Signal Processing 2001 Workshop (DASP'01),*  
Adelaide, SA, Australia, to appear Sept 2001. [Invited talk and conference paper]
5. Krishnamurthy V,  
**Sensor management and scheduling for target tracking and identification,**  
*Proceedings of the Defence Applications of Signal Processing 2001 Workshop (DASP'01),*  
Adelaide, SA, Australia, to appear Sept 2001.
6. Okello N and Challa S,  
**Simultaneous registration and track fusion for networked trackers,**  
*Proceedings of FUSION 2001, the 4th International Conference on Information Fusion, FrC1/13-20,*  
Montreal, Canada, to appear Aug 2001.
7. Ooi SK and Weyer E,  
**Closed loop identification of an irrigation channel,**  
*40th IEEE CDC,*

Orlando, Florida, USA, to appear Dec 2001.

8. Vo B and Challa S,

**Multisensor data fusion for tracking in clutter,**

*Proceedings of FUSION 2001, the 4th International Conference on Information Fusion, ThA2/51-54,*

Montreal, Canada, to appear Aug 2001.

9. Yin G and Krishnamurthy V,

**Signed adaptive filtering algorithms with iterate averaging,**

*40th IEEE CDC,*

Orlando, Florida, USA, to appear Dec 2001.