HAGIT MESSER-YARON

December 1999

CURRICULUM VITAE

PERSONAL:

Date and Place of Birth:	May 13, 1953, Jerusalem, ISRAEL.
Marital Status:	Married + 3 children
Nationality:	Israeli
Home Address:	4 Hakalanit Street, Kfar Sava 44280, ISRAEL
Mailing Address:	Dept. of Electrical Engineering - Systems, Faculty of Engineering, Tel-Aviv University, Tel-Aviv 69978, ISRAEL
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EDUCATION: B.Sc, M.Sc. and Ph.D. in Electrical Engineering from Tel Aviv University at 1977, 1979 and 1984, respectively. Post-Doc. at Yale University, 1985-1986.

ACADEMIC EMPLOYMENT:

- Summer, 1980 - University of Pennsylvania, Philadelphia, U.S.A., Research Assistant, The Valley Forge Research Center.
- 1977-1984 - Teaching and Research Assistant, Department of Electronic Systems, Tel-Aviv University.
- 1978-1981 - Teaching, Technical College, Tel-Aviv University.
- 1985-1986 Post-Doctoral Associate, Yale University, Dept. of Electrical Eng.
- 1986-1989 - Lecturer, Faculty of Engineering, Tel-Aviv University.
- 1989-1993 - Senior Lecturer (with tenure), Faculty of Engineering, Tel Aviv University.
- Summer 1991 and 1992 - Visiting Professor, Center for Communication and Signal Processing Research, Department of Electrical and Computer Eng., New Jersey Institute of Technology, NJ, USA.
- 1993-1999 - Associate Professor of Electrical Engineering, Tel-Aviv University.

PROFESSIONAL AND ACADEMIC ACTIVITIES:

- **Department**: Seminars organizer (1987); *Dean of graduate admission (1992-4)*; Graduate advisor (1995-6).
- **Faculty**: Member of the admission committee (1986-8); *Dean of admission*(1988-91); Member of undergraduate studies committee (1988-91); Member of graduate studies committee (1992-95); Head of the undergraduate program in Electrical Engineering (1999-) .
- **University**: Secretary of the IEEE Student Branch (1979-84); Member of the academic committee, youth activity unit (1986-8); Member of the program committee, School of Architecture (1993); Member of the Senate Committee for Undergraduate Studies (1995-1999).
- **National**: Member of the mathematics professional committee, the National Institute for Testing and Evaluation, Jerusalem (1986-91); Chair of the Student Paper Competition, the IEEE 16th Convention of Electrical and Electronics Engineers (1989); Member of the Technical Committee, the IEEE 17th Convention of Electrical and Electronics Engineers (1991); Member of the Organizing Committee, BAT-SHEVA SEMINAR on Advanced in Processing and Pattern Analysis of Biological Signals, Haifa, March 19-25, 1995; *Technical Program Coordinator and member of the Organizing Committee, the IEEE 18th Convention of Electrical and Electronics Engineers, Tel Aviv, March 7-8, 1995*; Member of the steering committee for technical education, the Ministry of Education (1995-); Chair of a professional committee, the Israel Science Foundation (1995-7); Member of committees of the The Council for Higher Education, the Ministry of Education (1995-). Commissioner, Public Utility Authority - Electricity, State of Israel (1996-1999).
- **International**: Member of the IEEE Statistical Signal and Array Processing Technical Committee (1994-); *Associate Editor, IEEE Transactions on Signal Processing (1994-8)*; Member of the Technical Committee, IEEE Signal Processing Workshop, Statistical Signal and Array Processing, Corfu, Greece, June 24-26, 1996; Member of the Technical Program Committee, IEEE Digital Signal Processing Workshop, Leon, Norway, Sept. 2-4, 1996; *Associate Editor, IEEE Signal Processing Letters (1998-)*;*Chair, IEEE Signal Processing Workshop on Higher Order Statistics (HOS-99), Ceasarea, Israel, June 14-16, 1999*; Member of the Technical Committee, IEEE Signal Processing Workshop, Statistical Signal and Array Processing, 2000; Member of the European Community Committee on "Women in Science" (1999-).

RESEARCH GRANTS:

- 1978-1983 - Israeli Ministry of Defense: Development of S.A.W Signal Processing Laboratory, Applications of S.A.W Devices for Radar and Communication Systems (under supervision of Prof. Y. Bar-Ness).
- 1987-1988 - Israeli Ministry of Defense: Complex Cepstrum Transform using S.A.W Technology (with Dr. H. Ur).
- 1991-1992 - The Basic Research Foundation, Tel Aviv University: Sub Optimal Detection and Parameter Estimation with Higher-Order Spectrum.
- 1993-1995 - Israeli Ministry of Defense, Ministry of Science: Study of VAP Arrays.
- 1994-1995 - The Basic Research Foundation, Tel Aviv University: Bispectral Imaging.
- 1994-1995 - Motorola: Automatic detection of a local speaker in mobile communication systems.
- 1996 - Fleischman Foundation: Matched Field Processing.
- 1997 Arc En Ciel (Keshet): Performance Analysis and Performance Bounds for Blind Separation of Signals.
- 1998-2001 - The Israel Science Foundation: Detection and Localization of Scattered Sources.
- 1999 - Tadiran Electronic Systems LTD: Characterization of Complex Communication Channels.
- 1999 - MAGNET consortium on Software Radio: Automatic signal detection and classification.
- 1999 - Israeli Ministry of Defense: Applied Research in Propagation Models and Sonar Signal Processing.

TEACHING EXPERIENCE:

Best lecturer award, Faculty of Engineering, Tel Aviv University (1996).

Graduate Courses: Information Theory, Sensor-Array Processing, Stochastic Processes, Spectrum Estimation, Detection of Signals in Noise.

Undergraduate Courses: Signals and Systems, Discrete Systems, Communication Circuits, Random Signals and Noise, Introduction to Linear Systems,Introduction to Control Theory.

INDUSTRIAL EXPERIENCE:

- 1971-1973 - Military Service,Air Force.
- Summer, 1977 - Training Period, Philips Telecommunication Industry, Hilversum, Holland.
- 1977-1985: Development and operation of a SAW signal processing laboratory in Tel-Aviv University. In collaboration with **ELTA** (1977-1978), **RAFAEL** (1978-1981), **TADIRAN** (1982-1987).
- 1992-1998: Consultant - Elbit-ATI, Tadiran, MOD, etc.
- 1996-present - Commissioner , Public Utility Authority - Electricity, State of Israel.
- 1998-present - Head, research and algorithms dept. - Tadiran Electronic Systems Ltd (part time).

INVITED SEMINARS AND SHORT COURSES FOR THE INDUSTRY: SAW Signal Processing (Tadiran 1984, Rafael 1985, Tadiran 1988); Digital Signal Processing (Motorola 1990 - 1994, Elbit 1991); Spatial Signal Processing using Array of Sensors (Zahal 1989, Tadiran 1991, 1995); Detection of Transient Signals (IAI 1993).

MEMBERSHIP IN PROFESSIONAL SOCIETIES: Senior Member IEEE Signal Processing Society.

REVIEWER FOR PROFESSIONAL JOURNALS: IEEE Transactions on Signal Processing, IEEE Transactions on Communication, IEEE Transactions on Information Theory, etc.

GRADUATE STUDENTS (Graduated at Tel Aviv Univ., Faculty of Engineering, Dept. of Electrical Eng. - Systems)

1. Moshe Ben-Ayun, M.Sc.
   Project subject: "Synthesizers in Communication Systems", 1987 (in Hebrew).
2. Yael Adar, M.Sc.
   Thesis subject: "Lower Bounds on Frequency Estimation Errors of a Multitone Random Signal in Noise", 1988 (in Hebrew).
3. Moshe Levi, M.Sc.
   Thesis subject: "Calibration of an Array of Sensors with Location Uncertainties using Sources in KnownUnknown Location", 1989 (in Hebrew).

4. Robert Shilton, M.Sc.
   Project subject: "Comparison of Halftonning Methods", 1990.

5. Doron Bek, M.Sc.
   Project subject: "Estimation and Characterization of a Randomly Time Variant Linear Channel", 1990 (in Hebrew).

6. Ilan Sharfer, M.Sc.
   Thesis subject: "Jitter Detection and Estimation in the Bispectral Domain", 1991 (in Hebrew).

7. Shalom Tsruya, M.Sc.
   Thesis subject: "Bounds on Time Delay Estimation Given Unknown Signal Spectral Parameters", 1991 (in Hebrew).

8. Ilana Ben-Itschak, M.Sc.
   Project subject: "Detection of a Multitone Signal Using the Bispectrum", 1991 (in Hebrew).

9. Mordechai Frisch, Ph.D.
   Dissertation subject: "Application of the Wavelet Transform to Transient Signal Detection and Parameter Estimation", 1992.

10. Yossef Anu, M.Sc.
    Thesis subject: "Improved Threshold Performance in Time Delay Estimation Based on Higher Order Statistics", 1993 (in Hebrew).

11. Smadar Gefen, M.Sc.
    Thesis subject: "Bounds on the Maximum Number of Sources that Can be Located using a Passive Array of N Sensors", 1993 (in Hebrew).

12. Grigoriu Silvian, M.Sc.
    Project subject: "Broadband Interference Cancellation Using a Bootstrapped Approach", 1994 (in Hebrew).

13. Gadi Singal, M.Sc.
    Project subject: "Comparison of Two Kinds of Active Interferometers", 1994 (in Hebrew).

14. Ilan Reuven, M.Sc.
    Thesis subject: "The Use of the Barankin Bound for Threshold Analysis in Passive Multi-Source Localization", 1995.

15. Eli Nir, M.Sc.
    Project subject: "Time Delay Estimation Using Higher Order Spectra", 1995 (in Hebrew).

16. Tsvi Hirst, M.Sc.
Thesis subject: "Detection of a Local Speaker in the Presence of Interfering Speaker and Background Noise", 1995 (in Hebrew).

17. Gadi Shor, M.Sc.
Thesis subject: "Performance Evaluation of Discrete Time Delay Estimators in non-Gaussian Environment", 1995 (in Hebrew).

18. Assa Ephraty, M.Sc.
Thesis subject: "A Test for Stationarity and Applications", 1996 (in Hebrew).

19. Avishai Bartov, M.Sc.
Thesis subject: "Scale-Dependent Cramer-Rao Lower Bound and Applications", 1996.

20. Irit Sha'aya-Segal, M.Sc. (co-supervised with M. Furst)
Thesis subject: "Algorithms for Detection of Synchronization Problems in Evoked Potentials", 1996 (in Hebrew).

21. Benny Strashonski, M.Sc.
Project subject: "Parameter Estimation of Ultrasonic Signal", 1996 (in Hebrew).

22. Joseph Tabrikian, Ph.D.
Dissertation subject: "Source Localization in a Multipath Environment", February 1997.

23. Benjamin Zaidel, M.Sc (co-supervised with S. Shamai)
Thesis subject: "Performance of Linear MMSE Multiuser Detection Combined with a Standard IS-95 Uplink", November 1996.

24. Liam Galin, M.Sc.
Thesis subject: "Robust Processing of Heavy Tails Signals", January 1997.

25. Gidon S. Fostick, M.Sc.
Thesis subject: "A Test for Detection of Model Mismatch in Shallow Water Wave Propagation", March 1997.

26. Amir Eliaz, M.Sc.
Thesis subject: "Signal Estimation in a Shallow Water Waveguide", November 1997 (in Hebrew).

27. Eyal Ben-Saadon, M.Sc.
Thesis subject: "Training Hidden Markov Models Using Genetic-Algorithms with Application to Speech Recognition", April 1998 (in Hebrew).

28. Yonatan Friedmann, M.Sc.
Thesis subject: "Parameter Estimation of a Deterministic Signal in α-Stable Noise", May 1998.

29. Roxana Shelef, M.Sc.
Project subject:"Detection of Point Sources using Array of Sensors", May 1998 (in Hebrew).

30. Raviv Raich, M.Sc.
Thesis subject: "Direction of Arrival Estimation for Distributed Sources - Modeling, Bounds and Estimators", November 1998.

31. Assi Jakobi, M.Sc.
Thesis subject: "Source Localization in Shallow Water in the Presence of Sensor Location Uncertainty", November 1998.

32. Eitan Toledo, M.Sc.
Project subject: "Distributed Sources in Array Processing", April 1999.

33. Shay Maymon, M.Sc.
Thesis subject: "The Use of Order Statistics for Parameter Estimation in Stable Environment", September 1999.

34. Garold Fuks, M.Sc.
Thesis subject: "Spatio-Temporal Parameter Estimation for a Ricean Channel", November 1999.

LIST OF PUBLICATIONS

- *Journal Papers*

1. H. Messer, Y. Bar-Ness, H. Gilboa: "New S.A.W. Time Inversion System". Electronics Letters, Vol. 15, No. 7, pp. 214-215, April 1979.
2. H. Messer, Y. Bar-Ness, H. Gilboa: "S.A.W. Time Scaling Technique". IEEE Trans. on Sonics and Ultrasonics, Vol. SU-28, No. 4, pp. 271-277, July 1981.
3. H. Messer, Y. Bar-Ness: "Distortion Estimation of S.A.W. Time Inversion System Based on Delta Function Approximation". IEEE Trans on Sonics and Ultrasonics, Vol. SU-28, No. 6, pp. 454-459, November 1981.
4. H. Messer, Y. Bar-Ness: "A Unified Approach to the Design of SAW Voltage Controlled Delay Lines". IEEE Trans. on Sonics and Ultrasonics, Vol. SU-32, No. 6, pp. 815-882, November 1985.
5. H. Messer, Y. Bar-Ness: "A Closed-Loop Autocorrelator and its Application to Frequency Discrimination", IEE Proc. Vol. 133, Pt. F, No. 1, pp. 25-33, Feb. 1986.
6. H. Messer, A. Av-Shalom: "A Feasibility Study of the Synchronous and Asynchronous Operation of a SAW Programmable Correlator Based on a SAW Convolver", Int. J. Electronics, 1986, Vol. 60, No. 5, pp. 641-654.
7. H. Messer, Y. Bar-Ness: "Closed-Loop Least Mean Square Time Delay Estimator", IEEE Trans. on Acoustic, Speech and Signal Processing, Vol. ASSP 35, No. 4, April 1987, pp. 413-424.
8. H. Messer: "A Unified Approach to Closed Loop Time Delay Estimation Systems", IEEE Trans. on Acoustic, Speech and Signal Processing, Vol. ASSP 36, No. 6, June 1988, pp. 854-861.
9. Y. Rockah, H. Messer, P.M. Schultheiss: "Localization Performance and Calibration of an Array Subject to Sensor Phase Errors", IEEE Trans. on Aerospace and Electronics, Vol. AES-24, No. 4, July 1988, pp. 402-410.
10. H. Messer, Y. Adar: "Lower Bounds on Frequency Estimation Errors of Multitone Random Signal in Noise", Signal Processing, Vol. 18, December 1989, pp. 413-424.
11. H. Messer, Y. Rockah: "On the Eigenstructure of the Signal-Only Tempo Spatial Covariance Matrix of Broadband Sources Using a Circular Array", IEEE Trans. on Acoustic, Speech and Signal Processing, Vol. ASSP-38, No. 3, pp. 557-559, March 1990.

12. D. Kletter, H. Messer, "Sub-Optimal Detection of Non-Gaussian Signals by High-Order Spectral Analysis", IEEE Trans. on Acoustic, Speech and Signal Processing, Vol. ASSP-38, No. 6, pp. 901-909, June 1990.
13. H. Messer, Y. Rockah, P.M. Schultheiss: "Localization in the Presence of Coherent Interference", IEEE Trans. on Acoustic, Speech and Signal Processing, Vol. ASSP-38, No. 12, pp. 2025-2032, December 1990.
14. M. Frisch, H. Messer: "The Use of the Wavelet Transform in the Detection of an Unknown Transient Signal", IEEE trans. Information Theory, pp. 892-897, March 1992.
15. H. Messer: "Source Localization Performance Analysis and its Relation to the Array Beampattern", Signal Processing 28 (1992) pp. 163-181, August 1992.
16. I. Sharfer, H. Messer: "The Bispectrum of Sampled-Data: Part I - Detection of the Sampling Jitter", IEEE Tran. Signal Processing, Vol. 41, No. 1, pp. 296-312, January 1993.
17. M. A. Doron, A. J. Weiss, H. Messer: "Maximum Likelihood Direction Finding of Wideband Sources", IEEE Tran. Signal Processing, Vol. 41, No. 1, pp. 411-414, January 1993.
18. M. Frisch, H. Messer: "Passive Transient Signal Detection Using Prior Information in the Likelihood-Ratio-Test", IEEE trans. Signal Processing, Vol. 41, No. 6, pp. 2177-2192, June 1993.
19. P.M. Schultheiss, H. Messer: "Optimal and Sub-Optimal Broadband Source Location Estimation", IEEE Tran. Signal Processing, Vol. 41, No. 9, pp. 2752-2763, September 1993.
20. I. Sharfer, H. Messer: "Feasibility Study of Parameter Estimation of Random Sampling Jitter Using the Bispectrum", Circuits, Systems and Signal Processing, Vol. 13, No. 4, pp. 435-453, June 1994.
21. H. Messer: "The Use of Spectral Information in Optimal Detection of a Source in the Presence of a Directional Interference", IEEE Journal on Oceanic Engineering, Vol. 19, No. 3, pp. 422-430, July 1994..
22. M. Frisch, H. Messer: "Detection of a Known Transient Signal of Unknown Scaling and Arrival Time", IEEE Trans. Signal Processing, Vol. 42, No. 7, pp. 1859-1863, July 1994.
23. I. Sharfer, H. Messer: "A Sub-Optimal Estimate of the Sampling Jitter Variance Using the Bispectrum", Signal Processing, Vol. 38, No. 4, pp. 169-186, 1994.
24. I. Sharfer, H. Messer: "The Bispectrum of Sampled-Data: Part II - Monte Carlo Simulations of Detection and Estimation of the Sampling Jitter", IEEE Trans. Signal Processing, Vol. 42, No. 10, pp. 2706-2714, October 1994.

25. M. P. Wylie, S. Roy, H. Messer: "Joint DOA Estimation and Phase Calibration of Linear Equi-spaced (LES) Arrays", IEEE Trans. Signal Processing, Vol. 42, No. 12, pp. 3449-3459, December 1994.
26. M.J. Hinich, H. Messer: "On the Principal Domain of the Discrete Bispectrum of a Stationary Signal", IEEE trans. of Signal Processing, Vol. 43, No. 9, pp. 2130-2134, September 1995.
27. H. Messer: "The Potential Performance Gain in Using Spectral Information in Passive Detection/Localization of Wideband Sources", IEEE Trans. on Signal Processing, Vol. 43, No. 12, pp. 2964-2974, Dec. 1995.
28. J. Tabrikian, H. Messer: "Three Dimensional Source Localization in a Waveguide", IEEE Trans. Signal Processing, Vol. 44, No. 1, pp. 1-12, January 1996.
29. H. Messer, Y. Bar-Ness: "Simultaneous Spatial Separation and Direction of-Arrival Estimation of Wideband Sources using Bootstrapped Algorithms", IEEE Trans. on Circuits and Systems, vol. 43, no. 4, pp. 316-328, April 1996.
30. H. Messer, G. Singal, L. Bialy: "On the Achievable DF Accuracy of Two kinds of Active interferometers", the IEEE Trans. on Aerospace and Electronic Systems,vol. 32, no. 3, pp. 1158-1164, July 1996.
31. J. Tabrikian, H. Messer: "Source Localization in a Waveguide Using Polynomial Rooting", IEEE Trans. Signal Processing, vol. 44, no. 8, pp. 1861-1871, August 1996.
32. J. Tabrikian, J.L. Krolik, H. Messer: "Robust Maximum-Likelihood Source Localization in an Uncertain Shallow Water Waveguide", J. Acoust. Soc. Am. 101 (1), pp. 241-249, January 1997.
33. I. Reuven, H. Messer: "A Barankin-Type Lower Bound on the Estimation Error of a Hybrid Parameter Vector", IEEE Trans. on Information Theory, Vol. 43, No. 3, pp. 1084-1093 May 1997.
34. P.M. Schultheiss, H. Messer, G. Shor: "Maximum Likelihood Time Delay Estimation in non-Gaussian Noise", IEEE Trans. on Signal Processing, vol. 45, no. 10, pp. 2571-2575, Oct. 1997.
35. M. Furst, H. Messer. I. Sha'aya-Segal: "Extraction Information from Noisy Measurements of Periodic Signals Propagating Through Random Media", IEEE Trans. on Signal Processing, vol. 46, no. 7, 2047-2053, July 1998.
36. A. Bartov, H. Messer: "Lower Bound on the Achievable DSP Performance for Localizing Step-Like Continuous Signals in Noise", IEEE Trans. on Signal Processing, vol. 46, no. 8, pp. 2195-2201, August 1998.

37. B.M. Zaidel, S. Shamai (Shitz) and H. Messer: "Performance of Linear MMSE Multiuser Detection Combined with a Standard IS-95 Uplink", Wireless Networks, Vol. 4 (1998), No. 6, pp. 429-445.
38. H. Messer. J. Goldberg: "Time Delay Estimation: Past, Present and Future", IEEE Signal Processing Magazine, pp. 28-30, Sept. 1998.
39. J. Goldberg, H. Messer: "Inherent Limitations in the Localization of Coherently Scattered Sources", IEEE Trans. on Signal Processing, vol. 46, no. 12, pp. 3441-3443, Dec. 1998.
40. I. Reuven, H. Messer: "On the Effect of Nuisance Parameters on the Threshold SNR Value of the Barankin Bound", IEEE Trans. on Signal Processing, vol. 47, no. 2, pp. 523-526, Feb. 1999.
41. E. Fishler, H. Messer: "Order Statistics Approach for Determining the Number of Sources Using an Array of Sensors", IEEE Signal Processing Letters, vol. 6, no. 7, pp. 179-182, July 1999.
42. J. Tabrikian, G.S. Fostick and H. Messer: "Detection of environmental mismatch in a shallow water waveguide", IEEE Trans. on Signal Processing, vol. 47, no. 8, pp. 2181-2190, August 1999.
43. H. Messer, G. Shor and P.M. Schultheiss: "Passive Time Delay Estimation in Non Gaussian Noise", IEEE Trans. on Signal Processing, vol. 47, no. 9, pp. 2531-2534, September 1999.

- *Papers to be Published*

1. Shay Maymon, Jonathan Friedmann, and Hagit Messer: "Almost Efficient Estimation of the Parameters of a Stable Distribution using Order Statistics", to be published in the International Journal of Electronics and Communications (Gustav Fischer Verlag, Germany), Dec. 1999.
2. R. Raich, J. Goldberg and H. Messer: "Bearing Estimation for a Distributed Source–Modeling, Inherent Accuracy Limitations, and Algorithms", to be published in the IEEE Trans. on Signal Processing, February 2000.
3. J. Friedmann, H. Messer and J.F. Cardoso: "Robust Parameter Estimation of a Deterministic Signal in Stable Noise", to be published in the IEEE Trans. on Signal Processing, April 2000.
4. E. Fishler, H. Messer: "Detection and Parameter Estimation a of Transient Signal Using Order Statistics", to be published in the IEEE Trans. on Signal Processing.

- *Papers Accepted for Publication*

1. E. Fishler, H. Messer: "On the use of Order Statistics for Improved Detection of Signals by the MDL Criterion", accepted for publication in the IEEE Trans. on Signal Processing, December 1999.

2. A. B. Gershman and H. Messer: "Robust Mixed-Order Toot-MUSIC", accepted for publication in the Circuits, Systems, and Signal Processing (pending revision), October 1999.
3. A. Jakoby, J. Goldberg and H. Messer: "Source Localization in Shallow Water in the Presence of Sensor Location Uncertainty", accepted for publication in the the IEEE Journal of Oceanic Engineering (pending revision), November 1999.

- *Papers Submitted for Publication*

1. A. Ephraty, J. Tabrikian and H. Messer: "Source Detection in an Unknown Underwater Environment Based on a Test for Spatial Stationarity", submitted to the JASA, 1998.
2. J. Friedmann, E. Fishler and H. Messer: "Parameter Estimation of a Deterministic Signal in Non Stationary White Gaussian Noise", submitted to the IEEE Trans. on Signal Processing, December 1999.
3. G. Fuks, J. Goldberg and H. Messer: "Bearing Estimation in a Ricean Channel Part I: Inherent Accuracy Limitations", submitted to the IEEE Trans. on Signal Processing, December 1999.

- *Chapters in Books*

1. A. Bhuyan, H. Messer, P.M. Schultheiss: "Performance Limits on High Resolution Systems", in High-Resolution Methods for Underwater Acoustics, Edited by M. Bouvet and G. Bienvenu, Lecture Notes in Control and information Sciences, Springer-Verlag, 1991.
2. D. Kletter, H. Messer: "The Role of a Third Order Spectrum Based Processor in Maximum Likelihood Time Delay Estimation of a Random Multitone Signal in Noise", in Coherence and Time Delay Estimation: An Applied Tutorial for Research, Development, Test, and Evaluation Engineers, Edited by G.C. Carter, IEEE Press, pp. 134-137, 1993.
3. M. Furst, I. Sha'aya-Segal, H. Messer: "Testing for Synchronization in Evoked Potentials Using Higher Order Spectra Technique", in Advances in Processing and Pattern Analysis of Biological Signals, Edited by G. Inbar and I. Gath, Plenum Publishing Corp., 1995.

- *Papers in Proceedings of Conferences and Conventions*

1. H.Gilboa, A. Chalzel, H. Messer, Y. Bar-Ness: "Analog Signal Processing Using S.A.W. Convolver". Proc. 11th IEEE Convention, Israel, October, 1979.
2. H. Messer and Y. Bar-Ness, "Different Time Inversion Method Using S.A.W. Devices". Proc. 11th IEEE Convention, Israel, October, 1979.

3. Y. Bar-Ness, H. Messer: "Wideband Instantaneous Frequency Measurements (IFM) Using S.A.W. Devices". Proc. IEEE Sonics and Ultrasonics Symposium, November, 1980.
4. H. Messer, Y. Bar-Ness: "A New Closed-Loop FM Discriminator Based on Voltage Controlled SAW Delay Line". Proc. 13th IEEE Convention, Israel, March 1983.
5. J. Davidson, H. Messer, H. Ur: "SAW Complex Cepstrum and its Application to Real-Time Filtering of Wideband Multipath Signals", Proc. 14th IEEE Convention, Israel, March 1985.
6. Y. Rockah, H. Messer, P.M. Schultheiss: "Source Localization with an Array Subject to Uncertainty in Sensor Phases", Proc. of the 1986 Conference on Information Sciences and Systems, Princeton University, March 1986.
7. H. Messer, P.M. Schultheiss: "Parameter Estimation for Two Sources with Overlapping Spectra Using an Arbitrary M Sensor Array", Proc. IEEE Third ASSP Workshop on Spectrum Estimation and Modeling, Boston, Nov. 17-18, 1986.
8. J. Davidson, H. Messer, J. Ur: "Implementation of SAW Complex Cepstrum and its Applications", Proc. IEEE 1987 ICASSP, Dallas, Texas, April 1987.
9. H. Messer, Y. Rockah, P.M. Schultheiss: "Estimation of Source Location and Spectral Parameters with Arrays Subject to Coherent Interface", Proc. 11th GRETSI Symp. on Signal and Image Processing, Nice, 1-5 June 1987.
10. Y. Rockah, H. Messer: "Broadband Source Direction Estimation Using a Circular Array", Proc. IEEE 1988 ICASSP, N.Y., April 1988.
11. H. Messer, Y. Adar: "Lower Bounds on Bearing Estimation Errors of any Number of Narrowband Far-Field Sources", Proc. IEEE 1989 ICASSP, Glasgow, Scotland, May 1989.
12. D. Kletter, H. Messer: "The Role of a Third Order Spectrum Based Processor in Maximum Likelihood Time Delay Estimation of a Random Multitone Signal in Noise", Proc. IEEE 1989 ICASSP, Glasgow, Scotland, May 1989.
13. A. Bhuyan, H. Messer, P.M. Schultheiss: "Performance Limits on High Resolution Systems", (invited paper) Proc. 12th GRETSI Symp. on Signal and Image Processing, Nice, 12-16 June, 1989.
14. D. Kletter, H. Messer: "Detection of a Non-Gaussian Signal in Gaussian Noise Using High-Order Spectral Analysis", Proc. IEEE Workshop on Higher Order Spectral Analysis, Vail Colorado, 28-30 June, 1989.

15. D. Kletter, H. Messer: "Optimal Detection of a Random Multitone Signal and its Relation to Bispectral Analysis", Proc. IEEE 1990 ICASSP, New Mexico, April 1990.
16. M. Levi, H. Messer: "Sufficient Conditions for Array Calibration Using Sources of Mixed Types", Proc. IEEE 1990 ICASSP, New Mexico, April 1990.
17. H. Messer, S. Tsruya: "Performance Analysis of Time Delay Estimation of a Signal With Unknown Spectral Parameters", Proceeding of the Fifth ASSP Workshop on Spectrum Estimation and Modeling, Rochester, New York, Oct. 1990.
18. I. Sharfer, H. Messer: "The Effect of Jittered Time-Samples on the Discrete Bispectrum", Proceeding of the IEEE 1991 ICASSP, Toronto, Canada, May 1991.
19. M. Frisch, H. Messer: "Detection of a Transient Signal of Unknown Scaling and Arrival Time", Proceeding of the IEEE 1991 ICASSP, Toronto, Canada, May 1991.
20. D. Kletter, P.M. Schultheiss and H. Messer: "Optimal Detection of Non Gaussian Random Signals in Gaussian Noise" Proceeding of the IEEE 1991 ICASSP, Toronto, Canada, May 1991.
21. M. Doron, H. Messer: "On the Number of Sources Resolvable by a Passive Array", Proc. of the 26 Conference on Information Sciences and Systems, Princeton University, March 1992.
22. H. Messer, Y. Bar-Ness: "Bootstraped Spatial Separation of Wideband Superimposed Signals", Proc. of the EUSIPCO-92, Brussels, Belgium, August 1992.
23. H. Messer and P.M. Schultheiss: "Conditional GLRT Detection of a Wideband Source in the Presence of a Directional Interference", Proceeding of the IEEE 1993 ICASSP, Minnesota, April 1993.
24. Y. Bar-Ness and H. Messer: "Broadband Interference Cancellation Using a Bootstrapped Approach", Proceeding of the IEEE 1993 ICASSP, Minnesota, April 1993.
25. H. Messer: "The Role of Using Spectral Information in Detection and Localization of Point Sources in Space", Post-GRETSI Day, Array Processing, Sophia Antipolis, France, Sept. 17, 1993.
26. H. Messer, Y. Anu: "A Novel Algorithm for Time Delay Estimation with Improved Performance for Non-Gaussian Signals", ATHOS Workshop on System Identification and High Order Statistics, Campus of Sophia-Antipolis, France, Sept. 20-21, 1993.
27. H. Messer, P.M. Schultheiss: "On Time Delay Estimation in non-Gaussian Noise, IEEE Proc. of the 7th workshop on Statistical Signal and Array Processing (SSAP-94), Quebec, Canada, June 1994.

28. H. Messer: "The Potential Gain in Using Spectral Information in Passive Localization of Sources", Proc. of the EUSIPCO-94, Edinburgh, Scotland, September 13-16, 1994.
29. J. Tabrikian, H. Messer: "Source Localization in a Waveguide - Spatial Sampling Issues and Algorithms", Proc. of the COMMSPHERE-95, Eilat, Israel, Jan. 22-27, 1995.
30. J. Tabrikian, H. Messer: "Maximum Likelihood Passive Source Localization in Shallow Water", Proc. of the 18th IEEE Convention, Tel Aviv, Israel, March 7-8, 1995.
31. J. Tabrikian, H. Messer: "Source Localization in Shallow Water using Polynomial Rooting", Proc. of the ICASSP-95, Detroit, Michigan, May 8-12, 1995.
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