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Education Building (CoRE)  
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Web: www.caip.rutgers.edu/wiselab

## Richard J. Mammone

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### Biographical Sketch

Name: Richard Mammone  
Date of Birth: September 3, 1953  
Place: Brooklyn, New York

Office: Computing Education & Research Building (CoRE)  
Room No. 520,  
Rutgers, The State University of New Jersey  
96 Frelinghuysen Road,  
Piscataway, NJ 08855

### Educational Qualifications

- Ph. D. The City University of New York, 1981.
- M. E. E. E. The City College of New York, NY, 1977.
- B. E. E. E. The City College of New York, NY, 1975.

### Professional Experience

- Associate Vice President of Corporate Liaison Rutgers University 2008-
- Director, Center for Advanced Information Processing (CAIP) ,2008-
- Director, Business, Engineering, Science and Technology (BEST) Institute ,2008-
- Professor, Rutgers University, Electrical and Computer Engineering, 1993-present
- Associate Professor, Rutgers University, Electrical and Computer Engineering, 1988-1993
- Assistant Professor, Rutgers University, Electrical Engineering, 1982-1988
- Consultant, AT&T Labs, Holmdel, New Jersey, 1985
- Assistant Professor, Manhattan College, Riverdale, New York, Electrical Engineering, 1981-1982
- Graduate and Research Fellow, City College of New York, 1977-1981
- Consultant on Communication Systems, SCS Telecom Inc., Sands Point, New York, 1979-1987
- Biomedical Consultant, New York Eye and Ear Infirmary, 1979-1987
- Consultant, Computerized Anatomy Company, New York, New York, 1979-1987
- Lecturer on Computer Applications in Ophthalmology, Mount Sinai Medical School, NY, NY, 1979-1980
- Computer Systems Analyst, Picatinny Arsenal, Dover, New Jersey, 1975-1977

### Awards and Honors

- Awarded Henry Rutgers Faculty Fellowship, 1985-1986 & 1986-1987
- Senior Member of the IEEE
- Recipient of the 1978 Samuel Rudin Scholarship of S.A.M.E.
- Member of Eta Kappa Nu and Sigma Xi
- Listed in Marguis “Who’s Who in the World”, “Who’s Who in the Emerging Leaders”, “Who’s Who in the East”, and “Who’s Who in Science and Engineering”
- Selected by the Electrical Engineering Department for a supplemental salary adjustment for 1985-1986, 1988-1989, 1989-1990, 1990-1991

### University Activities

- Organized and chaired the CAIP workshops on Neural Networks October 1990 and October 1992
- Awarded Henry Rutgers Faculty Fellowship for the academic years of 1985-1986 and 1986-1987
- Secretary of Faculty Senate, 1982-1983
- Chairman of the Electrical Engineering Department Recruitment Committee, 1985-1986
- Graduate Director, Electrical Engineering Program, 1988-1989
- Group leader for the Computer Engineering group of the Electrical and Computer Engineering Department 1990-1991, 1991-1992
- Introduced and wrote the first “The Graduate Student Handbook” in the Electrical Engineering Program
- Changed the curriculum requirements of the Electrical Engineering Graduate Program through various ballots

### Teaching Activities

#### Graduate courses taught

- 16:330:521 Digital Signals and Filters
- 16:330:527 Digital Speech Processing\*
- 16:330:529 Image Coding and Processing
- 16:330:533 Computational Methods for Signal Recovery
- 16:125:512 Digital Processing of Medical Images\*
- 16:330:565 Neurocomputer System
- 16:330:579 Advanced Topics in Computer Engineering
- 16:330:533 Digital Signal Estimation\*
- 16:330:601 & 602 Special Problems
- 16:330:701 & 702 Research
- 16:332:539 Advanced Topics in Digital Signal Processing

#### Undergraduate courses taught

- 14:330:225 Computer Organization and Logic Design
- 14:330:221 Principles of electrical Engineering (introduced new curriculum)
- 14:330:223 Principles of Electrical engineering Laboratory
- 14:330:346 Digital Signal Processing (introduced new curriculum)
- 14:330:348 Digital Signal Processing Laboratory

\* Course introduced by R.J.Mammone

### Current Research Projects

- Enhancing the Performance of Face Recognition Systems – Funded by Technical Support Working Group (TSWG) Task SC-AS-1648Ru6  
(All reports and research details are available at [www.caip.rutgers.edu/wiselab/elib.htm](http://www.caip.rutgers.edu/wiselab/elib.htm))
- SPIDER (Spatial Presence for Immersive Dynamic Environments in Real Time) – Funded by Defense Advanced Research Projects Agency (DARPA) Contract Number: NBCH1030011  
(All reports and research details are available at [www.caip.rutgers.edu/wiselab/spider.htm](http://www.caip.rutgers.edu/wiselab/spider.htm))
- Kidlocate  
(Details at <http://www.kidlocate.info>)

### Grants and Contracts

#### I. Grants with indirect costs going to CAIP:

Cecom - Task 4	4-26923	MAMMONE	40,000.00	04/30/02-04/29/05
DARPA - MAMMONE	4-29072	MAMMONE	291,000.00	6/21/04-12/20/04
DOD-Army-Face Recogn	4-26788	MAMMONE	622,944.00	06/10/03-06/30/05
AF-Automatic Speech Process	4-26542	MAMMONE	175,001.00	CLOSED
Airforce Mod-Mammone	4-26389	MAMMONE	180,813.00	CLOSED
Airforce Neural Nets-Mammone	4-28616	MAMMONE	5,072.00	CLOSED
Airforce 3 - Mammone	4-26433	MAMMONE	175,594.00	CLOSED
Airforce-Radio Comm-Mammone	4-26464	MAMMONE	99,999.00	CLOSED
Airforce-Mammone	4-28259	MAMMONE	6,160,318.00	CLOSED
DA-A756-Telemaintena	4-26571	MAMMONE	20,000.00	CLOSED
DA-0227 - Mammone	4-28596	MAMMONE	5,000.00	CLOSED
DOD-141800 - Mammone	4-28339	MAMMONE	99,998.00	CLOSED
Scan Tech - Mammone	4-29674	MAMMONE	113,890.00	CLOSED
Scan-Tech CAIP - Mammone	4-24563	MAMMONE	662,452.00	CLOSED
Scan-Tech Equip - Mammone	4-24569	MAMMONE	1,117,086.00	CLOSED
Superconcurrency	4-24682	MAMMONE	16,199.00	CLOSED

			9,785,366.00
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## II. Other Grants:

- R.J.Mammone,"Neural Networks for Scheduling in parallel Computing Environment",SuperConcurrency,\$12,300
- R.J.Mammone,"Digital Restoration for Ultrasound Images",Whitaker Foudation,\$ 104,000,1983-1986
- R.J.Mammone,J.Wilder,H.Freeman,"Capture of 3D Image Data with an On-Axis Real Time Range Mapper,"New Jersey Commission on Science and Technology Partership,\$369,918,1988-89
- R.J.Mammone,"Frequency Response Enhancement",ITT(Avionics),Nutley,NJ,\$5000,1984
- R.J.Mammone,"ESM Receivers", ITT(Avionics),Nutley,NJ,\$9500,1984
- R.J.Mammone,"Superresolution Method", ITT(Avionics),Nutley,NJ,\$27,957,1985
- R.J.Mammone,"Blind Deconvolution of BPSK and Design of an EW Expert System", ITT(Avionics),Nutley,NJ,\$23,000,1985
- R.J.Mammone, "3D Graphics Display of Medical Ultrasound Images,"NIH through BRSG,\$3500,1984-85
- R.J.Mammone,"Image Restoration using Linear Programming",Center for Computer Aids for Industrial Productivity(CAIP),Rutgers,\$82,354,1985-86
- R.J.Mammone," Methods of Low Bit rate speech encoding and speaker verification",Department of Defense(The National Security Agency),\$33,106,1985-86
- R.J.Mammone, "3D Image Modelling", Center for Computer Aids for Industrial Productivity(CAIP),Rutgers,\$48,000,1986
- R.J.Mammone,"Multipulse for LPC and CELP Vocoders",National Security Agency,\$42,312,1987-88
- R.J.Mammone,"Real time video encoding",Timeplex Inc. via the Digital Signal Processing Center,Rutgers,\$25,400,1987-88
- R.J.Mammone,"3-D Machine Vision", Center for Computer Aids for Industrial Productivity(CAIP),Rutgers,\$37,552,1987-88
- R.J.Mammone,"Optical Enhancement and Transformation of Image Data for inspection and Measurement", Center for Computer Aids for Industrial Productivity(CAIP),Rutgers,\$65,776,1988-89
- R.J.Mammone,J.Wilder,H.Freeman,"Data Acquisition and Feature Extraction for sorting Plastic Containers",Plastics Recycling Institute,Rutgers,\$15,000,1988-89
- R.J.Mammone,NJ State Fellowship for a graduate student,matching fund,New Jersey Commission on Science and Technology,match of AEA fellowship of \$13000 a year for 1989-93
- R.J.Mammone,H.Freeman,"Detection of Plastic Explosives at Airport Terminals",from FAA with CAIP and Scan-Tech,\$124,000,1989-90
- R.J.Mammone,S,Davidovici,"Intercept of LPI Waveforms", ITT(Avionics),Nutley,NJ, \$41,143,1986
- R.J.Mammone,"Computer Enhancement of Sparse Images",from RADC(Airforce through the SCEE),\$ 69837,1986
- R.J.Mammone,D.G.Daut,H.Freeman,Y.Zeevi,"Trainable Classification for Machine Vision Inspection",CAIP,\$71,400,1990-91
- R.J.Mammone(P.I.) and James L.Flanagan,"Modulation Model for Topic Spotting",CIA,\$100,000,1992-93
- James L.Flanagan(P.I.) and Richard Mammone,"Microphone array for speech enhancement",National Science Foundation,\$280,000,1992-93
- R.J.Mammone(P.I.),B.Mayo,A.Fineberg,"Data Processing of X-Ray scatterfor Arline security",Scan Tech,Inc with the FAA,\$2658,287,1991-94

- R.J.Mammone(P.I.),A.Fineberg,J.Flanagan,"A Modulation Model for Characterizing Speech Signals ",Rome Air Force Laboratory ,\$622,684,1992-93,Extension to \$5,153,936(with Mammone,Flanagan,Ramachandran,Zilovic),1994-95
- R.J.Mammone(P.I.)," A Modulation Model for Characterizing Speech Signals", Rome Air Force Laboratory,\$622,684,1992-93,Extension to p \$5153,936(With Mammone,Flanagan,Ramachandran and Zilovic),1994-95
- R.J.Mammone(P.I.),"A Modulation Model for Characterizing Speech Signals",Option I,Rome Air Force Laboratory,\$1,006,382,1992-93
- R.J.Mammone(P.I.) and James L.Flanagan,"Modulation Model for Speaker ID,"Dept of Defense,Maryland Procurement Office,\$100,000,1992-93
- R.J.Mammone(P.I.),J.Wilder,"A new ,non vapor,non nuclear explosives detector,scan tech/FAA",1992-93,\$370,000
- James Flanagan(P.I.) and R.J.Mammone,"Sound Capture from Spatial Volumes-Parallel Processing of 3 Dimensional Arrays of Sensors,"NSF,\$88,715,3 Years,from 3/1/1992
- James Flanagan(P.I.),R.J.Mammone,Mazin Rahim,"Speaker Authentication Using Modulation Models,"DOD/NSA,\$99,998,1992-95
- R.J.Mammone,"Communication Channel Normalization Techniques Using the PMMM and FMMM Models",AirForce,\$180,813,1994-95
- R.J.Mammone and James Flanagan,"Sound Capture from Spatial Volumes-Parallel Processing of three-dimensional arrays of sensors,"NSF,\$274,468,1993-95
- R.J.Mammone,J.Wilder(P.I.),"Face recognition using transform coding of Grey scale projections,"Army Research laboratory,1993-96,\$397,257
- R.J.Mammone,"Co-channel interference reduction using the pitch model and formant-mode modulation models",Airforce , \$175,594,1995
- R.J.Mammone and R.P.Ramachandran,"Identification and compensation of Non-linearities in Radio Communication Systems",Airforce,\$99,999,1995
- R.J.Mammone,J.Wilder(P.I.) , " Neural Network Modeling and Control of food extrusion process",Rutgers Center for Advanced Food Technology(CAFT),1997-99,\$61,200

### III Equipment Grants:

- R.J.Mammone,"AP400 Data General Computer System," from AT & T Bell Laboratories,estimated value \$60,000
- R.J.Mammone,"Ultrasound Imaging System",from Sonometrics,New York,estimated value,\$35000
- R.J.Mammone,"2700 Computer Graphics Work Station,"from Hewlett Packard,estimated value,\$25000
- R.J.Mammone,"FPS Array Processor from National Security agency",estimated value \$60000
- R.J.Mammone,"Multibus Image Processing System",from Timeplex,Inc.NJ,estimated value \$30000
- R.J.Mammone,"Sound Booth from International Defense Agency",Princeton,NJ,estimated value \$25000

### Post Doctorates Supervised

- Adam Fineberg(Research Professor) CAIP Research Center
- Ahmed Ansari(Research Professor Consultant) ) CAIP Research Center
- Ravi P. Ramachandran(Research Assistant Professor) CAIP
- Mihailo Zilovic (Research Assistant Professor) CAIP
- Kevin Farrell (Research Assistant Professor) CAIP
- Khaled Assaleh Ravi (Research Assistant Professor) CAIP

### Ph. D Theses Supervised

- Christine I. Podilchuk, "Projection techniques for Image Restoration", (Electrical Engineering) Oct 1988. AT&T Bell Labs Research, Murray Hill, NJ.
- Rainer J. Rothacker, "Two Superresolving Image Restoration Techniques with Applications to Ultrasonic Images", (Biomedical Engineering) Oct 1989. PA Consulting Inc, Princeton, NJ.
- J. Yogeshwar, "A New Perceptual Model for Video Sequence Encoding", (Electrical Engineering) May 1990. Prism Technology, Chicago, IL.
- John Doherty "Regularized Adaptive Filtering with Application to Channel Equalization", (Electrical Engineering) Oct 1990. Iowa State University (Asst. Professor)
- Adam Fineberg, "Phoneme recognition: An Articulation Rate Independent Classification Technique", (Electrical Engineering) Oct 1990. Rutgers University (Research Professor in CAIP).
- V.K.Prasad, "Restoration from Defocused Images: A Surface Evolution Approach", (Electrical Engineering) Oct 1990. Caltech (Research Associate in the Cognitive Science and Neural Network Lab)
- S. Kuo, "Superresolving Image Restoration of Microscopic Images," Feb 1991. AT&T Bell Labs Research, Murray Hill, NJ.
- Ananth Sankar, "Neural Tree Networks", June 1991. AT&T Bell Labs Research, Murray Hill, NJ.
- Kevin Farrell, "Speaker Recognition using modified Neural Tree Network", Electrical Engineering, September 1993. Rutgers University Research Assistant Professor in CAIP
- Khaled Assaleh, "Robust Features for Speaker Identification", Electrical Engineering, September 1993. Rutgers University Research Assistant Professor in CAIP
- Sumitro Samaddar, "Image Restoration using Row Action Projection Method with Adaptive Smoothing", March 1994, Siemens Corporate Research, Princeton NJ
- Michael Ramalho, "The Pitch Model Modulation Model with Applications in Speech Processing", October 1993, Bellcore supervisor in research, Morristown, NJ
- Stephen Gay, "Fast projection Algorithms with Application to Voice Echo Cancellation," June 1994, AT & T Bell Labs Research, Murray Hill, NJ
- Eneyew Adugna, "Speech Enhancement using microphone arrays", June 1994, Rutgers University, CAIP Center
- Stephen V. Kosonocky, "A continuous Density Neural Tree Network Word Spotting System," October 1994, Rutgers University, CAIP center
- Devang K. Naik, "Robust Speaker Recognition using Pole filtering," Electrical Engineering, December 1994, Rutgers University, CAIP center
- Han-Sheng Liou, "Speaker Verification using Sub-word Neural Tree Networks", January 1995, Rutgers University, CAIP center
- Manish Sharma, "Subword -Based Speaker Verification System with user selectable Passwords, May 1996, Rutgers University, CAIP center
- Xiaoyu Zhang, "Robust Speech Processing using Affine-Transformed Cepstrum," May 1996, Rutgers University, CAIP center
- Alavin Garcia, "A co-channel Speaker Separation System" June 1998, Rutgers University, CAIP center
- Vidhya Ramanujam, "Robust Speaker recognition in noise by coherent spectral modification", October 1999, Rutgers University, CAIP center
- Rajesh Balchandran, "Channel Estimation and normalization by coherent spectral averaging for robust speaker recognition", May 2000, Rutgers University, CAIP center
- Abraham Ittycheriah, "Trainable question answering system", October 2001, Rutgers University, CAIP center
- Miroslav Novak, "Non-negative matrix factorization approach to language model adaptation", April 2002, Rutgers University, CAIP center
- Helmuth Trefftz, "System-wide Constraints and User Preferences in Collaborative Virtual Environments", 2002

### **Ph.D Students Committee Chair**

Toufic Boubez, "Multiresolution and Compact Support in Neural Network Simulations,"  
September 1993

### **Masters Theses Supervised**

- Steven Corn, "The Application of Expert Systems in the Development and Testing of a Communications System", May 1987.
- Laurie A.Kopko Cox, "Dynamic Time-Warped Isolated Word Recognition System Based on Linear Prediction", May 1987.
- Adam A. Fineberg, "A Super-Resolution Algorithm to Improve Ultrasonic Array Imaging", Oct 1988.
- Sanjag Bejkal, "frequency and Duration Estimation of RF Pulses", May 1986.
- J. Yogeshwar, "Video Coding for Data Transmission Rates Below 1MB/s", Jan 1988.
- Scott E.Harrow, "3-D Image Data Acquisition System using Ultrasonics", Jan 1988.
- Micheal R.Mannette, "Image Coding using Sub-band Coding DPCM", Jan 1988.
- Nina Aualini, "A Learning Apprentice for Imaging Understanding", Jan 1988.
- Joseph Zirilli, "Prediction of Future Trends Using a Neural Network".
- Stephen Kosonocky, "A Precision CMOS Voltage Comparator with Dynamic Offset Cancellation", Jan 1991.
- N.Ramacharchram, "Analog Voice Scrambling Circuit", Oct 1990.
- Kevin Farrell, "A New Algorithm for Adaptive Beamforming", Sept 1991.
- Brian Freeman, "Fixed Reference Shift Keying (FRSK) Modulation for Mobil Cellular Radio Transmission in a Fading Channel Environment", Dec 1991.
- Devang Naik, "Meta-Neural Networks that learn by Learning", April 1992
- Anshu Aggarwal, "Retention in Neural Networks: To overcome the catastrophic Forgetting Problems", February 1993
- Wen Wu, "Relabing Exchange Method for learning in Neural Networks", April 1993
- Ping Wang, "Speaker Identification using Modulation Model and Neural Networks", April 1993
- A.C.Surendran, "3-Dimensional Microphone arrays for spatially selected sound capture", April 1993
- Manish Sharma, "The modulation model approach to keyword spotting", May 1993
- Xiaoyu Zhang, "Range Estimation from 2-D image using Phase Modulation", August 1993
- Wei Wang, "The neural tree network as a Robust classifier for speaker identification", April 1994
- Wei Liu, "The NTN/HMM Hybrid keyword spotter", September 1994
- Mohammad M.Syed, "Robust Speaker Identification using Feature diversity", January 1995
- Xin Wang, "Investigation of Data Fusion method of multiple classifiers for speaker recognition", May 1995
- Hui Xie, "Keyword Spotting System using Feature and Classifier's Diversity", May 1995
- Roopashri Ramachandran, "Adaptive Fusion with Feature Diversity for Robust Speaker Recognition", October 1995
- Vidhya Ramanujam, "Robust Speaker Identification in Noisy Environment", October 1995
- Mythreyi K.Prasad, "Statistical Study of Speech Formants", September 1996
- Rajesh Balchandran, "Non-parametric estimation and correction of non-linear distortion in speech systems", March 1996,
- Vinod Kumar, "Methods for Speaker Count Determination in Co-channel environment", October 1997
- Aparna Krishnamoorthy, "Compensating for illumination variations in face recognition", May 2004
- Anand Doshi, "Pose/Expression Normalization for Face Recognition", May 2004

### **Slade Scholar Supervised**

- Benjamin Hershkowitz, “Econometric Modeling with Applications to the Stock Market”, May 1990.

### **Visiting Professors and Scholars supervised**

- Leon Cohen, Hunter College and Graduate Center of CUNY, New York
- Stephane Maes, Universite Catholique de Louvain, Brussels, Belgium
- Manuel A. Rodriguez Hourcadette, Univ. Los Andes, Caracas, Venezuela

### **Professional Activities**

- Guest Editor of IEEE Trans. Of Speech and Audio for a special issue of “Neural Networks for Speech Processing”, with Al Gorin. 1994.
- Guest Editor of the Journal of Visual Communication and Images Representation JVCIR on Image Restoration and Reconstruction, with A. Katasagglos, 1992.
- Founding member of the Technical Committee of the IEEE Society of Signal Processing for Neural Networks in Signal Processing.
- Chairman, IEEE MILCOM '83 sessions on “Signal Processing of Spread Signals”, Washington, DC, 1983.
- Chairman, IEEE Session on “Techniques in Medical Imaging”, 6th Annual Conference IEEE Engineering in Medicine and Biology Society, Frontiers of Engineering and Computing in Health Care Conference, Los Angeles, 1984.
- Organizer, IEEE Communication Theory Workshop, Sanibel Island, Florida, 1985.
- Chairman, IEEE Conference ICC-87 on “Digital Signal Processing in Communication”, 1987.
- Technical Representative, ICC '89, Communication Theory Committee, 1989.
- Chairman and Organizer, two sessions of ICC'89 on “Digital Signal Processing in Communications”, 1989.
- Chairman and Organizer, ILCOM '89 and MILCOM '90, session “Digital Signal Processing in Military Communications”, 1989-90.
- Chairman and Organizer of IEEE Biomed EMBS '90 session “Iterative Image Reconstruction Methods” IEEE Conference on Biomedical Engineering, Philadelphia, PA, 1990.
- Member, Communication Theory Committee, IEEE Communication Society, 1983.
- Member, IEEE Educational Activities Board, 1983.
- Organizer of the Tutorials for 10<sup>th</sup> ICPR in Atlantic City, NJ 1990.

### **Reviewer for the following**

- IEEE Transactions on Communications Theory, 1982-.
- IEEE Transactions on Computers, 1986-.
- IEEE Transaction on ASSP 1989-.
- Refractive Corneal Surgery, Slack Inc, NJ 1989-.
- Signal Processing Elsevier (North Holland) Amsterdam, 1989-.
- IEEE Transactions on Biomedical Engineering, 1989-.
- IEEE Transactions on Neural Networks, 1989-.
- IEEE Proceeding F, Radar and Signal Processing 1989-.



- Journal of Visual Communications and Image Representation.

**Reviewer for the following agencies:**

- National Science Foundation (NSF)
- Association for Research in Otolaryngology (ARO)
- National Research Council
- The Greater Minnesota Corporation
- Elected founding member of the IEEE Technical Committee of Signal Processing Society on 'Neural Networks for Signal Processing'.

**Editorships**

- Associate Editor, IEEE Communication Magazine 1982-1988.
- Associate Editor, Pattern Recognition- The Journal of the Pattern Recognition (Pergamon Press) 1989-Present.
- Guest Editor with A.Katsaggelos of the Journal of Visual Communication and Image Representation, special issue on Image Restoration and Reconstruction, Nov 1992.
- Guest editor with A.Gorin of the IEEE Trans. on Signal Processing, special issue on Neural Networks for Speech Processing, 1994.
- Guest editor for Chapman-Hall with Igor Alexander on a series of books on Neural Networks.
- Co-Editor of the book "Neural Network: Theory and Applications" by academic Press 1991, with Josh Zeevi.
- Editor of the book "Computational Methods of Signal recovery and Recognition", John Wiley and Sons, 1992.
- Editor of book "Neural Networks for Speech and Image processing", Chapman-Hall, 1993.

**Publications**

**2008**

W. Hulbert, C.I. Podilchuk, R.J. Mammone, "Face Recognition Using a Pictorial-Edit Distance" IEEE International Conference on Image Processing (ICIP), Oct 12-15, 2008 San Diego, California, USA

**2004**

- C.I. Podilchuk and R.J. Mammone, "View Synthesis of real-time video", submitted to IEEE Transaction on Image processing
- C.I. Podilchuk and R.J. Mammone, "Pose and Illumination Correction for Face Recognition", Submitted to IEEE Transaction on Pattern Analysis and Machine Intelligence, PAMI, 2004

**2001**

- M. Novak and R. Mammone, "Improvement of non-negative matrix factorization based language model using exponential models", In *Proceedings of Automatic Speech Recognition and Understanding Workshop*, Madonna di Campiglio, Trento, Italy, 2001.
- M. Novak and R. Mammone, "Use of non-negative matrix factorization for language model adaptation in a lecture transcription task", In *Proceedings of ICASSP*, pp. 541-544, Salt Lake City, Utah, May 2001.

## 2000

- Abraham Ittycheriah, Martin Franz, Wei-Jing Zhu, Adwait Ratnaparki and R. Mammone, "Questions answering using maximum entropy components", *North American ACL*, Pittsburgh, 2000.
- G. Faulkner, S. Gopal, A. Ittycheriah, R. J. Mammone, A. Medl and M. Novak, "The aristotle project: A distributed learning system", In *Proceedings of Ed-Media2000, World Conference on Educational Multimedia, Hypermedia, and Telecommunications*, pp. 292-297, Montreal, Canada, June 2000.

## 1999

- Rajesh Balachandran, Vidhya Ramanujam and R. J. Mammone, "Channel estimation and normalization by coheral spectral averaging for robust speaker verification", *Proceedings Eurospeech*, 1999.
- Rajesh Balachandran, Vidhya Ramanujam and R. J. Mammone, "Robust speaker recognition in noisy conditions by modification of spectral time trajectories", *Proceedings Eurospeech*, 1999.
- Rajesh Balachandran, Vidhya Ramanujam and R. J. Mammone, "Robust speaker identification under channel mismatch conditions: A new approach to blind channel estimation", *Proceedings of Audio-Video based Biometric Person Authentication (AVBPA)*, 1999.
- Rajesh Balachandran, Vidhya Ramanujam and R. J. Mammone, "Robust speaker recognition in noisy conditions by coherent spectral modification", *Proceedings of International Conference on Signal Processing Applications and Technology (ICSPAT)*, Nov 1999.
- V.K. Gopalakrishnan, R.P. Ramachandran, J. Wilder, R.J.Mammone," Restoration of three dimensional microscopic images using the row action projection method", *Proceedings of the 1999 IEEE International Symposium on Volume: 4, Pages 33-36 ,Jul 1999*

## 1998

- Rajesh Balachandran and R. J. Mammone, "Non-parametric estimation and correction of non-linear distortion in speech systems", *Proceedings, ICASSP*, pp. 761-764, 1998.
- K. Farrell, R. Ramachandran and R. J. Mammone, "An Analysis of Data Fusion Methods for Speaker Verification", *Proceedings ICASSP*, May 1998
- Zilovic, M.S.; Ramachandran, R.P.; Mammone, R.J.," Speaker identification based on the use of robust cepstral features obtained from pole-zero transfer functions", *IEEE Transactions on Speech and Audio Processing*, Volume: 6, Issue: 3, Page(s): 260-267, May 1998

## 1997

- M.S. Zilovic, ;R.P. Ramachandran,R.J. Mammone, "A fast algorithm for finding the adaptive component weighted cepstrum for speaker recognition", *IEEE Transactions on Speech and Audio Processing*, Volume: 5, Issue: 1, Jan 1997

## 1996

- Manish Sharma and R. J. Mammone, "Blind Segmentation: Automatic Speech Segmentation Without Linguistic Language", *ICSLP*, Philadelphia, PA, October 1996.

- R. J. Mammone, X. Zhang and R. P. Ramachandran, "Robust Speaker Recognition: A Feature-Based Approach", *IEEE Signal Processing Magazine*, Vol. 13, No. 5, Sept. 1996.
- M.S. Zilovic, R. P. Ramachandran and R.J. Mammone, "A Fast Algorithm for the Computation of the Adaptive Component Weighted Cepstrum Used in Speaker Recognition", (accepted in *IEEE Trans, on Signal Processing*).
- M.S. Zilovic, R.P. Ramachandran, and R.J. Mammone, "Speaker Identification Based on the Use of Robust Cepstral Features Obtained from Pole-Zero Transfer Functions", (submitted to *IEEE Trans. on Speech and Audio Processing*).
- R.J. Mammone and X. Zhang, "High-numerical-aperture Reflecting Microscope, *SPIE* January 1996, vol. 2655, pp. 148-152.
- M. Sharma and R.J. Mammone, "Subword-based Text-dependent Speaker Verification System with User-selectable Passwords", *ICASSP 96*, Atlanta, GA, accepted in *Proc. Int'l Conf. on Acoustics, Speech, and Signal Processing*, 1996.
- Xiaoyu Zhang, and R.J. Mammone, "Channel and Noise Adaptation Using Affine-transformed Cepstrum, *ICSLP*, Philadelphia, PA, October 1996

### 1995

- S.V. Kosonocky and R.J. Mammone, "A Continuous Density Neural Tree Network Word Spotting System," *ICASSP-95*, Eaton Rapids, MI, 1995.
- R.P. Ramachandran, M. Zilovic and R.J. Mammone, "A Comparative Study of Robust Linear Predictive Analysis Methods With Applications to Speaker Identification," *IEEE Transactions on Speech and Audio Processing*, Vol. 2, pp. 117-125, March 1995.
- S. Samaddar and R.J. Mammone, "Image Restoration Using a Row Action Projection Method with Adaptive Smoothing," *Optical Engineering*, Vol.34, pp. 1132-1147, April 1995.
- H. Liou and R.J. Mammone, "A Subword Neural Tree Network Approach to Text-Dependent Speaker Verification," *ICASSP-95*, Eaton Rapids, MI, 1995.
- M. Sharma and R.J. Mammone, "Automatic Speech Segmentation Using Neural Tree Network (NTN)," *IEEE Workshop on Neural Network for Signal Processing*, Cambridge, Massachusetts, on August 31- September 2, 1995 .
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