

CURRICULUM VITA

TAKIS KASPARIS, Ph.D.

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VITA FAST FACTS

1) RESEARCH:

RESEARCH PUBLICATIONS:

- 31 Publications in Refereed Journals.
- 104 Articles in conference proceedings.
- 7 Magazine Articles.
- Almost all publications are with graduate students that have advised.

RESEACH FUNDING:

- Over \$1 million from NASA to the Remote Sensing lab as team with L. Jones.
- Nearly \$1.3 million of external funding as a PI, Co-PI or other research associations.
- Around \$50K of internal UCF finding.

GRADUATE STUDENT ADVICING:

- Six Ph.D. students completed, four more in progress nearing completion
- Nineteen MS students completed, three in progress
- Four UG honors theses.

2) TEACHING:

AWARDS IN RECOGNITION OF TEACHING:

- Received the prestigious “*Joseph M. Biedenbach Outstanding Engineering Educator Award*” from IEEE Region 3 in 2003.
- Received the “*Outstanding Educator Award*”, IEEE Florida Council, 2003
- Received five very competitive teaching awards at UCF.
- Several other teaching related awards.

TEACHING ACTIVITIES BEYOND THE CLASSROOM:

- Heavy involvement in curriculum/course revisions.
- Extensive laboratory development.
- Heavy involvement in ABET.
- Introduced several new courses.
- Toughed at all levels and in various areas
- Promoted design and computer usage in classes.

TEACHING RELATED PUBLICATIONS:

- Authored 3 Laboratory Manuals (currently used at UCF).
- Several other instructional publications at UCF.

3) SERVICE:

- Associate Editor of Pattern Recognition (Pergamon Press) 1998 to present time
- Steering committee of ISCAS'99, ICASSP'2002, S+SSPR plus other regional conferences.
- Session chair at several conferences.
- Extensive service in IEEE; received the IEEE millennium medal.
- Reviews regularly for several scientific journals.
- Reviewed several books for various publishers.

CURRICULUM VITA

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Remote Sensing Lab: <http://www.cecs.ucf.edu/centers/cfrsl/>



PERSONAL:

- Born in Limassol, at the island of Cyprus.
- Married with two children.
- Citizen of USA and Cyprus.

EDUCATION:

- **Ph.D. Electrical Engineering.** *City University of New York.* 1988, GPA: 4.0/4.0
- **M. S. Electrical Engineering.** *The City College of New York.* 1982., GPA: 3.95/4.0
- **Diploma in Electrical Engineering.** *National Technical University of Athens, Greece* 1975-1980, GPA: 7.7/10
- **Diploma in Radio Servicing.** Home-study system. 1975

RESEARCH INTERESTS:

- **Digital Signal Processing with applications to:**
 - Remote Sensing
 - Audio processing
 - Communications
 - Power Electronics
- **Digital Image Processing:**
 - Rank order filters
 - Pattern Classification
 - Texture Analysis
 - Video Geo-registration
- **Electronic Circuits.**

EXTRA CURRICULUM ACTIVITIES :

- **Music:** Plays professionally guitar and bouzouki (traditional Greek instrument).
- **Electronics Hobbyist** (since early age): Maintains small electronics lab at home.
- **Audio and Video production:** Maintains small A/V studio at home.
- **Vintage amplifier collector.** Maintains extensive collection of vintage tube amps.
- **Weekend automobile mechanic and handyman:** Does most repairs himself with owned tools.

PROFESSIONAL ORGANIZATIONS:

- Senior member of Institute of Electrical and Electronic Engineers (IEEE).
- Corporate member of British IEE (from 1985-1995)
- Technical Chamber of Greece (Lifetime).

PROFESSIONAL EXPERIENCE

Academic:

- **Associate Professor**, University of Central Florida, 1995-present.
- **Assistant Professor**, University of Central Florida, 1989-1995.
- **Instructor**, The City College of New York. 1982-1988
- **Adjunct Lecturer**, New York Institute of Technology. 1986-1988

Industrial, Consulting and Other:

- **Consultant, Apecor Corp., 2003-2004.**
Development of algorithms and hardware for tracking the maximum power point of solar arrays.
- **Orthodyne, Inc. 1994-1997**
Research biomedical problems and develop electronic device solutions. Most notable is the development of a biomedical computer monitor that is currently used to track the lengthening rate of internal bone lengthening device. Invention was featured in health report on local news and in biomedical journal, and a patent is pending
- **Senior Design Engineer, Controllers & Systems, Inc., N.Y. 1985-1989**
Fully responsible for the design and implementation of analog, digital and microprocessor-based systems. Examples of designed systems include general purpose and customized single board computers, digital taximeters and odometers, customized communications equipment such as switch-panels and speaker phones for digital T1 transmission, traffic controllers, digital data multiplexers and various consumer electronic products.
- **Teleport Communication, New York, 1986-1988**
Consulting on DS0 and DS1 Networks.
- **Eslinger and Pelton, NY patent law firm, 1985-1988**
Consulting on analog and digital electronics.
- **Infantry Sergeant, National Guard of Cyprus, 1973-1975.**
Mandatory army service in my home country. Served during war time.

PUBLICATIONS

NOTE:

- Publication re-prints are available in PDF form at: <http://people.cecs.ucf.edu/kasparis/>
- Names with * indicate students I have advised

Refereed Journal:

1. A.Tokay, P. Bashor, E. Habib and T. Kasparis "Raindrop Size Distribution Measurements in Tropical Cyclones", accepted for a publication in Monthly Weather Review.
2. D. Xu * and T. Kasparis, "A hybrid and hierarchical approach to aerial image registration", International Journal of Pattern Recognition and Artificial Intelligence, Vol.21, No.3 pp. 573-590, 2007.
3. N. Shorter * and T. Kasparis, "Fuzzy SART Clustering for 3D Reconstruction from Irregular LIDAR Data", WSEAS Transactions on Signal Processing, Vol. 2, No. 8, pp. 1122 -1129, 2006.
4. J. Abu-Qahouq, N. Pongratananukul *, T. Kasparis and I. Batarseh, "Multiphase Voltage-Mode Hysteretic-Controlled VRM With DSP Control and Novel Current Sharing", Circuit, Systems and Computers, Vol. 14, No.6, 2005.
5. W. Linwood Jones, Khalil Ahmad, Takis . Kasparis, Jun-Dong Park, Yanxia Wang and Josko Zec "Oceanic Rain Rate Estimates from the QuikSCAT Radiometer", Journal of Geophysical Research (JGR), Vol.110 (26 pages) Dec. 2005.
6. D. Charalampidis *, and T. Kasparis, "Wavelet - based rotational invariant roughness features for texture classification and segmentation", *IEEE Transactions on Image Processing*, Vol. 11, No. 8, pp. 825-837, August, 2002.
7. D. Charalampidis *,T. Kasparis and L. Jones, "Detection of Anomalous Propagation (AP) in NEXRAD Weather Radar using Multifractals and Intensity", *IEEE Transactions on Geosciences and Remote Sensing*, Vol. 40, No. 5, pp. 1121 – 1131, May 2002.
8. J. Lane *, T. Kasparis, and L. Jones, "A 3-D Drop Size Distribution model based on the convolution of raindrops at terminal velocity", *International Journal of Remote Sensing*, vol. 23, no. 15, pp. 3115 –3121, July 2002.
9. A. Koufakou, M. Georgiopoulos, G. Anagnostopoulos and T. Kasparis, "Cross-Validation in Fuzzy ARTMAP for Large Databases," *Neural Networks*, Vol.14 (9) pp.1279-1291, 2001.
10. D. Charalampidis *, T. Kasparis, and M. Georgiopoulos, "Classification of Noisy Signals Using Fuzzy ARTMAP Neural Networks ", *IEEE Transactions in Neural Networks*, Vol. 12, No. 5, pp. 1023-1036, 2001.
11. Cole JD, Justin D, Kasparis T, "The intramedullary skeletal kinetic distractor (ISKD): first clinical results of a new intramedullary nail for lengthening of the femur and tibia" *Injury – International Journal of the Care of the Injured*, Vol. 32 Suppl. 4, D129-D139 Dec 2001
12. T. Kasparis, D. Charalampidis *, M. Georgiopoulos and J. Rolland, "Classification of Textures Based on Fractals and Image Filtering," *Pattern Recognition* 34, pp. 1963-1973 , 2001 (Accepted on Aug. 2000)
13. Sung-Soo Kim *, and T. Kasparis, "A Modified Domain Deformation Theory on 1-D Signal Classification," *IEEE Signal Processing Letters*, Vol. 5, No. 5, pp.118-120, May 1998.
14. Q. Memon *, and T. Kasparis, "Signal Decomposition and Coding Using a Multiresolution Transform," *International Journal of Systems and Science*, Vol. 29 No. 2, pp. 110-120 February 1998.

15. G. Bebis, M. Georgiopoulos and T. Kasparis, "Coupling Weight Elimination and Genetic Algorithms to Reduce the Network Size," *Neurocomputing*, Vol. 17., No. 3&4, pp. 2012-2016, Nov. 1997.
16. Q. Memon *, and T. Kasparis, "Transform Coding of Signals Using Approximate Trigonometric Expansions" *Journal of Electronic Imaging*, Vol. 6, No.4, pp. 494 - 503, Oct. 97.
17. W. J. Bramble and T. Kasparis, "Trends in Digital Communications for Distance Education Providers," *Education at a Distance*, US Distance Learning Association, San Ramone, California, 1996
18. T. Kasparis, M. Georgiopoulos and Q. Memon *, "Direct-Sequence Spread-Spectrum with Transform Domain Interference Suppression," *Circuit, Systems and Computers*, Vol. 5, pp. 167-179, June 95.
19. P. Tsai, M. Shah, K. Keiter and T. Kasparis, "Cyclic Motion Detection for Motion Based Recognition," *Pattern Recognition*. Vol. 27, No. 12, Jan. 95.
20. T. Kasparis and J. Lane *, "Digital Restoration of Damaged Phonograph Records," *Circuit, Systems and Computers*, Vol. 4, No. 1, pp. 109-115, March 1994.
21. T. Kasparis, N. S. Tzannes, M. Bassiouni and Q. Chen *, "Texture Description Based on Fractal and Energy Features," *Computers and Electrical Engineering*, Vol. 21, No. 1, pp. 21-32, 1995.
22. T. Kasparis and J. Lane *, "Adaptive Scratch Noise Filtering," *IEEE Transactions on Consumer Electronics*, Vol. 49, No. 4, pp. 917-922, Nov. 1993.
23. T. Kasparis, "Adaptive Mixed-Rank Filters," *Electronics Letters*, Vol. 29, No. 22, pp. 1933-1935, Oct. 1993.
24. T. Kasparis and J. Lane *, "Suppression of Impulsive Disturbances from Audio Signals," *Electronics Letters*, Vol. 29, No. 22, pp. 1926-1927, Oct. 1993.
25. T. Kasparis, "Suppression of Non-stationary Sinusoidal Interference Using Transform Domain Median Filtering," *Electronics Letters*, Vol. 29, No. 2, pp. 176-178, Jan. 1993.
26. T. Kasparis, N. S. Tzannes and Q. Chen *, "Detail Preserving Adaptive Conditional Median Filters," *Journal of Electronic Imaging*, 1(4), pp. 358-364, Oct. 1992.
27. G. Eichmann and T. Kasparis, "Pattern Classification Using a Linear Associative Memory," *Pattern Recognition*, Vol. 22, No. 6, December 1989.
28. G. Eichmann and T. Kasparis, "Topologically Invariant Texture Descriptors," *Computer Vision, Graphics, and Image Processing*, Vol. 41, No. 3, March 1988.
29. T. Kasparis and G. Eichmann, "Vector Median Filters," *Signal Processing*, Vol.34, No.3, October 1987.
30. T. Kasparis, Correction, *IEEE Transactions on Instrumentation and Measurements*, 34 (2): 361-361 1985
31. N. Boulgaris and C. Halkias, "A Method for the Precise Measurement of the Difference Between Two Low Frequencies." *IEEE Transactions on Instrumentation and Measurements*, Vol. IM-34, March 85.

Conference Proceedings:

- 1) K. Gopalan * and T. Kasparis, "Background stabilization and debris flagging in launch pad videos", IEEE International Conference on Circuits and Systems (ISCAS), New Orleans, 2007
- 2) N. Shorter * and T. Kasparis, "Fuzzy SART Clustering for 3D Reconstruction from Irregular LIDAR Data", 6th WSEAS Int. Conf. on Signal Processing, Computational Geometry & Artificial Visions (ISCGAV'06), August 2006, Crete, Greece
- 3) K. Ahmad, L. Jones and T. Kasparis "QRad Near-Real-Time Rain Rate Product", Annual NASA Precipitation Measurement Science Meeting Dec. 12-15, Monterey, CA, 2005
- 4) V. Torsekar *, T. Kasparis, L. Jones, K. Ahmad and D. Long, "Identification of Rain regions Over Oceans using Multi-Fractals", Annual NASA Precipitation Measurement Science Meeting Dec. 12-15, Monterey, CA, 2005.
- 5) S. Seubson, Jones W. Linwood and Takis Kasparis, "Ocean Surface Wind Vector Retrievals Using Active and Passive Microwave Sensing on ADEOS-II", Proc. IEEE IGARSS-05, July 25-29, 2005, Seoul, Korea
- 6) A. Spanias, V. Atti, F. Bodreaux-Bartels, R. Chilimula, S. Haag, T.Kasparis, P. Loizou, A. Papandreou-Suppappola, M. Stiber, C.Tepedelenlioglu, J. Zhang, "Multi-University Development and Dissemination of On-line Laboratories in Probability Theory, Signals and Systems, and Multimedia Computing" Frontiers in Education Conference, Indianapolis, 2005
- 7) K. Ahmad, L. Jones and T. Kasparis, "QRad Ocean Rain Measurements for Wind Vector Quality Flags", OCEANS 2005, MTS/IEEE, Sept. 20-22, Washington DC.
- 8) A. Kourtellis *, T. Kasparis, L. Jones and J. Lane, "Disdrometer calibration using an adaptive signal processing algorithm" OCEANS 2005, MTS/IEEE, Sept. 20-22, Washington DC, 2005.
- 9) V. Torsekar *, T. Kasparis, L. Jones, K. Ahmad and D. Long, "Oceanic Rain Identification using Multi-Fractals Analysis of QuikSCAT Sigma-0", OCEANS 2005, MTS/IEEE, Sept. 20-22, Washington DC.
- 10) D. Xu * and T. Kasparis, "Robust Image Registration under Spatially Non-Uniform Brightness Changes" International Conference on Acoustics Speech and Signal Processing (ICASSP), Philadelphia, March 2005.
- 11) N. Pongratananukul * and T. Kasparis, "Tool for Automated Simulation of Solar Arrays Using General-Purpose Simulators", IEEE Workshop on Computers in Power Electronics 2004. August 2004.
- 12) K.. Ahmad, W. L. Jones and T. Kasparis, "Application of QuikSCAT Radiometer Rain Rates to Near-Real-Time Global Precipitation Estimates: A Global Precipitation Mission Pathfinder", IGARSS'04, Alaska, July, 2004
- 13) S. Soisuvarn, W. L. Jones and T. Kasparis, "Validation of Ocean Surface Wind Vector Sensing using Combined Active and Passive Microwave Measurements" IGARSS'04, Alaska, July, 2004
- 14) N. Pongratananukul * and T. Kasparis, "Co-Simulation for Verification of Digital Control Implementation," IEEE Power Electronics Specialists Conference, Aachen, Germany 2004.
- 15) Adams, I.S., W.L. Jones, J.D. Park, and T.Kasparis, "Combined Active/Passive Hurricane Wind Retrieval Algorithm for the SeaWinds Scatterometer," IGARSS 2004, Toulouse, France, August 21 - 25 2004.
- 16) D. Xu * and T. Kasparis, "Video Registration to Geo-referenced Imagery", Proceedings of SPIE: Signal and Data Processing of Small Targets, Orlando, 2004
- 17) D. Xu * and T. Kasparis, "A Hierarchical Approach to Image Registration Using Feature Consensus and Hausdorff Distance", Proceedings of SPIE: Signal and Data Processing of Small Targets, Orlando, 2004
- 18) Soisuvarn, S., W. L. Jones, T. Kasparis, "Combined Active and Passive Microwave Sensing of Ocean Surface Wind Vector from TRMM," Proc. IGARSS'03, Toulouse, France, July, 2003
- 19) D. Xu * and T. Kasparis, "Detection and Localization of Edge Contours", AeroSense 2003, Orlando, Florida.

- 20) Soisuvarn, S., Jones, W. L. and T. Kasparis, "Combined Active and Passive Microwave Sensing of Ocean Surface Wind Vector from TRMM", NASA Ocean Vector Wind Science Team Meeting, Jan 14-16, 2003, Oxnard, CA
- 21) D. Charalampidis * and T. Kasparis, "Rotation Invariant Roughness Features for Texture Classification", International Conference on Acoustics Speech and Signal Processing (ICASSP), Orlando, May 2002.
- 22) Richard Lazzari * and Takis Kasparis, "Suppression of Periodic Interference from Images via Transform Domain Processing", International Conference on Acoustics Speech and Signal Processing (ICASSP), Orlando, May 2002.
- 23) J. Abu-Qahouq, N. Pongratananukul *, I. Batarseh and Takis Kasparis, "DSP Controlled Low-Voltage High-Current Fast-Transient Voltage Regulator Module" International Conference on Acoustics Speech and Signal Processing(ICASSP), Vol. IV pp. 419-423, Orlando, May 2002.
- 24) Soisuvarn, S., Jones, W. L. and T. Kasparis, "Combined Active and Passive Microwave Sensing of Ocean Surface Wind Vector from TRMM", IEEE Oceans 2002, Oct 29-31, 2002, Biloxi, MS
- 25) Charalampidis * D., Kasparis T., Jones L, Wolff D., Steiner M. and Robinson M., "A Quality Control Algorithm for the Removal of Non-precipitation Echoes from Weather Radar Data", International Tropical Rainfall Measuring Mission (TRMM) Science Conference, Jul 22-26, 2002, Honolulu, HA
- 26) Lane *, J., Kasparis, T., Jones, L., Merceret, F. and N. Bhuvanendran "Estimating a 3-D Drop Size Distribution and Examining Sensitivities to Vertical Air Motion", International Tropical Rainfall Measuring Mission (TRMM) Science Conference, Jul 22-26, 2002, Honolulu, HA
- 27) Kasparis, T., Jones, L. , Ramakrishnan * K., Roeder, W. P., Merceret, F. and E. Brandes," Forecasting the onset of lightning activity with polarimetric radar data", International Tropical Rainfall Measuring Mission (TRMM) Science Conference, Jul 22-26, 2002, Honolulu, HA
- 28) Ahmammad *, P., Williams, Kasparis, T. Merceret, F, and L. Jones, "Estimating effects and significance of vertical velocity in precipitation measurements using Disdrometer Flux Conservation Model", International Tropical Rainfall Measuring Mission (TRMM) Science Conference, Jul 22-26, 2002, Honolulu, HA
- 29) Jones, W. L., Soisuvarn, S., Kasparis, T., Ahmad, S. and R. Meneghini, "Ocean Surface Wind Speed Measurements using the TRMM Precipitation Radar", International Tropical Rainfall Measuring Mission (TRMM) Science Conference, Jul 22-26, 2002, Honolulu, HA
- 30) Ahmad, K., Jones, W. L., Park, J. D., Kasparis, T., Chiu, L. S., Chang, A. and J. Vongsaard, "Diurnal Precipitation Measurements using the QuikSCAT Radiometer, TMI, and SSM/I", International Tropical Rainfall Measuring Mission (TRMM) Science Conference, Jul 22-26, 2002, Honolulu, HA
- 31) Jones, W. L., Soisuvarn, S., Kasparis, T. and S. Ahmad, "Combined Active and Passive Microwave Sensing of Ocean Surface Wind Vector from TRMM", AGU 2002 Spring Meeting, May 28-31, 2002, Wash DC.
- 32) D. Charalampidis *, G. Anagnostopoulos, M. Georgiopoulos and T. Kasparis, "Fuzzy ART and Fuzzy ARTMAP with Adaptively Weighted Distances", Proceedings of the SPIE, Applications and Science of Computational Intelligence, Aerosense 2002, Vol. 4739, pp. 86-97.
- 33) Charalampidis *, D., Kasparis, T. and W.L.Jones, "Use of Multifractals to Detect Anomalous Propagation in Weather Radar", TRMM Internat. Science Team Meeting, Oct. 29 - Nov. 1, 2001, Ft. Collins, CO.
- 34) Jaber A. Abu-Qahouq, Nattorn Pongratananuku_*], Issa Batarseh, and Takis Kasparis, " Multiphase Voltage-Mode Hysteretic Controlled VRM with DSP Control and Current Sharing Solution," Applied Power Electronics Conference and Exposition Proceedings (APEC 2002), Vol. 2, pp. 663-669, 2002.
- 35) Jaber A. Abu-Qahouq, Nattorn Pongratananukul *, Issa Batarseh, and Takis Kasparis, " Novel Transient Cancellation Control Method for Future Generation of Microprocessors," Applied Power Electronics Conference and Exposition Proceedings (APEC 2002), vol. 1, 2002.
- 36) Ahammad, Parvez *, Williams, Kasparis, T., Lane, J., Merceret, F. and L. Jones, "Estimating effects and significance of vertical velocity in precipitation measurements using Disdrometer Flux Conservation Model", AeroSense 2002, Apl. 1-5, 2002, Orlando, FL.

- 37) J. Abu-Qahouq, N. Pongratananuku_*, I. Batarseh and T. Kasparis, "Multiphase Voltage-Mode Hysteretic Controlled VRM with DSP Control and Novel Current Sharing," *IEEE-Fourth International Caracas Conference on Devices, Circuits and Systems*, P017-1 –P017-7, Aruba, April 17-19, 2002.
- 38) Jones, W. L., Adams, I., Park, J. D. and S. S. Chen, "Evaluation of SeaWinds Wind Speed Measurements in Hurricane Floyd", 25th Conf. on Hurricanes and Tropical Meteorology, Apl 28 - May 3, 2002, San Diego, CA.
- 39) Jones, W. L., Kasparis, T., Wang, Y. and J. Park, "Global Ocean Rain Rates from QuikSCAT," 7th International Conference on Precipitation, June 30 -July 3, 2001, Samoset Resort, Rockport, ME.
- 40) D. Charalampidis * and T. Kasparis, "Rotational Invariant Texture Segmentation Using Directional Wavelet-based Fractal Dimensions", AeroSense 2000, Orlando, April 16-20, 2001.
- 41) L. Jones, T. Kasparis and Y. Wang, "Quantitative Rain Rate Estimates over Oceans using QuikSCAT", 7th International Conf. of Precipitation.
- 42) M. Georgiopoulos, A. Koufakou, G. Anagnostopoulos, and T. Kasparis, "Cross-validation in Fuzzy ARTMAP neural Networks for large sample classification problems," *Proceedings of SPIE, Vol. 4390, Conference on Applications and Science of Computational Intelligence IV*, April 16-20 2001, Orlando
- 43) M. Georgiopoulos, A. Koufakou, G. Anagnostopoulos, and T. Kasparis, "Over-training in Fuzzy ARTMAP: Myth or Reality ?," *IEEE-INNS International Joint Conference on Neural Networks 2001 (IJCNN 2001)*, Washington, DC, July 14-19, 2001.
- 44) D. Chralampidis *, M. Georgiopoulos and T. Kasparis, "Classification of noisy signals using Fuzzy ARTMAP neural networks," *Proceedings of the International Joint Conference on Neural Networks (IJCNN) 2000*, Como, Italy, June 2000, pp. VI 53 -- VI 58.
- 45) J. Park, L. Jones, D. Charalampidis, T.Kasparis, and M. Georgiopoulos, "Sea Ice Extent Classification using Active/Passive Microwave Measurements from QuikSCAT", AGU Spring meeting, May 30 - June 3, 2000, Wash DC
- 46) J. Lane *, T. Kasparis, and B. Roy, "3D-DSD model based on the convolution of raindrops at terminal velocity" Proc. of 4th International Conference on Advances in Pattern Recognition and Digital Techniques, Indian Statistical Institute, Calcutta, India, December 2000, pp 74-77.
- 47) S. Datta, L. Jones, T. Kasparis and B. Roy, " Spatial Variability of Surface Rainfall as Derived from TEFLUN-B Dense Rain Gauge Network and Kennedy Space Center Gauges." 2000 AGU Fall Meeting, San-Fransisco, California, December 2000.
- 48) R. Biswadev, S. Datta, L. Jones T. Kasparis, "On utilization of NEXRAD scan strategy information to infer discrepancies associated with radar and rain gauge surface volumetric rainfall accumulations, EOS Transactions, American Geophysical Union, Vol. 81, No. 48, November 28, 2000, pp. F162.
- 49) C. Eubanks, W. Jones, T. Kasparis, R. Hossain, P. Ahammad, "Sensor pointing verification for the TRMM precipitation Radar", SPIE Proc., AeroSense 2000, Orlando, April 2000.
- 50) Q. Han, C. Eubanks, W. L. Jones, T. Kasparis, "Comparison of TRMM precipitation radar with NEXRAD and in situ rain gauges in Central and South Florida", SPIE Proc., AeroSense 2000, Orlando, April 2000
- 51) D. Charalampidis *, T. Kasparis, M. Georgiopoulos "Classification of noisy patterns using fuzzy ARTMAP neural networks", SPIE Proc., AeroSense 2000, Orlando, April 2000.
- 52) T. Kasparis, N. Pongratananukul *, "Segmentation of texture images using fractal transformations", SPIE Proc., AeroSense 2000, Orlando, April 2000.
- 53) D. Charalampidis *, T. Kasparis, L. Jones, M. Georgiopoulos, "Use of multifractals to detect anomalous propagation (AP) in weather radar", SPIE Proc., AeroSense 2000, Orlando, April 2000.
- 54) J. Lane *, T. Kasparis, L. Jones, F. Merceret, B. Muller "Radar volume reflectivity estimation using an array of ground based rainfall drop size detectors", SPIE Proc., AeroSense 2000, Orlando, April 2000.
- 55) D. Cole, D. Justin, T. Kasparis and D. DeVlught "*The Intramedullary Skeletal Kinetic Distractor (ISKD): First Clinical Results of a New Intramedullary Nail for Lengthening of the Femur and Tibia*", 67th Annual Meeting of the American Academy of Orthopedic Surgeons, March 2000, Orlando.

- 56) B. Roy, J. Lane *, and T. Kasparis. "A 3-D DSD Model Based On The Convolution Of Raindrops at Terminal Velocity", 4th International Conference on Advances in Pattern Recognition and Digital Techniques (ICAPRDT), Calcutta, India, December 1999.
- 57) D. Haralampidis *, T. Kasparis, and L. Jones, "A Simple Algorithm for the Removal of Anomalous Propagation From NEXRAD Radar Images," AMS 29th Radar Conference, Montreal, CA, 12-16 July, 1999.
- 58) Boustany, S., Jones, W. L. and T. Kasparis, "Normalization of NEXRAD Antenna Gain for Overlapping Radars" 1999 IEEE AP-S Internat. Symp. and USNC/URSI Nat. Radio Sci. Meeting, July 11-16, 1999, Orlando, FL
- 59) S. Datta, B. Roy, T. Kasparis, L. Jones and D. Haralampidis *, "Evaluation of TRMM Precipitation Radar Rainfall Estimates Using NEXRAD and Rain Gauges in Central and South Florida", AMS 29th Radar Conference, Montreal, CA, 12-16 July, 1999.
- 60) D. Haralampidis *, T. Kasparis, M. Georgiopoulos and J. Rolland, "A Fuzzy ARTMAP Based Classification of Natural Textures" Proceedings of the 18th International Conference of the North American Fuzzy Information Processing Society (NAFIPS) 99, pp, 507-511, New York, June 1999 (invited paper).
- 61) John Lane *, Takis Kasparis, and Brad Muller, "Optimization of Radar Rainfall Estimation Using Line, Area and Volume Integrations of Gauge and Radar Data", AMS 29th Radar Conference, Montreal, CA, 12-16 July, 1999.
- 62) S. Boustani, L. Jones and T. Kasparis, "Normalization of NEXRAD Antenna Gain for Overlapping Radars", AMS 29th Radar Conference, Montreal, CA, 12-16 July, 1999.
- 63) Boustany, S., Jones, W. L. and T. Kasparis, "Normalization of NEXRAD Antenna Gain for Overlapping Radars" 1999 IEEE AP-S Internat. Symp. and USNC/URSI Nat. Radio Sci. Meeting, July 11-16, 1999, Orlando, Florida.
- 64) J. Lane *, S. Datta, B. Roy, T. Kasparis, L. Jones, M. Qahwash, and Z. Ding, "High Spatial Resolution Rainfall Mapping from Nasa's Dense Rain Gauge Network", ASAE Conference, Key Largo, FL, 6-7 May 1999.
- 65) J. Lane *, T. Kasparis, L. Jones, P. Glitto, D. Sharp, F. Merceret, G. McFarquhar, and B. Fisher, "Steps Towards Improved Estimates of Convective Rainfall Using Spatial Averages Obtained from Rain Gauge Clusters," ERIM 1st International Conference on Geospatial Information in Agriculture and Forestry, Orlando, June 1998.
- 66) J. Lane *, T. Kasparis, L. Jones and F. Merceret, "Image Processing Techniques Applied to Rainfall Estimation from Radar Reflectivity Measurements," SPIE Proc., AeroSense, Orlando, April 1998.
- 67) D. Haralampidis *, T. Kasparis, and M. Georgiopoulos, "Texture Classification Using ART-based Neural Networks and Fractals," SPIE Proc., AeroSense, Orlando, April 1998.
- 68) D. Haralampidis *, T. Kasparis, and J. Rolland, "Segmentation of Textured Images based on Multiple Fractal Feature Combinations," SPIE Proc., AeroSense, Orlando, April 1998.
- 69) T. Kasparis, and J. Lane *, "A Non-Linear Algorithm for the Measurement of Rainfall Drop Size Distribution," MED-97, Cyprus, July 1997.
- 70) T. Kasparis and G. Powell *, "A Novel BPSK Demodulator Using the Expectation Maximization Algorithm," MED-97, Cyprus, July 1997.
- 71) T. Kasparis, and J. Lane *, "Adaptive DSP Algorithms for Calibrating Drop Size Distribution Rain Gauges," SPIE Proc., AeroSense, Orlando, April 1997.
- 72) Q. Memon *, and T. Kasparis, "An Efficient Algorithm for Multispectral Image Coding Using Approximate Trigonometric Expansions," SPIE Proc., AeroSense, Orlando, April 1997.
- 73) J. Lane *, T. Kasparis, and G. McFarquhar, "Acoustic Rain Gauge Experiment: Phase I," Fourth Intern. Conference on Remote Sensing for Marine and Coastal Environments, Orlando, March 97.

- 74) G. Bebis, M. Georgiopoulos and T. Kasparis, "Improving Generalization by Using Genetic Algorithms to Determine the Network Size," Proc. Of International Conference on Neural Networks (ICNN-96), Washington, DC, June 3-6, 1996.
- 75) S. Kim *, T. Kasparis, G. Schiavone and C. Madhuram, "A Similarity Measure for Non-Uniformly Sampled Multi-Resolution Terrain Data Using the Open-Ball Operator," Proc. of 30th IEEE ASILOMAR, Nov. 1996.
- 76) S. Kim *, T. Kasparis and G. Schiavone, "Open-Ball Operators for Three-Dimensional Object recognition," Southcon 96, Orlando, June 1996.
- 77) S. Kim, * T. Kasparis and G. Schiavone, "Three-Dimensional Object recognition Using Wavelets for Feature De-noising," SPIE Proc., AeroSense, Orlando, April 1996.
- 78) Q. Memon *, and T. Kasparis, "Application of Approximate Trigonometric Expansions to Multiresolution Signal Representation" Proc. of IEEE SouthCon, Orlando, pp. 308-313, June 1996.
- 79) Q. Memon *, and T. Kasparis, "Adaptive Transform Coding using Approximate Trigonometric Expansions," SPIE Proc., Photonics, Vol. 2915, Nov. 1996.
- 80) Q. Memon *, and T. Kasparis, "Approximate Trigonometric Expansions with Applications to Image Encoding" SPIE Proc., AeroSense, Orlando, Vol. 2751, pp. 26-35, April 1996.
- 81) Q. Memon *, T. Kasparis and N. Tzannes, "An Approximate Fourier Expansion with Uncorrelated Coefficients" Third Mediterranean Conference on Advancements in Controls, July 1995, Cyprus.
- 82) T. Kasparis, and J. Lane *, "Adaptive Techniques for Suppressing Impulsive Noise from Audio Signals," International Conference on Digital Signal Processing, June 95, Cyprus.
- 83) Q. Memon * and T. Kasparis, "Block Median Filters" SPIE Proc., Aerospace/Defence, Orlando, April 1995.
- 84) T. Kasparis, A. Weeks and R. Koteeswaran *, "Line Preserving Adaptive Median Filtering," SPIE Proc. on Image Processing Applications XVII, San Diego, July 1994.
- 85) T. Kasparis, J. Lane *, and C. Gwangoo, "Real-time Suppression of Impulsive Noise From Audio Signals," DSPX-94 Exposition, June 94, San Francisco.
- 86) A. Weeks and T. Kasparis, "Adaptive Median Filtering For Removing Periodic Interference from Images," SPIE Proc. on Aerospace and Remote Sensing, Orlando, April 1994.
- 87) T. Kasparis, Q. Memon * and R. Koteeswaran, "Rank Filters with adaptive Length," SPIE Proc. on Aerospace and Remote Sensing, Orlando, April 1994.
- 88) J. Campos * and T. Kasparis, "Classification of Periodic Patterns Using Hough Transform," SouthEastcon 94, April 94.
- 89) R. Nelson *and T. Kasparis, "Digital Processing For Non-Stationary Interference Suppression in Fading Channels," SouthEastcon 94, April 94.
- 90) T. Kasparis and R. Koteeswaran *, "Computationally Efficient Adaptive Rank Filters," International Conference on Digital Signal Processing and Computer Applications, Cyprus, July 1993.
- 91) T. Kasparis, "Spread-Spectrum Receiver with Interference Suppression Based on Order Statistics," Proc. COMCON-4, Rhodes, June 1993.
- 92) T. Kasparis and R. Koteeswaran *, "Adaptive Vector Median Filters," SPIE Proc. on Aerospace and Remote Sensing, Orlando, April 1993.
- 93) T. Kasparis and M. Georgiopoulos, "Multiple Narrow-Band Interference Suppression with Conditional Rank Filters," Proc. of Canadian Conference on Electrical and Computer Engineering, Sept. 1992.
- 94) T. Kasparis, M. Georgiopoulos and E. Payne *, "Non-linear Filtering Techniques for Narrow-Band Interference Suppression in Direct Sequence Spread-Spectrum Systems," Proc. MILCOM, Virginia, pp. 360-364, Nov. 1991.
- 95) R. Dunn-Roberts M. Altman, M. Moshell, C. Lisle and T. Kasparis, "Head-Tracking Display Devices for Panoramic Views in Low-Cost Simulators," Proc. of SIMTECH, Orlando, Oct. 1991.

- 96) T. Kasparis, N. S. Tzannes and Q. Chen *, "Conditional Median Filters for Selective Impulse Suppression," Proc. COMCON-3, Victoria, Canada, Oct. 1991.
- 97) T. Kasparis, N. S. Tzannes, M. Bassiouni, and Q. Chen *, " Fractal-Based Multi-Feature Texture Description," SPIE Proc. on Image Understanding for Aerospace Applications, Vol. 1521, pp. 46-54, Munich, FRG, June 1991.
- 98) T. Kasparis, "Frequency Independent Sinusoidal Suppression Using Median Filters," Int. Conf. Acoust. Speech and Signal Proc. (ICASSP) pp. 1969-1972, Toronto, May 1991.
- 99) T. Kasparis, M. Georgiopoulos, G. Heilleman, and G. Eichmann, "Image Pattern Algorithms Using Neural Networks," SPIE Proceedings, Vol. , April 1990.
- 100) T. Kasparis and G. Eichmann, "Fast Two-Dimensional Vector Median Filter Algorithm," Annual Meeting of the Optical Society of America, Rochester, N.Y., October 1987.
- 101) G. Eichmann and T. Kasparis, "Pattern Classification Using an Associative Memory," Annual Meeting of the Optical Society of America, Rochester, N.Y., October 1987.
- 102) T. Kasparis, N. Marinovic, and G. Eichmann, "Knowledge Based Image Segmentation," SPIE Proceedings, Vol. 726, October 1986.
- 103) G. Eichmann and T. Kasparis. "Texture Classification Using the Hough Transform," SPIE Proceedings, Vol. 683, Tampa, April 1986.
- 104) T. Kasparis and G. Eichmann, "Image Processing Using Vector Median Filters," Annual Meeting of the Optical Society of America, Washington. D.C., October 1985.

Magazine Articles (Edited non Refereed):

- 1) John Lane *, Ed Martinez, and Takis Kasparis, *Hydrology, Weather Radar and the Internet*, DSP and Multimedia Technology, August 1999.
- 2) A. Weeks, T. Kasparis and J. Lane, "Introduction to Image Processing and Restoration: Techniques Using the FFT Algorithm," DSP Applications, pp. 38-46, August 1993.
- 3) T. Kasparis, A. Weeks and J. Lane *, "Image Enhancement Using Two-Dimensional Fourier Frequency Filtering," DSP Applications, pp. 18-25, September 1993.
- 4) A. Weeks, T. Kasparis and J. Lane *, "Fundamentals of Color Image Processing," DSP Applications, pp. 47-60, October 1993.
- 5) A. Weeks, T. Kasparis and J. Lane *, "Image Enhancement and Restoration Using Spatial Filtering," DSP Applications, pp. 35-44, November 1993.
- 6) A. Weeks, T. Kasparis and J. Lane *, "Binary Morphological Filtering Fundamentals and Applications," DSP Applications, pp. 33-45, December 1993.
- 7) J. Lane *, T. Kasparis, and A. Weeks, "Enhancements and Restoration Techniques for One-dimensional Signals," DSP Applications, February 1994.

Instructional publications at UCF:

(Most are available on-line at: <http://people.cecs.ucf.edu/kasparis/>
Or: <http://www.cecs.ucf.edu/ABET/electrical/eelclasses/index.htm>)

- 1) T. Kasparis, "**Lectures in Digital Signal Processing**", (300 pages of typed notes), 2007
- 2) T. Kasparis, "**Laboratory Book for Electrical Networks**," (EEL 3122), 2002
- 3) T. Kasparis, "**Laboratory Book for Electronics I**," (EEL 3307), 2002
- 4) T. Kasparis, "**Laboratory Book for Electronics II**," (EEL 4309), 2002.
- 5) T. Kasparis, "**The Senior Electrical Design Handbook**". (with S. Richie and I. Batarseh), 1998.
- 6) T. Kasparis, "**The Laboratory Instructor's handbook**". 1995.
- 7) T. Kasparis, **Course notes for most courses** (available online)

PATENTS:

"Device and Method for Measuring Skeletal Distraction".

Inventor: T. Kasparis. Submitted to the Patent Office, awaiting approval.

RESEARCH FUNDING

Funded Projects:

- 1) **“3D Reconstruction from irregular LIDAR and aerial imagery”**, Harris Corporation. Amount \$50K plus \$25K from I-4 Development Funds match (Florida State funds). PI: T. Kasparis, 2007-2008.
- 2) **“Rain simulator performance evaluation”** UCF Stormwater Management Academy subcontract. Amount \$20K. PI: T. Kasparis, 2007-2008.
- 3) **“Radiometric Consistency for Multi-Satellite Constellations” (Co-PI. PI: L. Jones, Co-PI: T. Wilheit)**, Funded NASA , PMM. Amount: \$103,273 for 2007-2008.
- 4) **“Collaborative Research: CCLI-EMD; Development of On-line Laboratories for Networks, Probability Theory, Signals and Systems, and Multimedia Computing” (PI at UCF)**. Lead institution: Arizona State University. Funded by NSF. for three years. Amount: \$26,396 plus \$1,905 UCF matching for 2005-2007. Contract 16226033.
- 5) **“Development of Raindrop and Hail Size Distribution Measurement Technologies” (PI)**, Funded by Florida Space Grant Consortium. Amount: \$15,243K, 2005-2006. Contract 16229006
- 6) **“Modeling and Simulation of Compact, efficient Sonar Amplifiers” (PI, Co-PI: I. Batarseh)** Funded by Engineering Acoustics Corp. for \$32,376 plus \$16,188 from I-4 Development Funds. 2004-2005, Contract 16228064.
- 7) **“Single Camera Tracking of Debris in a Semi-Stable Babkground” (PI)**, Funded by Florida Space Grant Consortium. Amount: \$21K, 2004-2005. Contract 16229002.
- 8) **“Inter-Satellite Microwave Radiometric Calibration Study” (Co-PI. PI: L. Jones)**, Funded by NASA/ GPM. Amount: \$180,000 over a three-year budget period. 2004-2006’ Contract 16226024.
- 9) **“Real-time DSP laboratory development”**, Internal UCF Grant. **PI**, Amount :\$12,300, 2004.
- 10) **“QuickSCAT Precipitation Mission - A GPM Pathfinder” (Co-PI. PI: L. Jones)**, Funded by NASA/ GPM. Amount: \$300,000 over a three-year budget period. 2003-2006’ Contract 16226023.
- 11) **“Cirrus Regional Study of Tropical Anvils and Cirrus Layers - Florida Area Cirrus Experiment (CRYSTAL-FACE)”**. (PI. Co-PI: L. Jones) Amount \$16,134 for 2002-2003, Contract 16-22-212.
- 12) **“Acquisition of a Universal Wireless Communications System Emulator”**, (Co-PI, PI: Lei Wei, plus other Co-PIs). Funded by NSF. Amount: \$100,475 plus \$23,200K matching. Contract 16-22-420, 2003. Contract 16226009.
- 13) **“Undergraduate research experience in computer vision (REU),” (Co-PI. PI: M. Shah Co-PI: N. Lobo)** Funded by NSF. Amount of \$ 350,000 for 5years, 2001-2006. Contract 16-40-402.
- 14) **“Tropical Rainfall Measurement Mission”**. (Co-PI, PI: L. Jones). Funded by NASA. Amount \$141,000 for 2001-2002 (3nd year renewal of contract 16-22-211).
- 15) **“Tropical Rainfall Measurement Mission”**. (Co-PI, PI: L. Jones). Funded by NASA. Amount \$113,000 for 2001-2002 (2nd year renewal of contract 16-22-211).
- 16) **“Tropical Rainfall Measurement Mission”**. (Co-PI. PI: L. Jones). Funded by NASA for three years. Amount \$113,000 for 2000-2001 and \$2,300 in UCF matching. Contract 16-22-211.
- 17) **“NEXRAD Rain Products,” (Co-PI. PI: L. Jones)**. Funded by St. Johns River Water Management District for \$14,983 from Sept. 99 to March 2000. Contract 16-28-846.
- 18) **“Tropical Rainfall Measurement Mission”**. (Co-PI. PI: L. Jones). Funded by NASA . Amount \$100,000 for 1999-2000. Contract 16-22-209.

- 19) **"Smart Antennas for Wireless Communications"**,(Co-PI. PI: P. Wahid, other Co-PIs: L. Jones, M. Georgiopoulos and G. Li), Funded by I-4 Development Funds. Amount: \$45,000 plus \$45,000 of industrial matching. Period of Jan.99 – Dec. 99. Contract 2002082.
- 20) **"TRMM-LBA"**. (Co-PI. PI: L. Jones). Funded by NASA. Amount \$ 92,000 for January-May 1999. Contract 16-22-210.
- 21) **"Texas and Florida Underflights"**. (Co-PI. PI: L. Jones). Funded by NASA. Amount \$ 78,499 for May-September 1998. Contract 16-22-210.
- 22) **"Tropical Rainfall Measurement Mission"**. (Co-PI. PI: L. Jones). Funded by NASA for three years. Amount \$110,029 for 1998-1999. Contract 16-22-209.
- 23) **"System for image analysis and segmentation for space applications"**. (PI) Funded by NASA/TRDA. Amount: \$ 19,953 for May 96-Aug. 97. Contract 16-22-771.
- 24) **"CISE Research Instrumentation: Specialized Equipment for Vision and Image Processing"**. (Co-PI, PI: M. Shah, Co-PI: N. Lobo). Amount: \$ 68,000. Funded by NSF for April 95-May 97. "Real-time Digital Signal Processing Equipment,"
- 25) **Equipment Donation** from Motorola, market value of \$ 5,000. Includes DSP56002 based processing boards, A/D and D/A boards and applications software. 1997.
- 26) **"Correlation Matching in Terrain Generators for Simulation and Training,"** Research Associate at the Institute for Simulation and Training (IST). Amount of \$ 32,000 for student support for February 94-May 96.
- 27) **"Undergraduate research experience in computer vision,"** Research Associate (Co-PI, PI: M. Shah). Funded by NSF. Allocated the amount of \$ 11,000 for May 92-May 94.
- 28) **"Equipment for Research in Image Understanding and Image Compression for Dynamic Scenes."** (with M. Shah and M. Bassiouni). Funded by NSF for \$ 53,469. June 92 - May 93.
- 29) **"Narrow-band Interference Suppression Using Transform Domain Median Filtering."** (PI). Internal UCF grant for Spring 1993. Amount: \$ 9,125.
- 30) **"User Requirements for Digital Networks Employing Satellite Communications."** (with W. Bramble). Funded by NASA. Amount: \$39,460. Dec. 91 - Dec. 1992.
- 31) **"Tactical Electronics Test Simulation System. Requirements analysis and feasibility assessment."** Co-PI with several other ECE faculty. Funded by the US Navy. Amount: \$460K. Dec. 90 - May 91.
- 32) **"Head Tracking Display."** Research Associate (PI M. Moshell). Was allocated the amount of \$ 21,740 for part of the project. Supported by a grant from PM-TRADE through the Institute for Simulation and Training. May 1991 - Dec 1991.
- 33) **"Applications of Fractals to Image Classification,"** (PI). Co-PI's N. S. Tzannes and M. Bassiouni). Funded by Florida High Technology Industry Council for the amount of \$ 20,000, with \$ 10,000 matching funds from Martin Marietta. Jan. 1990 - Aug. 1991.
- 34) **"EIES-Kasparis,"** Internal UCF Grant for \$ 9,785. July 89 - July 90.

HONORS AND AWARDS

Competitive Regional Awards:

- **Joseph M. Biedenbach Outstanding Engineering Educator Award,** IEEE Region 3, 2003
- **Outstanding Educator Award,** IEEE Florida Council, 2002

Competitive Awards at UCF:

- **Teaching Incentive Award,** College of Engineering University of Central Florida, 2004
- **Excellence in Undergraduate Teaching,** College of Engineering University of Central Florida, 2003
- **Teaching Incentive Award,** College of Engineering University of Central Florida, 1999.
- **Teaching Incentive Award,** College of Engineering University of Central Florida, 1994
- **Excellence in Undergraduate Teaching,** College of Engineering University of Central Florida, 1993

Other Awards :

- **Appreciation Award,** for eight years of dedicated advisor service, IEEE Student branch, 2004
- **Outstanding Educator Award,** IEEE Orlando Section, 2002.
- **IEEE Millenium Medal,** Orlando Section, 2000.
- **Outstanding Service Award,** IEEE Florida Council, 2000.
- **Outstanding Service Award,** IEEE Orlando Section, 2000.
- **Appreciation Certificate from NASA, KSC** (for mentoring a senior design project) 1998
- **Certificate of Recognition for serving as Chairman,** IEEE Orlando Section, 1998
- **Certificate of Appreciation for service as Vice-Chairman,** IEEE Orlando Section, 1997
- **Teacher of the year,** ECE Department, University of Central Florida, 1997.
- **Certificate of Appreciation for service as Treasurer,** IEEE Orlando Section, 1996
- **Certificate of Appreciation for contributions as Programs Chairman,** IEEE Orlando Section, 1997
- **Engineer of the Year,** Signal Processing Chapter, IEEE Orlando Section, 1996
- **Teacher of the year,** ECE Department, University of Central Florida, 1996.
- **Certificate of Appreciation for contributions as Signal Processing Chapter Chairman,** IEEE Orlando Section, 1995
- **Engineer of the year,** IEEE, Orlando Section, Signal Processing Chapter, 1995.
- **Teacher of the year,** Department of Electrical Engineering, University of Central Florida, 1993.
- **Graduate Fellowship,** Electrical Engineering Department of City College of New York, 1982-1986.
- **Full scholarship,** State Scholarship Foundation of Greece (a.k.a. IKY), to support undergraduate studies, 1975-1980.

STUDENT SUPERVISION

1) Ph.D. student supervision: (Six completed, four in progress)

NAME	DISSERTATION TITLE	Year Completed
1) Qurban Memon Currently a faculty in Pakistan	<i>Approximate Trigonometric Expansions with Applications to Signal Decomposition and Coding</i>	1996
2) Sung-Soo Kim Currently a faculty in Taiwan	<i>3-D Object recognition for simulation and training</i>	1997
3) John Lane Currently a senior Scientist with ASRC, KSC	<i>Numerical, Image, and Signal Processing Algorithms Applied to Radar Rainfall Estimation</i>	1998
4) Dimitrios Charalampidis Currently a faculty at U. of New Orleans	<i>Novel Textural Features and Techniques for Image Segmentation and Classification</i>	2001
5) Nattorn Pongratananukul Currently an engineer with Westinghouse	<i>Tracking of Maximum Power Point in Solar Panel Arrays (tentative title)</i>	2004
6) Dongjiang Xu Currently a software engineer	<i>Feature based efficient algorithms for geo-registration</i>	2004
7) Achilleas Kourtellis Passed Candidacy Exam in Fall 2006	<i>Interpolation/Extrapolation methods for estimating 3D DSD from ground based sensors</i>	In progress Expected in 2008
8) Kaushik Gopalan Passed Candidacy Exam In Fall 2006	<i>Inter-Satellite Radiometric Calibration</i>	In progress Expected in 2008
9) Nicholas Shorter Passed Candidacy Exam in Spring 2007	<i>3-D Image reconstruction from LIDAR and visible images</i>	In progress Expected in 2008
10) Vasud Torsekar Passed Candidacy Exam in Fall 2006	<i>Multifractal analysis of Remote Sensing Images</i>	In Progress Expected in 2008

2) M.S. student supervision: (Nineteen completed, three more in progress)

NAME	THESIS TITLE	Year Completed
1) Nicholas Shorter	<i>Heuristic 3D Reconstruction of Irregularly Spaced LIDAR Data</i>	2006
2) Karthik Kalathi Vanumamalai	<i>Debris Tracking in a Semi-stable Background</i>	2005
3) Kaushik Gopalan	<i>Background Stabilization and Debris Detection in Launch pad Video Monitoring</i>	2005
4) Vasud Torsekar	<i>Oceanic Rain Identification of QuikSCAT Sigma_0 using Multifractal Analysis</i>	2005
5) Kartik Ramakrishan	<i>Forecasting the onset of cloud-ground lightning using S-POL and NLDN data</i>	2004
6) <i>Nattorn Pongratananukul</i>	<i>DSP controlled hysteretic low-voltage power converter</i>	2002
7) Parvez Ahamad	<i>Estimation of vertical velocity and its significance in precipitation measurements using sensor fusion approach</i>	2002
8) Richard Lazzari	<i>Suppression of periodic interference from images via transform domain processing,</i>	2001
9) <i>Dimitrios Charalampidis</i>	<i>Texture segmentation using feature combinations,</i>	1998
10) Sundar Appadwedula	<i>An Integrated System For Texture Segmentation and Classification</i>	1997
11) Sassaman Daniel	<i>Feedback Suppression Techniques in Public Access Systems</i>	1996
12) Greg Powell	<i>BPSK Coherent Demodulation Using the Expectation-Maximization Algorithm</i>	1996
13) Walker Samuel	<i>Delta Modulation Techniques for Transform Domain Interference Suppression</i>	1995
14) Gunter Schmer	<i>Real-time Digital Signal Processing for Narrow-Band Interference Suppression</i>	1995
15) Sethi Guatam	<i>Adaptive Windowing Techniques in Transform Domain Interference Suppression</i>	1994
16) Revathi Koteeswaran	<i>Image Processing Using Block Adaptive Median Filters</i>	1994

17) Russ Nelson	<i>Narrow-band Interference Suppression for DS-SS at the Presence of Signal Fading</i>	1994
18) Edward Payne	<i>Non-linear Filtering Techniques for Narrow-band Interference Rejection in Direct Sequence Spread-Spectrum Systems</i>	1991
19) Qing Chen	<i>Texture Segmentation and Classification using Fractal and Energy Measures</i>	1991

3) Honor Thesis supervision: (Four completed)

NAME	HONORS THESIS TITLE	Year Completed
<i>Simon Jelavic</i>	<i>Detail Preserving Filters for Impulsive Noise Suppression in Color Images</i>	2006
<i>Nattorn Pongratananukul</i>	<i>Texture segmentation using fractal feature</i>	2000
Roy Harris	<i>Design and Implementation of a High Efficiency PowerSupply for Use with a High Power Audio Amplifier</i>	1996
Shawn Erickson	<i>Design and Implementation of a Stereo Graphics Equalizer Using Real-time Digital Signal Processing</i>	1995

5) Independent Studies:

Supervised a total of twelve

SERVICE ACTIVITIES

PROFESSIONAL SERVICE:

- **Associate Editor to Pattern Recognition (Pergamon Press), 1998 to present.**
- **Organizing Committee S+SSPR Workshop (SPR Chair), 2008.**
- **Steering Committee, International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2002.**
Chaired the student forum. Official photographer. Hosted photo gallery.
(visit ICAASP 2002 photo gallery at: <http://people.cecs.ucf.edu/kasparis/>)
- **Steering Committee, International Symposium on Circuits and Systems (ISCAS), 1999**
Finance Chair
- **Awards Chairman, IEEE Orlando Section, 1998-1999.**
- **Chairman, IEEE Orlando Section, 1997-1998.**
- **Vice-Chairman, IEEE Orlando Section, 1996-1997.**
- **Treasurer, IEEE Orlando Section, 1995-1996.**
- **Signal Processing Section, Chairman, IEEE Orlando Section 1992- 1995.**
- **IEEE student branch advisor from 1996-2004.**
- **Steering committee, IEEE SouthEastcon-98. Responsible for hardware competition.**
- **Session Chair at SOUTHCON-94, Orlando.**
- **Session Chair at SOUTHEASTCON-94, Miami**
- **Local arrangements committee of the 1993 International Symposium on Communication Theory at Florida Keys.**
- **Delivered several seminars in local IEEE section.**
- **Reviewed for IEE Electronic Letters, IEEE Transactions on Circuits and System, Journal of the Optical Society, the Journal of the Society of Computer Simulation, Journal of Electronic Imaging, Pattern Recognition and Optical Engineering.**
- **Reviewed 4 books for McGraw Hill publishing company.**
- **Reviewed 2 books for Prentice-Hall publishing company**
- **Reviewed proposals for The State of Maine Science Commission.**

COMMITTEE SERVICE AT UCF:

ECE Department: (Served in almost all ECE committees. This is a partial list)

- Chairman of Electronics Subcommittee (1989-Fall 94)
- Digital Signal Processing Subcommittee (1989-presently the Chair)
- Undergraduate Affairs Committee (1989-1992, 1994-1997,)
- Graduate Affairs Committee (1992-1993, 1997-present)
- Search Committee (1990)
- Computer Committee (Fall 94)
- Tenure and Promotion Committee (1999)
- Undergraduate Laboratory Enhancement Committee (Chair, Fall 94)
- Laboratory Chief (1991-1995)
- Administrative Committee (1995-1997)
- Graduate Committee (1999-2002)
- Lab Committee (1999-2004)
- Undergraduate Committee (2003)
- Search Committee (2003-2004)
- Awards Committee Chair (2003-2004)
- Curriculum Committee (2003-2004)

COLLEGE COMMITTEES:

- Honors Program committee (1990-1991)
- ENT committee (1991-1992)
- Tip selection committee (1997)
- Tip selection committee (2002)
- Tenure and Promotion Committee (2001-2004)

UNIVERSITY COMMITTEES:

- Undergraduate Policy Committee (1997-1999)
- Selection Committee for Provost UG equipment special (2002 and 2003).
- Patent Committee (2004-present)

COURSES TAUGHT AT UCF

- *Web-sites for most courses at: <http://people.cecs.ucf.edu/kasparis/>*

Course Number	Title	Textbook(s) used
EEL 6558	Advanced Topics in DSP	Proakis, Rader, Ling and Nikias
EEL 6505	Multi-Dimensional DSP	1) Lu & Antoniou, 2) J. Lim
EEL 6502	Adaptive DSP	1) Widrow & Sterns 2) Haykin
EEL 5245	Power Electronics I	I. Batarseh
EEL 5937	Wireless Communications (Team teaching)	T. Rappaport
EEL 5820	Image Processing	Gonzalez & Woods
EEL 5513	DSP Applications	1) Antoniou 2) Proakis & Manolakis
EEL 5370	Operational Amplifiers	1) Niemen 2) Franco
EEL 4915	Senior Design II	Various, plus Class Notes
EEL 4914	Senior Design I	Various, plus Class Notes
EEL 4750	DSP Fundamentals	1) Proakis & Manolakis 2) Antoniou 3) Mitra
EEL 4309	Electronics II	1) Sedra & Smith, 2) Niemen
EEL 4012	Senior Design (One semester class)	Various, plus Class Notes
EEL 3307	Electronics I	1) Sedra & Smith 2) Niemen
EEL 3122	Electrical Networks	Nillson
EGN 3930H	Principles of Electrical Engineering (Honors)	Dorf
EGN 3373	Principles of Electrical Engineering	1) Gogdell 2) Dorf 3) Rizzoni

QUOTE:

“As a teacher Dr. Kasparis has won several teaching awards, including a regional IEEE teaching award. He has taught a mix of both graduate and undergraduate courses, and he has written several laboratory manuals that are in use here at UCF. Dr. Kasparis is clearly one of the top teachers on the College”

Neal Gallagher, Dean of College of Engineering, University of Central Florida

STUDENT COMMENT SAMPLES

UN-EDITED COMMENTS FROM STUDENTS EVALUATION SURVEYS:

- *Best instructor I ever had at UCF.*
- *Dr. Kasparis is the best professor I've had and definitely without a doubt the best in the department. Thanks for your teaching.*
- *Dr. Kasparis is possibly the best instructor I've ever had. Explains thing very well and good sense of humor. Class stays very interesting.*
- *You are one of the best teachers I have ever had. I really enjoyed your class.*
- *I have avoided Dr. Kasparis for 4 years because everyone said he was hard. I have enjoyed my experience within his class. Awesome professor.*
- *Great Professor. I can't wait for DSP apps in the Fall and hopefully Image Processing in the Spring.*
- *# 1 teacher at UCF.*
- *"Having completed more than 140 credit hours of college study, Dr. Kasparis is one of the best Instructors I've had".*
- *Teaching methods were great. Instructor really inspired us to learn more.*
- *"Fantastically interesting subject. Dr. Kasparis pushes students into self discovery of basic ideas and principles of DSP.*
- *One of the most interesting classes that I have had. Interesting presentations – hold my attention.*
- *Dr. Kasparis kept the class highly interesting and facilitated a great environment for wanting to learn the material. He has great enthusiasm in the material.*
- *I've had many courses in Electronics and I think Professor Kasparis is easily the best instructor of the subject I've ever had.*
- *Dr. Kasparis encouraged critical thinking, positive attitudes and realization for practical applications"*
- *Dr. Kasparis was great. I hope to take more classes with him.*
- *"We need more instructors like Dr. Kasparis, he is a great instructor"*
- *Dr. Kasparis was very professional and was qualified to teach the course.*
- *The superior competency of the instructor. Has obvious ease with the material, makes class relaxed and enjoyable to attend.....Dr. Kasparis is great.*
- *"Dr. Kasparis' excellent teaching skills and practical experience made the class an excellent learning experience"*
- *Dr. Kasparis demonstrated uncommon mastery of the material and presentation skills*
- *Dr. Kasparis is an excellent instructor who knows this topic (Electronics) incredibly well.*
- *"Excellent teacher, one of the few that knew what he was talking about"*
- *"I had him for three different courses and I say he is the best instructor in the College".*
- *Excellent professor who conveyed material perfectly. Also very humorous which relieved tension and made the material interesting.*
- *"Like always, Dr. Kasparis was a great instructor. I feel that I have learned more from Dr. Kasparis than from any other Instructor".*
- *Best teacher at UCF, but grading scale is not fair.*
- *Dr. Kasparis is an excellent instructor who knows this topic incredibly well.*
- *I very much enjoy Dr. Kasparis' teaching style + methods. Very effective.*
- *I would like to take other course taught by Dr. Kasparis.*

CURRICULUM DEVELOPMENT AT UCF

COURSE DEVELOPMENT:

- **Electronics curriculum:** Revamped the entire curriculum. Eliminated course overlapping and organized the material covered in the entire course sequence. Introduced two new courses (Operational Amplifiers-EEL 5370 and the Advanced Topics-EEL 6372 course).
- **DSP curriculum:** Major participation in the development and enhancement of courses in the DSP area. Continuously modernized all of the course contents to take advantage of computer technology evolution. Developed extensive software tools for the students. Introduced the Advanced topics in DSP course (EEL 6558)
- **Senior Electrical (Capstone) Design:** Developed the course in 1990 and extensively taught it since then. The effectiveness and the organization of the course were especially praised by the Accreditation Bureau of Engineering and Technology (ABET) evaluators. Co-authored a handbook for the course
- **Electrical Networks:** Major role in restructuring the curriculum and course content in this area.

UNDERGRADUATE LABORATORY DEVELOPMENT:

- Currently leads the effort for the development of a showcase state of the art Integrated Laboratory (ILAB) at UCF where students perform advanced experiments from various specialization areas.
- Prepared an entirely new set of experiments for the Linear Networks course, and wrote new laboratory books the followings courses.
 1. EEL 3122 (Electrical Networks)
 2. EEL 3307 (Electronics I)
 3. EEL 4309 (Electronics II)
- Organized and upgraded the equipment in all undergraduate lab facilities.
- Created laboratory infrastructure to promote design in all labs.
- For many years served as the "Laboratory Chief" to oversee the smooth functioning of all the undergraduate teaching laboratories.

OVERVIEW OF RESEARCH WORK

CURRENT RESEARCH INTERESTS:

- **Signal Processing for Remote Sensing Applications.**

In 1998 Dr. Linwood Jones who is the remote sensing joined UCF and along with Dr. Kasparis formed the Central Florida Remote Sensing Laboratory (CFRSL). Since then, CFRSL has received over 1.5 million dollars in research funding; mostly from NASA and JPL for a variety of projects. Some of the major research programs that CFRSL has participated are TRMM, TEFLUN-B, LBA, CRYSTAL-FACE, GPM, and QUICKSCAT. Dr. Kasparis contributes digital signal and image processing expertise in solving problems relating to remote sensing.

- **Texture analysis and Feature extraction.**

Researching features for texture analysis and classification with emphasis on invariance to rotation, scaling and other transformations. Recent focus is on radar and satellite sensors for remote sensing applications.

- **Signal Processing for Power Electronic Systems.**

As power electronic systems become more and more complex and DSP controller prices dropping, more sophisticated signal processing can be utilized. One example is the maximum power point tracking in multi-channel solar panel arrays. The goal is to operate each array at the maximum power point. Signal processing algorithms are implemented on a real-time DSP to track the point.

- **3D reconstruction from irregular LIDAR data.**

Research on computationally efficient methods the automatic extraction and 3D reconstruction of buildings in LIDAR data. Considers also data fusion from other sensors such as visible images.

OTHER RESEARCH INTERESTS:

- **Adaptive Rank-order filters for various applications.**

Considered applications of rank-order filters. Emphasis on detecting and suppressing impulses, without affecting the background. Considered applications in communications, image processing and audio (see more details later).

CURRENT RESEARCH PROJECTS:

- **Detection of flying debris during spacecraft launches from single camera view:** The interest in this project was initiated by the falling debris that caused the Columbia disaster. Funded by the Florida Space Grant Consortium.
- **Detection of rain regions in satellite QuikSCAT images over the ocean using textural features.** Funded by NASA/JPL.
- **Generation of a 3-D rain drop-size distribution (DSD) using a cluster of ground based distrometers.** The purpose is to estimate the DSD at above altitudes seen by dual-polarization radar (DPR) from ground based measurements. Partially funded by NASA.
- **Wind Retrieval Algorithms for the SeaWinds Scatterometer and TRMM.** Funded by NASA/JPL

- **Development of a low-cost impact distrometer.** The current cost of commercially available impact distrometers (like the Joss) exceeds \$18K. However, this price tag is unjustified given the cost of electronics hardware these days. Our objective is to utilize modern low-cost microprocessors and extensive signal processing to develop a similar instrument with a cost of \$2-3 K. Unfunded project.
- **Feature-based geo-registration.** The purpose is to develop efficient feature based algorithms for the registration of aerial images. Unfunded project.
- **3-D reconstruction from LIDAR data.** The goal is to reconstruct 3-D views of structures from observations from special imaging and ranging sensors known as Light Detection and Ranging (LIDAR). Project is sponsored by Harris Corporation in Melbourne Florida.

SOME NOTABLE RESEARCH ACCOMPLISHMENTS

1. ADAPTIVE RANK-ORDER FILTERS AND APPLICATIONS

- One of the first to use median filters in the frequency domain for the purpose of suppressing narrow-band interference. Studied the performance in Direct-Sequence Spread-Spectrum systems and also in suppressing periodic pattern from images. The method was used by Lockheed-Martin in suppressing periodic interference from FLAIR images.
- In the digital image processing area proposed an adaptive conditional median filter (ACMF) that can suppress impulsive noise (salt and pepper) of only sufficient amplitude thus leaving most of the image detail intact. The complexity of the proposed filter is almost the same as that of the median filter, and it can be implemented via a fast algorithm. The ACMF was compared with a far more complex algorithm in a recent paper published in the IEEE Transactions on Image Processing *, and despite the simplicity of the ACMF, the performance was almost the same.
* G.Pok, J.Liu and A.S. Nair, "Selective Removal of Impulse Noise Based on Homogeneity Level Information", IEEE TRANS. ON IMAGE PROC., VOL. 12, NO. 1, pp. 85-92 (Reprint on enclosed disk)
- In audio processing, proposed a method for detecting and filtering out impulses without distorting the impulse-free portion of the audio file. Motivated by the desire to develop a simple and effective method to restore old damaged vinyl record collections by utilizing a PC with a soundcard. The final adaptive version of the algorithm was published in the IEEE Transactions on Consumer Electronics, and it is possibly the only recent publication that can be found on this subject. The proposed algorithm was used by several commercial software developers to provide "click and pop" filters in their packages. Several audio hobbyists developed software based on our method and have postings on the web. *For an example, see: <http://panic.et.tudelft.nl/~costar/gramofile/>*

2. SIGNAL PROCESSING FOR REMOTE SENSING

- Developed algorithms for the quality control (QC) of rain gauge data.
- Developed an automated algorithm for the detection and suppression of Anomalous Propagation (AP) in NEXRAD radar. This method is based on textural properties and it was motivated from the need of an automated process when processing NEXRAD data for NASA on a daily basis. The GVS software provided by NASA included a manual process that involved the manual adjustment of 12 environmental parameters (a tedious task).
- An interpolation/extrapolation method for producing 3-D drop-size distributions (DSD) from a cluster of ground-based distrometers. The objective is to produce DSDs at an altitude seen by the dual-polarization radar (DPR). Of course, an undesirable alternative is to place distrometers on very tall towers.

- Development of a low-cost distrometer with adaptive self calibration. Current price tags for distrometers start around \$18K, and the calibration is very tedious requiring tall drop towers. We want to develop a low cost (\$2-3K) autonomous instrument, that when used in conjunction with a rain gauge it will have the ability to continuously calibrate it self. A prototype is currently tested.

3. TEXTURE ANALYSIS

- Focus on development topologically invariant textural features. The most recent algorithm uses wavelets to extract rotational invariant roughness features. Published in the IEEE Transactions on Image Processing.

4. BIOMEDICAL INVENTION

- Worked with a local orthopedic surgeon to develop a method to monitor the lengthening of bones using an internal (inside the bone) lengthening device. I suggested the idea of using a rotating magnet in the lengthening device and designed a biomedical monitor capable of detecting and logging weak magnetic fields. Since these fields could be weaker than the field of the earth, the effect of the earth was compensated. The invention was featured on the local news channel, and a patent was filed with Dr. Kasparis as the inventor. The device is currently marketed by Orthofix Corporation. For the news media clip please visit: <http://people.cecs.ucf.edu/kasparis/>



Dr. Kasparis demonstrates the biomedical monitor during a TV newscast. See entire news clip at: <http://people.cecs.ucf.edu/kasparis/>



Production version of the biomedical monitor by Orthofix Corporation. (from <http://www.iskd.com/>)



Prototype biomedical monitor, conceived, designed and built by Dr. Kasparis.



Publicity photo of Orthofix that demonstrates the ease of using the leg lengthening monitor. (from <http://www.iskd.com/>)

