

PROFESSOR EMMETT J. IENTILUCCI (2/14/11)

Digital Imaging & Remote Sensing Laboratory, Center for Imaging Science
Rochester Institute of Technology
54 Lomb Memorial Drive, Rochester, NY 14623-5604

OVERVIEW

Dr. Emmett Ientilucci is an assistant research professor in RIT's Digital Imaging and Remote Sensing (DIRS) group. He has degrees in optics and imaging science. Prior to his faculty position, he was a Postdoctoral Research Fellow for the Intelligence Community.

His recent research interests include the incorporation of physics based (target) modeling into structured hybrid hyperspectral sub-pixel detection algorithms with the addition of a geometric infeasibility metric. In general, Dr. Ientilucci's interests are in geometric and stochastic target detection as well as improvements to the physics based modeling approach as it pertains to the development of target spaces. He has also published on the impact endmember selection has on target detection, spectral variability, and general hyperspectral algorithm development. Recently, he has been involved with atmospheric and radiative transfer modeling and scattering from small particles as it relates to bio-aerosols.

Dr. Ientilucci has taught courses and labs in radiometry, remote sensing, geometrical optics, photo science, dimensional metrology, measurement and analysis, and computer techniques for technicians, both at RIT and Monroe Community College. In addition to his own work, he has managed teams of graduate students in imaging and computer science on their work, as it relates to specific government and commercial contracts. He has participated in thesis advisement (lead or committee) for 24 undergraduate and graduate imaging science students and has 40 publications in the fields of imaging and remote sensing. He has served as referee on nine scientific journals and has given more than 49 presentations (international and domestic) in the last 5 years. He is currently working on a text book entitled, "*Radiometry and Radiation Propagation*" with Oxford University Press which is due for publication in late 2011.

EDUCATION

Rochester Institute of Technology, Rochester, NY

Ph.D., Imaging Science, August 2005

Doctoral Thesis: Hyperspectral Sub-Pixel Target Detection Using Hybrid Algorithms and Physics Based Modeling

M.S., Imaging Science, June 1999

Master's Thesis: Synthetic Simulation and Modeling of Image Intensified CCDs (ICCD)

B.S., Imaging Science, with honors, May 1996

Bachelor's Thesis: Modular Imaging Spectrometer Instrument Calibration (MISI) Using Blackbody Radiators

Monroe Community College, Rochester, NY

A.A.S., Optical Engineering, May 1989

EXPERIENCE

RIT Center for Imaging Science. Rochester NY 6/08 - present

Assistant Research Professor

- See previous paragraph for overview.

RIT Center for Imaging Science. Rochester NY 10/00 – 5/08

Assistant Scientist/ Post Doctoral Research Fellow

- Have developed and analyzed algorithms as they pertain to hyperspectral target detection.
- I am responsible for managing undergraduate and graduate students in computer and imaging science. I oversee their work on specific government and commercial contracts.
- Developed a large synthetic facetized scene for modeling and testing of remote sensing algorithms.
- Have worked on developing a radiometric accurate model of the Sun to use for calibration of future satellite systems, in conjunction with outside contractors.
- Have worked with various agencies and sponsors (government and commercial) on maintaining, updating and developing ongoing efforts, as they relate to contractual obligations.
- Wrote a winning proposal for the Director of Central Intelligence (DCI) Postdoctoral Fellowship
- Reviewed papers for numerous journals
- Responsible for teaching undergraduate radiometry laboratory and lecture. Also give guest lectures for graduate classes such as Remote Sensing, Radiometry, and Computing for Imaging Scientists.
- Have been thesis advisor for numerous undergraduate and graduate imaging science students.

Monroe Community College. Rochester, NY 9/97 - 5/99, 4/08 - present

Adjunct Instructor and Consultant

- Taught courses and labs in
 - Computers for Technicians
 - Geometrical Optics
 - Photo Science
 - Dimensional Metrology
 - Measurement and Analysis
- Designed curriculum and 15+ labs for 2 optics courses

RIT Center for Imaging Science. Rochester NY 1/95 - 10/00

Research and Teaching Assistant

- Worked on contracts and projects that involved data gathering and analysis by digital image processing and remote sensing methods.

- Organized material in Quark Xpress for assembly of a text book on remote sensing, Schott, J.R., Remote Sensing: The Imaging Chain Approach. Oxford University Press: 1997.
- Worked on thermal calibration design of an airborne line scanner (MISI).
- Designed and constructed feedback scan mirror controller and DC radiometer for airborne line scanner (MISI).
- Coordinated and instructed lectures and laboratories for undergraduate Radiometry course

SIDE. Rochester, NY 6/95 - 9/96

Research Assistant

- Worked on developing a synthetic image database (via DIRSIG) that was used for a variety of sensor and algorithm design studies.
- Analyzed the spectral correlation structure of various scenes simulating the AVIRIS and HYDICE sensors. Analysis was made as to the impact of scene content, atmospheric effects and sensor noise on the correlation.

Xerox Corporation, Wilson Center for Research and Technology, Webster, NY 11/90-9/94

Research/Electrical Technician

- Designed and built electrical and mechanical fixtures such as motor controllers, optical sensors, and computer hardware/software interface devices for data acquisition.
- Worked in Process Physics Area setting up various xerographic experiments, collecting data and examining results. Conclusions were drawn in monthly reports.
- Machined specialized parts using lathes, drill presses and milling machines

THESIS ADVISEMENT

Lead Advisor:

1. Kozicki, Scott, *Sensitivity of matrix inversion algorithms on stochastic target detection*, B.S., 2010.
2. Rizzuto, Tony, "A low light level (LLL) sensor frame work incorporation improved LLL capabilities in DIRSIG", M.S., August, 2009.
3. Matteoli, Stefania, Ph.D. student supervisor for summer 2008.
4. Albano, James, "Evaluation of using physics based models in hyperspectral target detection", March, 2008.
5. Kwong, Justin., "Impact of Calibration Errors on Physics Based Target Detection", May 2006
6. Stabb, Brian, "Investigation of Noise and Dimensionality Reduction Transforms on Hyperspectral Data as Applied to Target Detection", May, 2005
7. Spivey, Alvin, "Multiband Texture Re-Synthesis", May, 2004.
8. Kennedy, Carolyn, "The Testing and Assessment of Texturing Tools Used to Build Scenes in DIRSIG", May, 2002.
9. Banta, Matt, "Lunar Calibration Techniques", May, 2001.

Committee Advisor:

1. Brisebois, Samuel, M.S., Current
2. Clements, Jake, Ph.D. Current
3. Lugo, Alfredo, “*Long term interval target monitoring methods for multispectral wide area surveillance*”, MS., 2010.
4. Sarrazin, Diane, “*Fusing small-footprint waveform LiDAR and hyperspectral data for canopy-level species classification and herbaceous biomass modeling in Savanna ecosystems*”, MS., 2010.
5. McGlinchy, Joe, “*Extracting structural vegetation components from small footprint waveform LiDAR data in Savanna Ecosystems*”, MS, Nov, 2010.
6. Speir, Jacqueline. “*Validation of 3D radiative transfer in coastal-ocean water systems as modeled by DIRISG*”, Ph.D.. 2010.
7. Heimbueger, Matt, “*Persistent Surveillance at Night*”, M.S., Current.
8. Schlamm, Ariel, “*Understanding the distribution of pixels in hyperspectral imagery for improved exploitation of large area scenes*” Ph.D., 2010.
9. Spivey, Alvin, “*Development of a scale independent approach for landscape pattern metrics using Fourier vector analysis of satellite images*”. Ph.D., 2010.
10. Bishoff, Joey, “*Target detection using oblique hyperspectral imagery: A domain trade study*”, MS., 2008.
11. Ward, Jake, “*Realistic Texture in Simulated Thermal Infrared Imagery*”, Ph.D., 2008.
12. Casey, Jason, “*Improving Hyperspectral Target Detection When Using Misregistered Data*”. M.S., 2007.
13. Ferdinandus, Manuel, “*Selection of Optimal Background Estimation Methods for Unstructured Detectors*”. M.S., 2007.
14. Foster, Mike, “*Geometrically-constrained Subspaces for Physics-based Target Detection*”. Ph.D., 2007.
15. Cisz, Adam., “*Performance Comparison of Hyperspectral Target Detection Algorithms*”, M.S., August 2006.

TEACHING

1. Graduate Remote Sensing I, II, guest lectures and recitations
2. LaTeX, Computing for Imaging Science, guest lecture
3. Graduate Radiometry and Lab
4. Undergraduate Radiometry and Lab
5. Geometrical Optics
6. Photo Science
7. Dimensional Metrology
8. Computer Techniques for Technicians
9. Measurement and Analysis

JOURNAL REVIEWER

1. Journal of IS&T, Imaging Science and Technology
2. ASPRS Photogrammetric Engineering & Remote Sensing
3. Journal of Image and Vision Computing
4. IEEE Transactions on Geoscience and Remote Sensing
5. Journal of the Optical Society of America A
6. Optical Engineering
7. Journal of Electronic Imaging
8. Journal of Selected Topic in Signal Processing
9. International Journal of Digital Earth

CONFERENCE REVIEWER

1. Workshop on Hyperspectral image and Signal Processing: 2010
2. International Geoscience & Remote Sensing Symposium: 2010
3. Optical Engineering and Photonic Technology: OEPT 2009
4. Workshop on Hyperspectral image and Signal Processing: 2009
5. International Geoscience & Remote Sensing Symposium: 2009
6. International Symposium on Optical Engineering and Photonic Technology 2010

CONFERENCE CHAIR AND PROGRAM COMMITTEE

1. Workshop on Hyperspectral Image and Signal Processing, Iceland: 2010. Session on Forward Modeling of Hyperspectral Data

PROGRAM REVIEWS

1. DOE: Sandia National Laboratory / Pacific Northwest National Laboratory (Albuquerque, New Mexico)

SOCIETY MEMBERSHIP

1. Member of The International Society for Optical Engineering (SPIE)
2. Member of the Institute of Electrical and Electronic Engineers (IEEE)

COMPUTER EXPERIENCE

Operating Systems

- MS-DOS, Windows(/XP/Vista/7), Macintosh, UNIX, Linux, VAX/VMS, X-Windows, Sun, SGI, and DEC Stations

Languages

- C and C++ for PC, VAX, and UNIX, Awk, BASIC, FORTH, IDL, HTML, JavaScript, Perl

Software

- Photoshop, MSOffice, Dreamweaver, Fireworks, Illustrator, Flash, QuarkXpress, MathCAD, AutoCAD, SCHEMAX, MATLAB, MINITAB, AVS, ENVI, Viewdac/Assyst, ERDAS Imagine, MODTRAN, OSLO, LaTeX

HONORS AND ACTIVITIES

- Department of Defense (DOD) independent program reviewer
- Search committee for Tenured Faculty in Optics at Monroe Community College
- Batting 1000 Award for PI funding, RIT
- Recipient of the Director of Central Intelligence (DCI) Postdoctoral Fellowship
- Awarded Graduate School Scholarship in Imaging Science
- Recipient of Outstanding Undergraduate Scholarship
- Vice President, Society for Imaging Science and Technology, student chapter
- Secretary, RIT Jazz Ensemble
- Honor's Certificate from Percussion Institute of Technology, L.A.,CA
- Private drum/percussion instructor

PRESENTATIONS SINCE 2006

1. Portugal
2. SPIE Conference, *Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery*. Orlando Florida, April 2011.
3. NGA workshop, Washington, D.C., January 2011.
4. AFRL meeting, Rochester, NY, December 2010.
5. RIT Graduate Seminar Class, October 2010.
6. AFRL meeting, Rochester, NY, August 2010.
7. WHISPERS 2nd Hyperspectral Image and Signal Processing Conference, Reykjavik, Iceland, June 2010.
8. Ball Aerospace, NASIC ATEM meeting, Dayton, OH, April 29, 2010.
9. DIRS group meeting, Rochester, NY, April 15, 2010.
10. SPIE Conference, *Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XV*. Orlando Florida, April, 5, 2009
11. DIRS group meeting, Rochester, NY, October 10, 2009
12. NGA Lunch Seminar, Washington, D.C., October 9, 2009
13. SPIE Remote Sensing Europe (2 presentations), Berlin, Germany August 2009.
14. WHISPERS Hyperspectral Image and Signal Processing Conference, Grenoble, France, August 2009.
15. DIRS group meeting, Rochester, NY, July 1, 2009.
16. SPIE Conference, *Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIV*. 2 presentations. Orlando Florida, April, 13, 2009
17. **Invited Talk**, Monroe Community College Advisory Board dinner, Rochester, NY March 31, 2009
18. NGA/NURI review, Rochester, NY March 13, 2009
19. **Invited Talk**, IS&T, Using LaTaX, Rochester, NY, January 23, 2008

20. NGA/NRL meeting at the Institute for Pure & Applied Mathematics (IPAM), UCLA, December 3, 2008.
21. Stan Rottman Visit, Rochester, NY, November 5, 2008
22. Intro to Imaging Science Research Overview, October 2008.
23. NARP Symposium, Washington, D.C., September 2008.
24. NGA/NRL meeting at the Institute for Pure & Applied Mathematics (IPAM), UCLA, July, 2008.
25. Stan Rottman Visit, Rochester, NY, June 19, 2008
26. NRL Program Review, Washington, D.C., June 4, 2008
27. Digital Globe, WorldView Assessment, Rochester, NY, April 11, 2008.
28. ITTVis meeting, Washington, D.C., January 4, 2008.
29. NGA meeting, Washington, D.C., January 4, 2008.
30. ***Invited Talk***, *Condor Applications*, Research computing informational seminar series, Rochester, NY, January 25, 2007.
31. Stan Rotman Visit, Rochester, NY, February 14, 2007.
32. Greg Boer Visit, Rochester, NY, February 15, 2007.
33. SPIE Conference, *Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIII*. Orlando Florida, April, 9, 2007.
34. IC post-doc conference, Washington, D.C., May 2, 2007.
35. DIRS Research Symposium, Rochester, NY, June 5, 2007.
36. NGA Lunch Seminar, Washington, D.C., July 12, 2007.
37. DIRS Group Meeting, Oblique target detection radiometry, July 17, 2007.
38. NGA/NRL meeting at the Institute for Pure & Applied Mathematics (IPAM), UCLA. October 26, 2007.
39. *Thesis and Post Doc Review*, NGA, Washington, D.C., January 4, 2006.
40. *IC Post Doc Poster*, Washington, D.C., April 17, 2006
41. ***Invited Paper presentation***, ICASSP Conference, Toulouse, France, May 19, 2006.
42. *DIRS Research Symposium*, Rochester, NY, June 6, 2006
43. *DIRS Meeting*, August 8, 2006.
44. *SPIE Optics and Photonics Conf, Imaging Spectrometry XI*, San Diego, CA, Aug 14, 06.
45. *Falcon Workshop at Ball Aerospace*. Dayton, OH, September 13, 2006.
46. *Virtual Scopics (Ed Ashton)*, Rochester, NY, September 22, 2006.
47. *Wayne Hallada Visit*, Rochester, NY, September 28, 2006.
48. *MURI Review, Annual*. Washington, D.C., October 23, 2006.
49. ***Invited Talk***, Center for Advanced Information Technologies (CAIT), Binghamton University, Binghamton, NY, December 1, 2006.

FUNDING

1. **Ientilucci, E.J.**, “*Radiometric / Photometric Measurement System*” CIS Equipment Proposal 2010, [**Funded, \$8,300**]
2. **Ientilucci, E.J.**, “*Improved onboard Target Detection for Autonomous Sensors and Use of Forward Modeling*”, Young Investigators Award Proposal 2010. [**\$240,000 not funded**]

3. Bajorski, P., **Ientilucci, E.J.**, “Automated Tool Suite for HSI Visualization and Analyses”, NURI 2010 [**\$750,000, not funded**]
4. **Ientilucci, E.J.**, “Modeling a Polarized LIDAR System with DIRSIG”, US Army STTR with Systems Dynamics Int’l and Polaris Sensor Tech [**Funded \$5,000**].
5. **Ientilucci, E.J.**, “Passive Infrared Detection of Aerosol Spores”, US Army STTR with decibel Research [**\$37,000, funded**].
6. **Ientilucci, E.J.**, “LADAR reflection analysis for material surface characterization”, US Army STTR with Sheet Dynamics Ltd [**\$30,000, not funded**].
7. **Ientilucci, E.J.**, “Geometrically constrained signature spaces for physics-based material detection”, NGA BAA with ITT [**Funded \$400,000**].
8. **Ientilucci, E.J.**, “Multi-Faceted false alarm mitigation (MFFAM) for hyperspectral imagery”, NURI, 2009 [**\$750,000, not funded**].
9. **Ientilucci, E.J.**, “Used Energy-Related Laboratory Equipment Grant Program (ERLE)”, Department of Energy, July 28, 2008. [**Funded, \$120**]
10. **Ientilucci, E. J.**, “Generation and Characterization of Physically-Derived Signature Spaces (PDSS)”, NRL BAA. April 27, 2007, [**Funded \$224,989**]
11. **Ientilucci, E.J.**, “Used Energy-Related Laboratory Equipment Grant Program (ERLE)”, Department of Energy, May 17, 2007. [**Funded \$132**]
12. **Ientilucci, E. J.**, “Radiometry Equipment Proposal”, CIS, June 20, 2007, [**Funded \$8,853**]
13. Schott, J.R., **Ientilucci, E.J.**, “Pixel Identifications Techniques using Hybrid Algorithms and Physics Based Models applied to Target Detection”, 3rd year follow on funding for IC Postdoc, [**Funded \$120,000**]
14. *Spring-Summer Student Employment Proposal*, Obtained funding for student to work on physics based modeling topics, January 16, 2006. [**Funded**]

REFEREED PUBLICATIONS

1. Basener, B., Schlamm, A., Messinger, D, and **Ientilucci, E.**, “A detection identification process with geometric target detection and subpixel spectral visualization”, 3rd Workshop on Hyperspectral Image and Signal Processing (WHISPERS), Lisbon, Portugal, June 2011.
1. **Ientilucci, E.J.**, Bajorski, P., “Hyperspectral target detection in a whitened space utilizing forward modeling concepts” 2nd Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS), Reykjavik, Iceland, June 2010.
2. Matteoli, S., **Ientilucci, E.J.**, Kerekes, J.P., “Operational and performance considerations of radiative transfer modeling in hyperspectral target detection”, Accepted in *Transaction in Geoscience and Remote Sensing* (TGARS), 2010
3. Matteoli, S., **Ientilucci, E.J.**, Kerekes, J.P., “Comparison of radiative transfer in physics-based models for an improved understanding of empirical hyperspectral data”, Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS), France, August 2009.
4. Matteoli, S., **Ientilucci, E.J.**, Kerekes, J.P., “Forward modeling and atmospheric compensation in hyperspectral data: Experimental analysis from a target detection perspective”, Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS), France, August 2009.

5. Matteoli, S., **Ientilucci**, E.J., Kerekes, J.P., “Radiance and Reflectance Based Target Detection in Hyperspectral Imagery, submitted to Transaction in Geoscience and Remote Sensing (TGARS), October 2008.
6. **Ientilucci**, E., Bajorski, P., “Stochastic Modeling of Physically Derived Signature Spaces”, *Journal of Applied Remote Sensing (JARS)*, Vol. 2, 023532, 2008.

PROCEEDING PUBLICATIONS

1. Herweg, J., Kerekes, J., **Ientilucci**, E., and Eismann, M., “Spectral variations in HSI signatures of thin fabrics for detecting and tracking of pedestrians”, in Proc. SPIE Active and Passive Signatures II, Vol 8040, (Orlando, Fla), April 2011.
2. **Ientilucci**, E., Kerekes, J., and Shaw, A., “Target detection using multiple hyperspectral imagers and physics-based models”, in Proc. SPIE Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery, Vol 8048, (Orlando, Fla), April 2011.
3. McGlinchy, J., Wu, J., Sarrazin, D., Van Aardt, J., Rhody, H., Kerekes, J., **Ientilucci**, E., and Asner, G.P., “*Extracting structural land cover components using small-footprint waveform lidar data*”, IGARSS Hawaii, 2010.
4. Gillis, D., Bowles, J., **Ientilucci**, E.J.,” Results of GLMM-based target detection on the RIT data set”, SPIE Orlando 2010
5. Matteoli, S., **Ientilucci**, E.J., Kerekes, J.P., “Characterization of physics-based radiative transfer modeling parameters for a blind test airborne hyperspectral dataset”, SPIE Orlando 2010
6. **Ientilucci**, E.J., “Oblique Hyperspectral Radiometric Phenomenology Study”, in Proc. SPIE Image and Signal Processing, Vol. 7477A, (Berlin, Germany), September 1, 2009.
7. Gillis, D., Bowles, J., **Ientilucci**, E.J., “A generalized linear mixing model for hyperspectral imagery”, *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, (Cape Town, South Africa), July, 2009.
8. **Ientilucci**, E.J., Matteoli, S., Kerekes, J.P., “Tracking of vehicles across multiple radiance and reflectance hyperspectral datasets”, in Proc. SPIE Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery, Vol., 7334, (Orlando, Fla), April 2009.
9. **Ientilucci**, E.J., Gartley, M., “Impact of BRDF on Physics Based Modeling as Applied to Target Detection in Hyperspectral Imagery, in Proc. SPIE Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery, Vol 7334, (Orlando, Fla), April 2009.
10. Bishoff, J.P., Messinger, D. W., **Ientilucci**, E.J., “Oblique Hyperspectral Target Detection”, in Proc. SPIE, Imaging Spectrometry XIII, Vol. 7086, (San Diego, CA), August 2008.
11. Gillis, D., Bowles, J., **Ientilucci**, E., Messinger, D., “A Generalized Linear Mixing Model for Hyperspectral Imagery”, in Proc. SPIE, Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIV, Vol. 6966, (Orlando, Fla), April 2008.

12. Basener, B., **Ientilucci**, E., Messinger, D., "Anomaly Detection using Topology", in Proc. SPIE, Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XIII, Vol. 6565, (Orlando, Fla), April 2007.
13. Gillis, D., Bowles, J., **Ientilucci**, E., Messinger, D., "Linear Unmixing using Endmember Subspaces and Physics Based Modeling", in Proc. Imaging Spectrometry XII, Vol. 6651, ISBN: 9780819468093, (San Diego, CA), August 2007.
14. **Ientilucci**, E.J., "*Pixel Identification Techniques using Hybrid Spectral Algorithms and Physics Based Models Applied to Target Detection*", Research Summary, Journal of Intelligence Community Research and Development (JICRID), September 29, 2006
15. **Ientilucci**, E.J. "Statistical Models for Physically Derived Target Sub-Spaces", In Proc. SPIE Imaging Spectrometry XI, Vol. 6302, (San Diego, CA), August 2006.
16. **Ientilucci**, E.J. "Two Dimensional Decision Spaces Generated from Physics Based Target Detection as Applied to Hyperspectral Imagery", International Congress of Imaging Science (ICIS), May 2006.
17. **Ientilucci**, E.J., Schott, J.R., "Physics Based Target Detection using a Hybrid Algorithm with an Infeasibility Metric", **Invited Paper**, *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, (Toulouse, France), May 2006.
18. **Ientilucci**, E.J. "Hyperspectral Sub-Pixel Target Detection Using Hybrid Algorithms and Physics Based Modeling", *PhD dissertation* Rochester Institute of Technology, August 2005.
19. **Ientilucci**, E.J., "Target Detection in a Structured Background Environment Using an Infeasibility Metric in an Invariant Space", in *Proc. SPIE, Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XI*, Vol. 5806, ISBN 0-8194-5791-4, (Orlando, Fla), April 2005.
20. West, J., Schott, J.R., **Ientilucci**, E.J., "Matched Filter Stochastic Background Characterization for Hyperspectral Target Detection", in *Proc. SPIE, Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XI*, Vol. 5806, ISBN 0-8194-5791-4, (Orlando, Fla), April 2005.
21. Bajorski, P., **Ientilucci**, E.J., Schott, J.R., "Geometric Basis-Vector Selection Methods and Subpixel Target Detection As Applied to Hyperspectral Imagery", *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, (Anchorage, Alaska), September 2004.
22. Brown, S.D., **Ientilucci**, E.J., "Wide-Area Electro-Optical Hyperspectral Scene Simulation for Algorithm Performance Evaluation", *In Proc. of SPIE Targets and Backgrounds X: Characterization and Representation*, April 2004.
23. Bajorski, P., **Ientilucci**, E.J., Schott, J.R., "Comparison of Basis-Vector Selection Methods for target and Background Subspace as Applied to Subpixel Target Detection", *In Proc. of SPIE Algorithms and Technologies for Multispectral, Hyperspectra, and Ultraspectral Imagery X*, Vol. 5425, pp. 97-108, ISBN 0-8194-5348-X, (Orlando, Fla), April 2004.
24. **Ientilucci**, E.J., Brown, S.D., "Advances in Wide Area Hyperspectral Image Simulation", in *Proc. of SPIE Targets and Backgrounds IX: Characterization and Representation*, Vol. 5075, pp.110-121, ISBN: 0-8194-4934-2, (Orlando, Fla), April 2003.
25. **Ientilucci**, E.J., Schott, J.R., Banta, M.S., "*Solar and Lunar Radiometric Calibration*", prepared for Eastman Kodak Company (Federal Systems Division) RIT/DIRS Report 01-68-163, Rochester, NY, August, (2001).

26. **Ientilucci**, E.J., Brown, S.D., Schott, J.R., "*Low-Light-Level Simulations*", Presented at the Northeast Regional Meeting on Optoelectronics, Photonics, and Imaging. Conference NE02-11, April, (2001).
27. Brown, S.D., **Ientilucci**, E.J., Raqueno, R.V., Schott, J.R., "*DIRSIG/GENESSIS Hybrid Hyperspectral System Simulation of the Fort AP Hill Site*", prepared for Photon Research Associates RIT/DIRS Report 00/01-71-162, Rochester, NY, January, (2001).
28. **Ientilucci**, E.J., Brown, S.D., Schott, J.R., "*Low-Light-Level Simulations and Extended Area Source Modeling*", prepared for Eastman Kodak Company (Federal Systems Division) RIT/DIRS Report 00/01-68-159, Rochester, NY, January, (2001).
29. **Ientilucci**, E.J., "*Synthetic Simulation and Modeling of Image Intensified CCD's (ICCD)*," Masters Thesis August (1999).
30. **Ientilucci**, E.J., Brown, S.D., Schott, J.R., Raqueno, R.V., "*Multi-spectral Simulation Environment for Modeling Low-Light-Level Sensor Systems*," Proceedings of the SPIE conference on Earth Observing Systems and Remote Sensing, Vol. 3434, pp. 10-19, ISBN: 0-8194-2889-2, July (1998).
31. Schott, J.R., Brown, S.D., Raqueno, R.V., **Ientilucci**, E.J., "*Characterization of the Spectral Correlation of Imaging Spectrometer Data*", prepared for Eastman Kodak Company (Federal Systems Division) SIDE Report 96-51-107, Rochester, NY, January (1997).
32. **Ientilucci**, E.J., "*Modular Imaging Spectrometer Instrument (MISI) Calibration Using Blackbody Radiators*," Undergraduate Senior Research Final Report, May (1996).
33. Raqueno, R.V., **Ientilucci**, E.J., Schott, J.R., "*Evaluation of Multispectral Fusion Algorithms for High Resolution Imaging*", prepared for Eastman Kodak Company (Federal Systems Division) SIDE Report 96-63-107, Rochester, NY, January (1996).
34. Brown, S.D., **Ientilucci**, E.J., Schott, J.R., "*Generation of Synthetic Images for use in Evaluation of Exploitation Tools*", prepared for Eastman Kodak Company (Federal Systems Division) SIDE Report 96-71-106, Rochester, NY, January (1996).

TECHNICAL REPORTS

1. **Ientilucci**, E.J., "*Pixel identification techniques using hybrid spectral algorithms and physics based models*", Final report for NGA. December, 2009.
2. **Ientilucci**, E.J., "*Oblique Hyperspectral Radiometry Phenomenology Study Using FASSP*", February, 2009
3. **Ientilucci**, E.J., "*Oblique Hyperspectral Radiometry Phenomenology Study*", February 2, 2008.
4. **Ientilucci**, E.J., NURI Tools User Guide. 17 pgs., January 3, 2007.
5. **Ientilucci**, E.J., Using MODTRAN: Predicting Sensor-Reaching Radiance, February 5, 2007

6. **Ientilucci**, E.J., Messinger, D., and Pogorzala, D., "Oblique Hyperspectral Radiometric Phenomenology Study", Preliminary Task Report, December, 2007
7. **Ientilucci**, E.J., "On Using and Computing the Kappa Statistic", January 16, 2006.
8. **Ientilucci**, E.J., "Finding Basis Vectors using the SVD function in IDL", January 22, 2005.
9. **Ientilucci**, E.J., "Using the MaxD Target Detection (MaxDTD) Algorithm in ENVI with AVIRIS Data", January 12, 2004.
10. **Ientilucci**, E.J., "Using the Singular Value Decomposition ", May 29, 2003.
11. **Ientilucci**, E.J., "Comparison and Usage of Principal Component Analysis (PCA) and Noise Adjusted Principal Component Analysis (NAPC) or Maximum Noise Fraction (MNF)", May 6, 2003.
12. **Ientilucci**, E.J., "AVIRIS Noise Analysis and Processing", March 12, 2003.
13. **Ientilucci**, E.J., Ewald, K., Marcin, J., Spively, A., "Guide to Building Large Scale DIRSIG Scenes", January 30, 2003.
14. **Ientilucci**, E.J., "Evaluating the Utility of a New Blue Band on LANDSAT for Water Quality Assessment", September, 2002.
15. **Ientilucci**, E.J., "Predicting Atmospheric Parameters using Canonical Correlation Analysis", May, 2002.
16. **Ientilucci**, E.J., "Solar and Lunar Radiometric Calibration Techniques", August, 2001.
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