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PUBLICATIONS

SUMMARY

Summary publication count includes 3 book chapters, 26 refereed journal and conference manuscripts, 42 conference manuscripts, 16 oral presentations, 5 poster presentations, 1 patent, 2 patents pending, 2 licensing agreements, 4 provisional patents and 34 technical reports.

BOOK CHAPTER OR SECTION

1. C. J. Casey, L.G. Hassebrook and D. L. Lau, "Structured Light Illumination Methods for Continuous Motion Hand and Face-Computer Interaction," *Human-Computer Interaction, New Developments, International Journal of Advanced Robotic System*, edited by Kikuo Asai, published by In-Teh, Croatia branch of I-Tech Education and Publishing KG, Vienna, Austria, pp 297-308, (copyright 2008) ISBN 978-953-7619-14-5.
2. L.G. Hassebrook and Chun Guan, "Distortion", *Encyclopedia of Optical Engineering*, edited by R. G. Driggers, published by Marcel Dekker, Inc., New York., pp 428-434, (2003)
3. R. W. Cohn and L. G. Hassebrook, "Representations of Fully Complex Functions on Real-Time Spatial Light Modulators," *Optical Information Processing*, F. T. S. Yu and S. Jutamulia, eds. Cambridge U. Press, ISBN 0-521-46517-6 (1998)

JOURNAL PAPERS PUBLISHED (21)

1. C. Guan, L. G. Hassebrook, D. L. Lau and Veeraganesh Yalla, "Improved composite-pattern structured-light profilometry by means of postprocessing," *Optical Engineering*, Vol. 47(9) pp.097203-1 through 097203-11, September 2008.
2. C. Guan, L. G. Hassebrook, D. L. Lau and Veeraganesh Yalla, "Near-Infrared Composite Pattern Projection for Continuous Motion Hand-Computer Interaction," *Real-Time Imaging in Journal of Visual Communication and Image Representation*, Vol. **18**, pp 141-150 (December 2006).
3. Wei Su and L. G. Hassebrook, "Pose and position tracking with Super Image Vector Inner Products" *Applied Optics*, Vol. 45, No. 31, pp 8083-8091 (November 2006).
4. C. Guan, L. G. Hassebrook, and D. L. Lau, "Composite structured light pattern for three-dimensional video," *Opt. Express* **11**, 406-417 (2003).
5. Jieli Li, L.G. Hassebrook and Chun Guan, "Optimized Two-Frequency Phase-Measuring-Profilometry Light-Sensor Temporal-Noise Sensitivity," *JOSA A*, **20**(1), 106-115, (2003).
6. M.E. Lhamon, L. G. Hassebrook and J. Chatterjee, "Complex spatial images for rotation-invariant pattern recognition and gray level morphological transforms," *Asian Journal of Physics*, **8**(3), 347-354, (1999).
7. W. J. Chimitt and L.G. Hassebrook, "Scene reconstruction from partially overlapping images with use of composite filters," *JOSA A*, **16**(9), 2124-2135, September (1999).

8. R. C. Daley and L. G. Hassebrook, "Channel capacity model of binary encoded structured light-stripe illumination," *Applied Optics*, **37**(17), 3689-3696, June (1998).
9. L. G. Hassebrook, M. E. Lhamon, M. Wang and J. Chatterjee, "Postprocessing of Correlation for Orientation Estimation," *Optical Engineering*, **36**(10), 2710-2718, October, (1997).
10. X. Lou, L.G. Hassebrook, M. E. Lhamon and J. Li, "Numerically Efficient Angle, Width, Offset and Discontinuity Determination of Straight Lines by the Discrete Fourier - Bilinear Transformation Algorithm," *IEEE Transactions on Image Processing* , **6**(10), pp1464-1467, October (1997).
11. M. Wang, J. Evans, L. G. Hassebrook and C. Knapp, "A Multi-Stage, Optimal Active Contour," *IEEE Transactions on Image Processing* , **5**(11), 1586-1591, (November 1996).
12. M. E. Lhamon and L. G. Hassebrook, "Translation-Invariant Optical Pattern Recognition without Correlation," *Optical Engineering*, **35**(9), 2700-2709. September (1996).
13. M. Wang, L. G. Hassebrook, J. Evans, T. Vargese and C. Knapp, "An Optimized Index of Human Cardiovascular Adaptation to Simulated Weightlessness," *IEEE Transactions on Biomedical Engineering*, **43**(5), 502-511, (May 1996).
14. L. G. Hassebrook, M. E. Lhamon, R. W. Cohn, M. Liang and R. C. Daley, "Random phase encoding of composite fully complex filters," *Optical Letters*, **21**(4), 272-274, (Febr. 15, 1996).
15. M. Rahmati and L. G. Hassebrook, "Intensity- and Distortion-Invariant Pattern Recognition with Complex Linear Morphology," *Pattern Recognition*, **27**(4), 549-568, (April 1994).
16. L. G. Hassebrook, Subramanian and P. Pai, "Optimized Three-Dimensional Recovery From Two-Dimensional Images by Means of Sine Wave Structured Light Illumination," *Optical Engineering*, **33**(1), 219-229, (January 1994).
17. K. Donohue, M. Rahmati, L. G. Hassebrook and Gopalakrishnan, "Parametric and Nonparametric Edge Detection for Speckle Degraded Images," *Optical Engineering*, **32**, 1935-1946, (August 1993).
18. L. G. Hassebrook, M. Rahmati and B.V.K. Vijaya Kumar, "Hybrid Composite Filter Banks for Distortion-Invariant Optical Pattern Recognition," *Optical Engineering*, **31**, 923-933, (May 1992).
19. L. G. Hassebrook, B.V.K. Vijaya Kumar and L. Hostetler, "Linear Phase Coefficient Composite Filter Banks for Distortion-Invariant Optical Pattern Recognition," *Optical Engineering*, **29**, 1033-1043, (Sept. 1990).
20. B.V.K. Vijaya Kumar and L. G. Hassebrook, "Performance Measures for Correlation Filters," *Applied Optics*, **29**, 2997-3006, (July 1990).
21. B.V.K. Vijaya Kumar, Z. Bahri and L. G. Hassebrook, "Correlation Filters for Distortion-Invariant Pattern Recognition," *Journal of the Institute of Electronics and Telecommunications Engineer*, **35**(2), 105-113, (1989).

PEER REVIEWED CONFERENCE PAPERS PUBLISHED (6)

1. Sara Shafaei, Tamer Inanc, L.G. Hassebrook, "A New Approach to Unwrap a 3-D Fingerprint to a 2-D Rolled Equivalent Fingerprint," BTAS 09, IEEE International Conference on Biometrics Theory, Application and Systems, Washington, DC., September (2009).
2. Yongchang Wang, Qi Hao, Abhishika Fatehpuria, L. G. Hassebrook and Daniel L. Lau, "Data Acquisition and Quality Analysis of 3-Dimensional Fingerprints," IEEE International Conference on Biometrics, Identity and Security, Tampa, September (2009) (**35% acceptance**)
3. Abhishika Fatehpuria, Daniel L. Lau, Veerganesh Yalla, and Laurence G. Hassebrook, "Performance Analysis of 3-Dimensional Ridge Acquisition from Live Finger and Palm Surface

- Scans," *Biometric Technology for Human Identification IV*, edited by Salil Prabhakar, Arun A. Ross, *SPIE Defense and Security Symposium*, Orlando, Florida, Vol. 6539, pp 653904-1 to 653904-12, (April 2007). **(16% acceptance)**
4. Abhishika Fatehpuria, Daniel L. Lau and Laurence G. Hasebrook, "Acquiring a 2-D Rolled Equivalent Fingerprint Image from a Non-Contact 3-D Finger Scan," *Biometric Technology for Human Identification III*, edited by Patrick J. Flynn, Sharath Pankanti, *SPIE Defense and Security Symposium*, Orlando, Florida, Vol. 6202, pp 62020C-1 to 62020C-8, (April 2006). **(16% acceptance)**
 5. Mohit Bhushan, L.G. Hasebrook, Hejase, Donohue and Li, "Acoustical Spherical Array Prototype Omni-Directional Imaging System," *IEEE/RSJ International Conference on Intelligent Robots and Systems Proceedings*, **2**, 845-850, (July 1992). **(peer reviewed)**
 6. Guo, L.G. Hasebrook, Gruver and Chi, "Adaptive Sampling Pattern and Mass Feature Extraction for Tactile Object Recognition with a Three-Fingered Robot Hand," *IEEE/RSJ International Conference on Intelligent Robots and Systems Proceedings*, **3**, 1591-1596, (July 1992). **(peer reviewed)**

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1. Laurence G. Hasebrook, Charles J. Casey and Walter Lundby, "Non-Contact Fiducial Based 3-Dimensional Patch Merging Methodology and Performance," Three-Dimensional Surface Recording, Analysis, and Interpretation in Archaeology and Anthropology, *Computer Applications and Quantitative Methods in Archaeology*, Williamsburg, Virginia, in press, number 346 (May 2009).
2. Laurence G. Hasebrook, "Composite correlation filter for O-ring detection in stationary colored noise," Invited paper, Optical Pattern Recognition XX, *SPIE Defense and Security Symposium*, edited by David P. Casasent; Tien-Hsin Chao, Orlando, Florida. Vol. 7340, pp 734007-1 to 734007-8 (April 2009).
3. Charles Casey, Laurence G. Hasebrook and Priyanka Chaudhary, "Correlation based swarm trackers for 3-dimensional manifold mesh formation," Optical Pattern Recognition XX, *SPIE Defense and Security Symposium*, edited by David P. Casasent; Tien-Hsin Chao, Orlando, Florida. Vol. 7340, pp 73400G-1 to 73400G-7 (April 2009).
4. Laurence G. Hasebrook, Akshay Pethe, Veeraganesh Yalla, Charles Casey and Daniel L. Lau, "Super Resolution Structured Light Illumination," Sensors and Systems for Space Applications, *SPIE Defense and Security Symposium*, edited by Richard T. Howard; Robert D. Richards, Orlando, Florida. Vol. 6555, (April 2007).
5. Wei Su, Laurence G. Hasebrook and Siddarth Hariharan, " Facial Feature Tracking with the Super Image Vector Inner Product," *Automatic Target Recognition XVII, SPIE Defense and Security Symposium*, edited by Firooz A. Sadjadi, Orlando, Florida. Vol. 6555, (April 2007).
6. Yongchang Wang, Kai Liu, Qi Hao, Daniel Lau, and Laurence G. Hasebrook, "Multicamera Phase Measuring Profilometry For Accurate Depth Measurement," Sensors and Systems for Space Applications, *SPIE Defense and Security Symposium*, edited by Richard T. Howard; Robert D. Richards, Orlando, Florida. Vol. 6555, pp 655509-1 to 655509-12, (April 2007).
7. Delicia Siaw-Chiing Woon, Laurence G. Hasebrook, Daniel L. Lau, and Zhenzhou Wang, "Implementation of Three Dimensional Linear Phase Coefficient Composite Filter For Head Pose Estimation," *Automatic Target Recognition XVI, SPIE Defense and Security Symposium*,

- edited by Firooz A. Sadjadi, Orlando, Florida. Vol. 6234, pp 62340I-1 to 62340I-12 (April 2006).
8. Daniel L. Lau, Laurence G. Hasebrook, T.T. Lu and Tien-Hsin Chao, "Real-time, Composite pattern, demodulation using optical correlators," *Spaceborne Sensors III, SPIE Defense and Security Symposium*, edited by Richard T. Howard and Robert D. Richards, Orlando, Florida. Vol. 6220-15, pp 62200F-1 to 62200F-11, (April 2006).
 9. X. Xun, Wei Su, R. W. Cohn, Laurence G. Hasebrook and Daniel L. Lau, "Expanding range of pulsed range sensors with active projection from spatial light modulators," *Spaceborne Sensors III, SPIE Defense and Security Symposium*, edited by Richard T. Howard and Robert D. Richards, Orlando, Florida. Vol. 6220-18, pp 62200I-1 to 62200I-9, (April 2006).
 10. Wei Su, L.G. Hasebrook and D. L. Lau, "Active Pattern Projection for Increasing Range of Pulsed Range Sensors," Edited by Peter Tchoryk, Jr. and Brian Holz, *SPIE Defense and Security, Spaceborne Sensors II*, Orlando, Florida, Vol. 5798-18, (March 28, 2005).
 11. Veera Ganesh Yalla and L.G. Hasebrook, "Very-High Resolution 3D Surface Scanning using Multi-Frequency Phase Measuring Profilometry," Edited by Peter Tchoryk, Jr. and Brian Holz, *SPIE Defense and Security, Spaceborne Sensors II*, Orlando, Florida, Vol. 5798-09, pp 44-53 (2005).
 12. Chun Guan, L.G. Hasebrook and D. L. Lau, "Composite Pattern Structured Light Projection for Human Computer Interaction in Space," Edited by Peter Tchoryk, Jr. and Brian Holz, *SPIE Defense and Security, Spaceborne Sensors II*, Orlando, Florida, Vol. 5798-05, (March 28, 2005).
 13. Wei Su, L.G. Hasebrook and Veera Ganesh Yalla, "Active Multi-Spot Projection for Object Tracking and Recognition," Edited by Bahram Javidi and Demetri Psaltis, *SPIE Symposium on Optical Science and Technology*, Denver, Colorado, Vol. 5557-23, (August 2004).
 14. Chun Guan, L.G. Hasebrook and Daniel Lau, "Optical Processing of Composite Pattern Structured Light Projection for High Speed Depth Measurement," Edited by Bahram Javidi and Demetri Psaltis, *SPIE Symposium on Optical Science and Technology, Optical Information Systems II*, Denver, Colorado, Vol. 5557-5, (August 2004).
 15. Veera Ganesh Yalla, Wei Su and L.G. Hasebrook, "Multi-Spot Projection, Tracking and Calibration," Edited by D.P. Casasent and T-H. Chao, *SPIE Proceedings on Optical Pattern Recognition XIV*, Vol. 5106, pp 221-232 (April 2003).
 16. Chun Guan, L.G. Hasebrook and Daniel L. Lau, "Real-Time 3-D Data Acquisition for Augmented Reality Man and Machine Interfacing," Edited by N. L. Faust and W. E. Roper, *SPIE Proceedings on Geo-Spatial and Temporal Image and Data Exploitation III*, Vol. 5097, pp 40-47, (April 2003).
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 18. Chengwu Cui, Laurence G. Hasebrook, Chun Guan and Shaun Love, "Automating the Rank Order Test for Printing Quality Evaluation," Edited by Eddy Dalal, *PICS Conference, IQ Standards and Measurement*, (April 9, 2002)
 19. L.G. Hasebrook and R.W. Cohn, "Dynamic spot pattern projection to detect and track object motion," Edited by D.P. Casasent and T.H. Chao, *SPIE Proceedings on Optical Pattern Recognition XII*, (April 2001).

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21. L. G. Hassebrook, William J. Chimitt, Jr., and Jieli Li, "Registration of Partially Overlapping Images Using Composite Filters," Edited by D.P. Casasent and T.H. Chao, *SPIE Proceedings on Optical Pattern Recognition XI*, (April 2000).
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23. L. G. Hassebrook, Ray C. Daley and William Chimitt, "Application of Communication Theory to High Speed Structured Light Illumination," Edited by Harding and Svetkoff, *SPIE Proceedings*, **3204**(15), 102-113 (October 1997).
24. L. G. Hassebrook, Robert Cohn and Robert R. Duncan, "Strategy for autonomous controls of correlation-based trackers," Edited by D.P. Casasent and T.H. Chao, *SPIE Proceedings*, **3073**(05), 45-55 (April 1997).
25. Ray C. Daley and L.G. Hassebrook, "Improved light sectioning resolution by optimized thresholding," *SPIE Proceedings*, **2909**(04), 151-161, (November 1996).
26. Michael E. Lhamon, L.G. Hassebrook and J.P. Chatterjee "Complex Spatial Images for Multi-Parameter Distortion-Invariant Optical Pattern Recognition and High Level Morphological Transformations," *SPIE Proceedings*, **2752**(1), 23-30, (April 1996).
27. Raymond C. Daley and L.G. Hassebrook, "Performance Metrics for Structured Light Range Data Extraction Emphasizing 3-D Reconstruction," *SPIE Proceedings*, **2753**(10), Addendum, (April 1996).
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30. Raymond C. Daley, L.G. Hassebrook, S. C. Tungate, J. M. Jones, H. T. Reising, T. A. Reed, B. K. Williams, J. S. Daugherty and M. Bond "Topographical Analysis with Time Modulated Structured Light," *SPIE Proceedings*, **2488**(5), 396-407, (April 1995).
31. Mao Wang, L.G. Hassebrook, J. Kirsch, J. Evans and C. Knapp, "Active Image Registration and Recognition," *SPIE Proceedings*, **2488**(5), 385-395, (April 1995).
32. L.G. Hassebrook, M. Rahmati, R.C. Daley and M.E. Lhamon, "Complex Linear Morphology for Intensity- and Distortion-Invariant Pattern Recognition," *SPIE Proceedings*, **2237**(4), 27-39, (April 1994).
33. L. G. Hassebrook, R.W. Cohn, Liang, M.E. Lhamon, and R.C. Daley, "Using pseudorandom phase-only encoding to approximate fully complex distortion-invariant filters," *SPIE Proceedings*, **2237**(25), 204-211, (April 1994).
34. L.G. Hassebrook and Rahmati, "Training Set Selection with Multiple Out-of-plane Rotation Parameters," *SPIE Proceedings*, **1959**(4), 32-43, (April 1993).
35. Mohammad Rahmati, L.G. Hassebrook and Kumar, "Automatic Target Recognition with Intensity- and Distortion-Invariant Hybrid Composite Filters," *SPIE Proceedings*, **1959**(13), 133-145, (April 1993).
36. L.G. Hassebrook, Rahmati, Chi, Guo and Gruver, "Tactile Pattern Recognition with Complex Linear Morphology," *SPIE Proceedings*, **1702**(7), 76-87, (April 1992).

37. L.G. Hassebrook, Rahmati and Kumar, "Hybrid Composite Filters for General Distortion-Invariant Optical Pattern Recognition," *SPIE Proceedings*, **1701**(33), 217-228, (April 1992).
38. Subramanian, L.G. Hassebrook, Ghosal and Kim, "Hybrid Multi-tracking Multi-class Motion Detection System," *SPIE Proceedings*, **1697**(12), 158-167, (April 1992).
39. Subramanian, L.G. Hassebrook and Pai, "Optimized 3-D Recovery From 2-D Images Using Sine Wave Structured Light Illumination," *SPIE Proceedings*, **1705**(14), 89-99, (April 1992).
40. Rahmati, L.G. Hassebrook and Bhushan, "Distortion- and Intensity-Invariant Optical Correlation Filter System," *SPIE Proceedings*, **1567**(47), 480-489, (July 1991).
41. Kumar and L.G. Hassebrook, "Trade-offs in Nonlinearly Recorded Matched Filters," *SPIE Proceedings*, **1296**, (April 1990).
42. L.G. Hassebrook, Kumar and Hostetler, "Linear Phase Coefficient Composite Filters for Optical Pattern Recognition," *SPIE Proceedings*, **1053**, 218-226, (January 1989).
43. Kumar, Bahri and L.G. Hassebrook, "Review of Synthetic Discriminant Function Algorithms," *SPIE Proceedings*, **960**, 18-28, (June 1988).

ORAL PRESENTATIONS with ABSTRACTS ONLY (* denotes presenter)

1. L.G.Hassebrook, Mike Troy and Walter Lundby, "3-Dimensional Facial Expression Scanning," Information Technology and Communications , *Kentucky Innovation and Entrepreneurship Conference*, Louisville, Kentucky, April 7 (2009)
2. Department of Homeland Security visits UofK laboratory March 18th, 2008
3. Department of Homeland Security site visit March 11th, 2008: Presented full handscanner design and status of project
4. Department of Homeland Security site visit January 16th, 2008: Presented full handscanner design and status of project
5. CTC Conference November 14th, 2007: Presented full handscanner design.
6. Invited presentation: **L. G. Hassebrook***, "Real-Time, 3-D Finger- and Palm-Print Scanner For Entry and Access Portal Security," Moderator: Mr. Chris Aldridge, *Biometric Technology in the Department of Justice, Biometric Consortium Conference*, Baltimore, Maryland, September 12, (2007)
7. Panelists: **L. G. Hassebrook*** and Tamer Inanc*, "3-Dimensional Ridge Acquisition from Live Finger and Palm Surface Scans," Panel Discussion Moderator: Christopher Miles DOJ/National Institute of Justice. *International Association for Identification, 92nd International Educational Conference*, San Diego, California, July 26, (2007)
8. **L.G. Hassebrook***, Daniel L. Lau, Hank Dietz and Tamer Inanc, "Real-Time, 3-D Finger and Palm-Print Scanner for Entry and Access Portal Security," Kentucky Critical Infrastructure Protection Institute, Project Review Conference, Arlington, VA (April 4, 2007).
9. L.G. **Hassebrook***, Daniel L. Lau, Hank Dietz and Tamer Inanc, "Real-Time, 3-D Finger and Palm-Print Scanner for Entry and Access Portal Security," Biometrics Technical Working Group, National Institute of Justice, Arlington, VA (April 26, 2007).
10. **L.G. Hassebrook***, Daniel L. Lau, Hank Dietz and Tamer Inanc, "Real-Time, 3-D Finger and Palm-Print Scanner for Entry and Access Portal Security," Kentucky Critical Infrastructure Protection Institute, Project Review Conference, Arlington, VA (November 2, 2006).
11. L.G. **Hassebrook***, Daniel L. Lau, Hank Dietz and Tamer Inanc, "Real-Time, 3-D Finger and Palm-Print Scanner for Entry and Access Portal Security," Biometrics Technical Working Group, National Institute of Justice, Arlington, VA (October 25, 2005).

12. **L.G. Hassebrook***, Daniel L. Lau, Hank Dietz and Tamer Inanc, "Real-Time, 3-D Finger and Palm-Print Scanner for Entry and Access Portal Security," U. S. Department of Homeland Security National Institute for Hometown Security Project Review Conference, Arlington, VA (April 19, 2006).
13. **L.G. Hassebrook*** and Daniel L. Lau, "Composite Pattern Projection For Real-Time 3D Video Acquisition," DARPA IXO/AFRL Sensors Directorate 3D Data Workshop, Sponsored by Solers, Inc., Arlington, VA (May 23, 2002).
14. Wang, Kirsch, **Hassebrook***, Evans and Knapp, "Active Registration of MR Images," *Annual Meeting of the Radiological Society of North America*, November 29, (1994).
15. Wang*, Evans, **Hassebrook**, Fischer and Knapp, "Frequency Response Characteristics and Spectral Patterns of Arterial Pressure in Heart Paced Dogs," *FASEB Proceedings*, **6**(4), Abstract 1383, (April 1992).
16. **Hassebrook***, Kumar and Hostetler, "Linear Phase Coefficient Composite Filters," *Annual Meeting Optical Society of America Technical Digest*, Abstract FP2, 172, (November 1988).
17. **Hassebrook***, Kumar and Hostetler, "Training Set Selection for Designing Filters Invariant to Out-of-Plane Rotation," *Annual Meeting Optical Society of America Technical Digest*, Abstract FDD2, 184, (November 1988).

POSTER PRESENTATIONS (* denotes presenter)

1. **L.G. Hassebrook**, Paul Herber and Richard Lottie, "Real-Time, 3-D Finger and Palm-Print Scanner for Entry and Access Portal Security," *US Department of Homeland Security Technology Showcase*, Washington, DC, March 16, (2007).
2. L. G. Hassebrook, Veeraganesh Yalla, Daniel L. Lau, Paul Herber, Mike Troy, Colby Boles and Rick Lottie, "Real-Time, 3-D Finger and Palm-Print Scanner for Entry and Access Portal Security," *Baltimore Biometric Consortium Conference*, FlashScan3D Booth 303, September 19-21, (2006).
3. Veeraganesh Yalla, Charles Casey, Pratibha Gupta, Wei Su, Meng, **L.G. Hassebrook** and D. L. Lau, "College of Engineering Academic Fair, 3D Facial Visualization," University of Kentucky, October 13 and 14, 2006.
4. Michael E. Lhamon*, **L.G. Hassebrook**, M. Sum and R.C. Daley, "Pattern Recognition for SMT Manufacturing," *UK ISHM Microelectronics Assembly Techniques and Applications Symposium*, September 16, (1996).
5. Raymond C. Daley* and **L.G. Hassebrook**, " Structured Light Applications for Printed Circuit Board Development," *UK ISHM Microelectronics Assembly Techniques and Applications Symposium*, September 16, (1996).

PATENTS

1. Patent PENDING: L. G. Hassebrook, Daniel L. Lau and Charles J. Casey, "Lock and Hold Structured Light Illumination," Patent Application No. 12/284,253. **MBH** Attorney Docket UKRF-133P, University of Kentucky Intellectual Property Development, University of Kentucky, (September 18, 2008).
2. PROVISIONAL Patent: L. G. Hassebrook, Daniel L. Lau and Charles J. Casey, "Lock and Hold Structured Light Illumination," Provisional Patent Application No. 60/994,181. **MBH** Attorney

Docket UKRF-133P, University of Kentucky Intellectual Property Development, University of Kentucky, (September 18, 2007).

3. Patent PENDING: L. G. Hassebrook, Daniel L. Lau and Henry G. Dietz, "New Technique for Acquiring 3-D Surface Scan of Human Subject (e.g., finger, palm, etc.) using Structured Light Illumination," Utility Patent Application. Patent Application No. 11/586,473, Not yet available, University of Kentucky Research Foundation. **MBH** Attorney Docket UKRF-125P, (Oct 25, 2006).
4. PROVISIONAL Patent: L. G. Hassebrook, Daniel L. Lau and Henry G. Dietz, "New Technique for Acquiring 3-D Surface Scan of Human Subject (e.g., finger, palm, etc.) using Structured Light Illumination," Provisional Patent Application **MBH** Attorney Docket UKRF-125P, University of Kentucky Intellectual Property, University of Kentucky, (Oct 25, 2005).
5. PROVISIONAL Patent: L. G. Hassebrook and Daniel L. Lau, " New Technique and Hybrid System of LADAR and SLM for 3-D Broadband-Type Scanning of an Object," University of Kentucky Intellectual Property UKRF-124P, University of Kentucky, (March 27, 2006).
6. Patent: L. G. Hassebrook, Daniel L. Lau and Chun Guan, "System and Technique for Retrieving Depth Information about a surface by projecting a Composite Image of Modulated Light Patterns," Patent No. US 7,440,590 B1, University of Kentucky Research Foundation, (File May 21, 2003, Granted Oct. 21,2008).
7. PROVISIONAL Patent: L. G. Hassebrook, Daniel L. Lau and Chun Guan, "Apparatus and Technique for 3D Real-time Video Imaging and Application thereof for Face Recognition Using FFT over a Surface," Provisional Patent Application Attorney Docket UKRF-117P/118P, University of Kentucky Research Foundation #1098 and #1121, University of Kentucky, (May 23, 2002).

INVENTION DISCLOSURES

1. D. L. Lau, L.G. Hassebrook, Kai Liu and Yongchang Wang, "Dual-frequency Phase Multiplexing (DFPM) and Period Coded Phase Measuring (PCPM) pattern strategies in 3-D structured light systems, and Lookup Table (LUT) based real-time data processing for phase measuring pattern strategies," submitted 10-9-2009. INV09/1686. Approved for provisional patent application.
2. L. G. Hassebrook, Yongchang Wang and D. L. Lau, "Multi-camera Phase Measuring Profilometry for Accurate Registration and Distortion-free Fingerprint Unraveling to Aimed Definition, " September 20, 2009. Approved for provisional patent application.
3. C. J. Casey, L. G. Hassebrook and D. L. Lau, "Structured Light Time Division Multiplexing, aka: Pattern Interleaving" submitted to University of Kentucky Intellectual Property Development Office, April 14, 2008
4. L. G. Hassebrook, Wei Su and Peter Stevrin, "Dynamic Axial Stereo Vision for 3-Dimensional Surface Scan of the Inside of a Human Ear Canal," Recommended for Patent Application **MBH** Attorney Docket UKRF-128P, University of Kentucky Intellectual Property Development CASE 1361, University of Kentucky, (March, 2006).

UNIVERSITY OF KENTUCKY TECHNICAL REPORTS

1. Deepthi Boyanapally, Charles J. Casey and Laurence G Hassebrook, "Level '3D' Hand Print Characterization," ECE TECHNICAL REPORT CSP-08-002, pages 1-15 (underpreparation 2008).

2. Veeraganesh Yalla and Laurence G Hassebrook, "A Novel Geometric Calibration Technique for Scalable Multi-projector Displays," ECE TECHNICAL REPORT CSP-06-010, pages 1-15 (October 2006).
3. Delicia Woon and L. G. Hassebrook , "Ultra-Light Scanner 1.1 User Manual," *University of Kentucky ECE Technical Report*, CSP-05-006, 1-30 (June, 2005).
4. L. G. Hassebrook and Veeraganesh Yalla, "3D Calibration Using Polynomial Approximations of Camera Lens Distortion," *University of Kentucky ECE Technical Report*, CSP-03-009, 1-12 (September, 2003).
5. L. G. Hassebrook, Daniel L. Lau, VeeraGanesh Yalla and Geethavani Goli, "OpenGL Programming –Dialog Based and MATLAB Interface," *University of Kentucky ECE Technical Report*, CSP-02-003, 1-35 (February, 2003).
6. Geethavani Goli, Chun Guan, L. G. Hassebrook and Daniel L. Lau, "Video Rate Three Dimensional Data Acquisition using Composite Light Structure Patterns," *University of Kentucky ECE Technical Report*, CSP-02-002, 1-25 (May 30, 2002).
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