6th International Conference on Quality Control by Artificial Vision

Organizing Committee:

Conference Chair: Dr. Kenneth Tobin, Jr., Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA
Co-chair: Prof. Fabrice Meriaudeau, University of Burgundy, Le Creusot, France

International Scientific Committee:

Chair: Prof. Philippe Bolon, University of Savoie, France
Co-chair: Dr. Jeffery Price, Oak Ridge National Laboratory, USA

Monday 19 May
12:00-1:30pm: WORKING LUNCH – Organizing Committee (Garden View A and B)
3:00-6:30pm: On-site Registration and Reception (Mountain View)

Tuesday 20 May

Welcome and Opening Remarks . . . . 8:45am (Ballroom 3 and 4)
Kenneth W. Tobin, Jr., Oak Ridge National Laboratory

SESSION 01 – Location: Ballroom 3

Image Processing, Segmentation, And Feature Analysis I
Chair: K. W. Tobin
10:00am: Framework For Industrial Visual Surface Inspections (Invited Paper), Olli Silvén and Matti Niskanen, Machine Vision Group, University of Oulu, Finland. [ORNL-081]
10:30am: Real-time, Image Analysis of Living Cellular-Biology Measurements of Intelligent Chemistry, James C. Solinsky, Scott E. Budge, Paul D. Majors, and Bruce Rex, Pacific Northwest National Laboratory, Richland, WA, Visiting Professor, Utah State University, Logan, UT. [ORNL-082]
11:00am Constraining Deformable Templates For Shape Recognition, Teresa Aixut, Ecole Polytechnique Fédérale de Lausanne, Switzerland. [ORNL-010] {Presented By Yuri De Meneses}
11:30am Characterization Of Morphological Evolution Of Plants (Forsythia) By Image Analysis Under Water Stress Conditions, Philippe Foucher, Institut National d'horticulture, France. [ORNL-18]

LUNCH (Ballroom 1 and 2) . . . . . . . . . . .12:00 to 1:30pm

SESSION 01 – Location: Ballroom 4

Vision Sensors And Systems, I
Chair: P. Bolon
10:00am: Development Of A Distributed Vision System For Industrial Conditions, Michael Weiss, Paul O’Leary, and Arnulf Schiller, Institute for Automation, University of Leoben, Austria. [ORNL-020]
10:30am: Real-Time Video Tracking Using PTZ Cameras, Sangkyu Kang, Andreas Koschan, Besma Abidi, and Mongi A. Abidi, University of Tennessee, USA. [ORNL-34]

11:00am: A Correlation Retina In Standard 0.6µm: Application In Positioning System, O. Aubreton, L.F.C. Lew Yan Voon, B. Lamalle, G. Cathebras, P. Gorria, and B. Bellach, Université de Bourgogne, France.[ORNL-39]
LUNCH (Ballroom 1 and 2) . . . . . . . . . . . . .12:00 to 1:30pm
SESSION 2 – Location: Ballroom 3

Image Processing, Segmentation, And Feature Analysis, II
Chair: P. Gorria

1:30pm Pattern Wafer Segmentation, Pierrick Bourgeat, Fabrice Meriaudeau, Kenneth Tobin, and Patrick Gorria, Oak Ridge National Laboratory, USA and Le2I Laboratory – University of Burgundy, France. [ORNL-083]

2:00pm Design Of Experiments To Set Active Contours, Jean-Jacques Roussells and Nicole Vincent, Laboratoire d’Informatique, France. [ORNL-048]

2:30pm Color Image Segmentation To Detect Defects On Fresh Ham, Pascale Marty-Mahé, Philippe Loisel, Didier Brossard, Unité de Recherche Technologie des Equipements Agro-alimentaires, France. [ORNL-015] {Presented by Guylaine Collewet}

Coffee Break . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .3:00pm

SESSION 3 – Location: Ballroom 3

Image Processing, Segmentation, And Feature Analysis, III
Chair: O. Silven

3:30pm: Application Of Scalable Discrepancy Measures For Computer Vision Image Segmentation Tasks, Boubakeur Belaroussi, Christophe Odet, and Hugues Benoît-Cattin, Creatis, UMR CNRS #5515, France. [ORNL-055]

4:00pm: Development Of Evaluation Method For Concrete Crack, Seiji Hata, Akira Mizobuchi, and Tadashi Inai, Kagawa University and Tadano Co. Ltd, Japan. [ORNL-054] {Presented by Hayashi}

4:30pm: Application Of Fractal Encoding Techniques For Image Segmentation, Regina K. Ferrell, Shaun S. Gleason and Kenneth W. Tobin, Oak Ridge National Laboratory, USA. [ORNL-077]

SESSION 2 – Location: Ballroom 4

Vision Sensors And Systems, II
Chair: R. K. Ferrell

1:30pm: CMOS Image Sensor Design For Speed Determination Of Fast Moving Luminous Objects, Benaissa Bellach, Lew F.C. Lew Yan Voon, Bernard Lamalle and Guy Cathebras, Université de Bourgogne, France. [ORNL-059]

2:00pm: Two Methods For Tracking Small Animals In SPECT Imaging, Ryan Kerekes, Shaun Gleason and James Goddard, Oak Ridge National Laboratory, USA. [ORNL-075]

2:30pm: Preliminary Validation Of A Fabric Smoothness Assessment System, Christopher N. Turner, Hamed Sarrafi-Sarraf, Eric Hequet, and Sunho Lee, Texas Tech University, USA. [ORNL-036] {Presented by a Substitute Speaker}

Coffee . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .3:00pm

SESSION 3 – Location: Ballroom 4

Vision Sensors And Systems, III
Chair: S. S. Gleason

3:30pm: Optical Coherence Tomography Evaluation Of Internal Random Structure Of Wood Fiber Tissue, Igor Gurov, Erkki Alarousu, Jukka Hast, Risto Mylylä, Institute of Fine Mechanics and Optics, Russia and University of Oulu, Finland. [ORNL-027]

4:00pm: Estimation Of The Luminance Map For Lambertian Photometric Model: Application To The Study Of A Road Surface Roughness, Majdi Khoudeir, Brochard Jacques, Min-Tan Do, and Vincent Legeay, Laboratoire IRCOM-SIC, UMR-CNRS 6615, Université de Poitiers, France and Laboratoire Central des Ponts et Chaussées, France.[ORNL-023] {Presented by a Substitute Speaker}
Wednesday 21 May

Welcome and Opening Remarks . . . . . . 8:45am (Ballroom 3 and 4)
Kenneth W. Tobin, Jr., Oak Ridge National Laboratory

Plenary Speaker . . . . . . . . . . . . . . . . . . . . . . . . . . .9:00am
Automatic Design of Morphological Operators, Edward Dougherty, [ORNL-080]

SESSION 1 – Location: Ballroom 3

Feature Analysis And Pattern Recognition, I
Chair: P. Bolon

10:00am: Cascade System, Genetic Algorithm – Multi-Layer Neural Network, For A Supervised Classification Of Texture Images, M. Nasri, R. Aboutni, M. El Hitmy, H. Natt Charif, M. Barboucha, Ecole Supérieure de Technologie, Morocco. [ORNL-002]

10:30am: Comparison Of Dimensionality Reduction Methods For Wood Surface Inspection, Matti Niskanen and Olli Silvén, University of Oulu, Finland. [ORNL-004]

11:00am: Using A CBIR Scheme Based On Experts Knowledge For A Computer-Aided Classification Of Ornamental Stones, Mohamed-Chaker Larabi, Noël Richard, Olivier et Colot, and Christine Fernandez, Université de Poitiers, France. [ORNL-071]

11:30am: Content-Based Retrieval Of Surface Defect Images With MPEG-7Descriptors, Jussi Pakkanen and Jukka Iivarinen, Helsinki University of Technology, Finland. [ORNL-056]

LUNCH (Ballroom 1 and 2) . . . . . . . . . . . . . . . . . . . . .12:00-1:30pm

SESSION 2 – Location: Ballroom 3

Feature Analysis And Pattern Recognition, II
Chair: H. Sari-Sarraf

1:30pm: Semiconductor Sidewall Shape Estimation Using Top-Down CD-SEM Image Retrieval, Jeffery Price, Philip Bingham, Kenneth Tobin, and Thomas Karnowski, Oak Ridge National Laboratory, USA. [ORNL-073]

2:00pm: Optimization Of A Fuzzy Classification By Evolutionary Strategies, M. Nasri, M. El Hitmy, H. Ouariachi, and M. Barboucha, Ecole Supérieure de Technologie, Morocco. [ORNL-003]

Coffee Break . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .3:00pm

SESSION 1 – Location: Ballroom 4

3-D Imaging Methods And Systems, I
Chair: R. K. Ferrell

10:00am: Superquadrics Based 3D Object Representation Of Automotive Parts Utilizing Part Decomposition, Y. Zhang, A. Koschan, and M. Abidi, University Tennessee Knoxville, USA. [ORNL-35]

10:30am: Range Image Binarization: Applications To Wooden Stamps Analysis, Ralph Seulin, Olivier Morel, Gilles Millon, and Frédéric Nicolier, LE2I and LAM, France. [ORNL-049]

11:00am: Automated Determination of Regions of Interest for 3D Vision-based Quality Control of Free-Form Surfaces, Alex Lallement, Pierre Graebling and Ernest Hirsch, Université Louis Pasteur, France. [ORNL-052]

11:30am: 3D Visualization Of Skin Inner Tissue From Confocal Microscopic Images, Jiahui Wang, Hideo Saito, Shinji Ozawa, Tomohiro Kuwahara, Toyounobu Yamashita, and Motoji Takahashi, KEIO University, Japan. [ORNL-067]

LUNCH (Ballroom 1 and 2) . . . . . . . . . . . . . . . . . . . . .12:00-1:30pm

SESSION 2 – Location: Ballroom 4

3-D Imaging Methods And Systems, II
Chair: F. Truchetet

1:30pm: Three Dimensional Tracking Of Human Eye, Rémy Leconge, Olivier Laligant, and Alain Diou, Université de Bourgogne, France. [ORNL-061] {Presented by a Substitute Speaker}

2:00pm: Modeling 3D Objects From Range Maps And Color Images Using A Warping-Based Approach, Faysal Bougborbel, Andreas Koschan, and Mogi Abidi, University of Tennessee, USA. [ORNL-030]

2:30pm: Characterization Of The 3-D Information Of Calyptogena Shells, Olivier Morel, Christophe Stolz, Frédéric Truchetet, Bruno David, Thérèse Cloné, and Eric Verrecchia, Université de Bourgogne, France. [ORNL-024]

Coffee Break . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .3:00pm
Wednesday 21 May
POSTER SESSION – Location: Garden View C, D, and E
3:30 – 6:00pm

1) **Quantization Of Polyphenolic Compounds In Histological Sections Of Grape Berries By Automated Color Image Analysis**, Alain Clement and Bertrand Vigouroux, Institut Universitaire de Technologie, France. [ORNL-005] {Presented By Philippe Foucher}

2) **Directional Structures Detection Using Steerable Pyramid**, Florence Denis and Atilla Baskurt, Université Claude Bernard Lyon1, France. [ORNL-019] {Presented By Boubakeur Belaroussi}

3) **Real-Time Image Segmentation For Anomalies Detection Using SVM Approximation**, S. Bouillant, J. Mitérán, M. Paindavoine, E. Bourennane, Université de Bourgogne, France. [ORNL-025] {Presented By Pierrick Bourgeat}

4) **Face Recognition: Evaluation Report For Faceit® Identification And Surveillance**, Jingu Heo, Besma Abidi, Joonki Paik, and Mongi Abidi, University of Tennessee, USA. [ORNL-032]

5) **Age And Gender Estimation By Modeling Statistical Relationship Among Faces**, Takayuki Fujiwara and Hiroyasu Koshimizu, Chukyo University, Japan. [ORNL-042]

6) **TV-Screen Quality Inspection By Artificial Vision**, Judit Martínez, Eva Costa, Paco Herreros, Antonio López and Juan José Villanueva, Universitat Autònoma de Barcelona, Spain. [ORNL-014]

7) **Grayscale Enhancement Techniques For X-ray Images Of Carry-On Luggage**, Besma Abidi, Mark Mitches, Mongi Abidi, and Jimin Lian, University of Tennessee, USA. [ORNL-029]

6:00pm: DINNER/AWARDS CEREMONY (Ballroom 1 and 2)
Thursday 22 May
Welcome and Opening Remarks .......... 8:45am (Ballroom 3 and 4)
Kenneth W. Tobin, Jr., Oak Ridge National Laboratory

Plenary Speaker ................................. 9:00am
Quality Control By Artificial Vision: A Unifying View
With Applications In Desktop Printing, Jan Allebach,
[ORNL-079]

SESSION 1 – Location: Ballroom 3
Process Automation, Characterization, And Control, I
Chair: K. W. Tobin

10:00am: Vision-Based Automatic Process Control In
Layered Manufacturing, Yuan Cheng and Mohsen Jafari,
Rutgers University, USA. [ORNL-013]

10:30am: Visual Servo Control Using Orthonormal
Polynomial, Hamid Tairi, Tadeusz Sliwa, Yvon Voisin, Alain
Diou and Larbi Radouane, Université de Bourgogne, France.
[ORNL-058]

11:00am: Scene Inspection Using A Robotic Imaging
System, Balaji Ramadoss, Jin-Choon Ng, Andreas Koschan,
and Mongi Abidi, University of Tennessee, USA. [ORNL-
031] {Presented By David Page}

11:30am: Cognitive Intelligent Sensory System For Vision-
Based Quality Control, Sophie Kohler and Ernest Hirsch,
Université Louis Pasteur, France. [ORNL-051]

LUNCH (Ballroom 1 and 2) ....................... 12:00-1:30pm

SESSION 2 – Location: Ballroom 3
Process Automation, Characterization, And Control, II
Chair: P. Bingham

1:30pm: Texture-Based Paper Characterization Using
Non-Supervised Clustering, Markus Turtinen, Matti
Pietikäinen, Olli Silvén, Topi Mäepää and Matti Niskanen,
University of Oulu, Finland. [ORNL-008]

2:00pm: Calibration And Quality Control Of Cherries By
Artificial Vision, F. Poupeau, C. Rosenberger, H. Laurent, B.
Emile, J. Fachaux, ENSI de Bourges – Laboratory of Vision
and Robotic, France. [ORNL-026] {Presented by Emile}

Coffee Break ................................. 3:00pm

SESSION 1 – Location: Ballroom 4
Special Session: Image Analysis For Face Identification
Chair: H. Koshimizu

10:00am: Detection Of The Face And Eye Region For
Drivers’ Support System, Isamu Takai, Kazuhiko
Yamamoto, Kunihito Kato, Keiichi Yamada, and Michinori
Andoh, Gifu University, Japan. [ORNL-028]

10:30am: Head Pose Calibration From 3D Range And
Texture Images For 3D Facial Caricaturing, Takayuki
Fujiwara and Hiroyasu Koshimizu, Chukyo University, Japan.
[ORNL-041]

11:00pm: Comparison Of Different Methods For Gender
Estimation From Face Image Of Various Poses, Yohei
Ishii, Hitoshi Hongo, Yoshinori Niwa, and Kazuhiko
Yamamoto, Gifu University, Japan. [ORNL-017]

11:30am: Interactive Facial Caricaturing System Based On
Eye Camera, Tsuyoshi Yarnaguchi, Masafumi Tominaga,
and Hiroyasu Koshimizu, Chukyo University and Softopia, Japan.
[ORNL-057]

LUNCH (Ballroom 1 and 2) ....................... 12:00-1:30pm

SESSION 2 – Location: Ballroom 4
Non-Optical Image Measurement And Analysis
Chair: R. K. Ferrell

1:30pm: Quality Analysis Of Blue-Veined Cheeses By MRI.
A Preliminary Study, Alexandru Onea, Guylaine Collewet,
Christine Fernandez-Maloigne, Constantin Vertan, and
Francois Mariette, Cemagret and Université de Poitiers,
France. [ORNL-016]

2:00pm: Combination Of X-Ray Imaging And Spectra
Measurements For Improving Automatic Inspection Of
Aluminum Cast Components, Valérie Kaftandjian,
Gwenaëlle Lecomte, Emmanuelle Cendre, and Joergen
Rheinlander, INSA-CNDRI Laboratory, France and RISOE
National Laboratory, Denmark. [ORNL-053] {Presented by
Jean-Michel Letang}

2:30pm: Optimal Calibration Via Virtual X-Ray Imaging
For Dual-Energy Techniques: Application To Glass Wool,
J. M. Létang, N. Freud, and G. Peix, INSA-Lyon Scientific &
Technical University, France. [ORNL-062]

Coffee Break ................................. 3:00pm

SESSION 3 – Location: Ballroom 3

Color and Multispectral Image Analysis
Chair: S. Jaiswal

3:30pm: Development Of A Multispectral Imagery Device Devoted To Weed Detection, Jean-Baptiste Vioix, Jean-Paul Douzals, Frédéric Truchetet, and Pierre Navar, ENESAD – Cemagref and Laboratoire LE2I, France. [ORNL-069]

4:00pm: Inspection Of Poultry Skin Tumor Using Hyperspectral Fluorescence Imaging, Seong G. Kong, University of Tennessee, USA. [ORNL-012]

4:30pm: Quality Indexing By Machine Vision During Fermentation In Black Tea Manufacturing, S. Borah and M. Bhuyan, Tezpur University, India. [ORNL-007]

5:00pm: Analysis Of A Large Set Of Color Spaces For Skin Pixel Detection In Color Images, Jean-Christophe Terrillon, Arnaud Pilpre, Yoshinori Niwa, and Kazuhiko Yamamoto, Softopia Japan Foundation and Gifu University, Japan. [ORNL-050]

5:30pm: The Treatment Of Colour Images Taken By An Endoscopic Camera In Order To Characterize The Grain Size Distribution Of A Soil, P. Breul, R. Gourvés, P. Bonton, and Y. Haddani, Université Blaise Pascal, and Sol Solution, France. [ORNL-047]

SESSION 3 – Location: Ballroom 4

Non-Destructive Test And Analysis
Chair: H. Sari-Sarraf

3:30pm: Detection Of Cavitation Pits On Steel Surfaces Using SEM Imagery, Jeffery Price, Kathy W. Hylton, Kenneth W. Tobin, Jr., Philip R. Bingham, John D. Hunn, and John R. Haines, Oak Ridge National Laboratory, USA. [ORNL-070] {Presented by Karnowski}

4:00pm: Characterization Of Gas Pipeline Flaws Using Wavelet Analysis, Raymond Tucker, Steve Kercel Venugopal K. Varma, Oak Ridge National Laboratory, USA. [ORNL-72]

4:30pm: Optical Wear Assessment System For Grinding Tools, Thomas Heger and Madhukar Pandit, University of Kaiserslautern, Germany. [ORNL-011]

5:00pm: Lock-In Thermography To Rapid Evaluation Of Destruction Area In Composite Materials Used In Military Applications, Waldemar Swiderski DSc, Military Institute of Armament Technology, Poland. [ORNL-066]