

IEEE

SENSORS JOURNAL

A PUBLICATION OF THE IEEE SENSORS COUNCIL

WWW.IEEE.ORG/SENSORS

MAY 2015

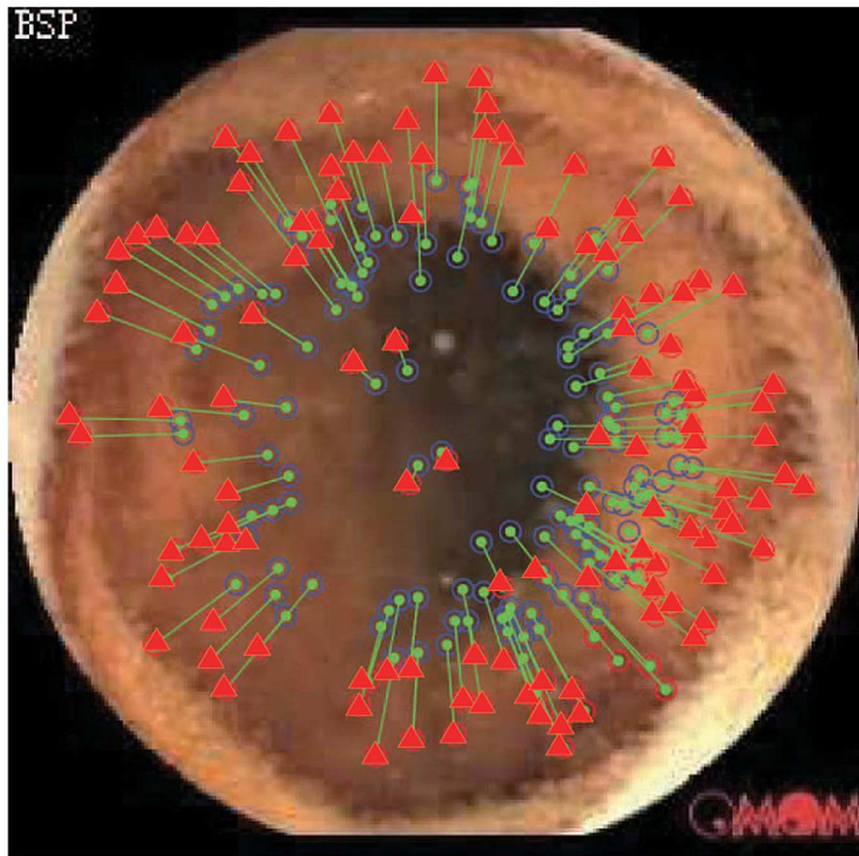
VOLUME 15

NUMBER 5

ISJEAZ

(ISSN 1530437X)

SPECIAL ISSUE ON ADVANCING STANDARDS FOR SMART TRANSDUCER INTERFACES
SPECIAL ISSUE ON DISTRIBUTED SMART SENSING FOR MOBILE VISION



Motion vectors, extracted by linking corresponding feature points, in image sequences from a wireless capsule endoscope as it travels through the small intestine (see page 2671).

IEEE

SENSORS JOURNAL

A PUBLICATION OF THE IEEE SENSORS COUNCIL

WWW.IEEE.ORG/SENSORS

MAY 2015

VOLUME 15

NUMBER 5

ISJEAZ

(ISSN 1530-437X)

SPECIAL ISSUE ON ADVANCING STANDARDS FOR SMART TRANSDUCER INTERFACES

Guest Editorial		
..... R. Morello, C. De Capua, A. Lay-Ekuakille, K. Lee, O. Postolache, W. J. Miller, S. Urooj, and J. Wu		2449
<hr/>		
SPECIAL ISSUE PAPERS		
A Low-Cost Configurable ISO/IEC/IEEE 21451-7-Compatible Sensor Tag		
..... J. Wang, L. Fu, H. Han, H. Min, and K. B. Lee		2451
A Prototypal Architecture of a IEEE 21451 Network for Smart Grid Applications Based on Power Line Communications		
..... A. Cataliotti, G. Cipriani, V. Cosentino, D. Di Cara, V. Di Dio, S. Gaiana, N. Panzavecchia, and G. Tinè		2460
Smart Transducer Interface—From Networked On-Site Optimization of Energy Balance in Research-Demonstrative Office Building to Smart City Conception		
..... I. Jabłoński		2468
A Comparison Between Sensor Signal Preprocessing Techniques		
..... F. Abate, V. K. L. Huang, G. Monte, V. Paciello, and A. Pietrosanto		2479
ISO/IEC/IEEE 21451 Compliant Sensor Nodes for Energy-Aware Wireless Sensor Networks		
..... G. Giorgi		2488
Use of TEDS to Improve Performances of Smart Biomedical Sensors and Instrumentation “An Overview on Advances and Applications of ISO/IEC/IEEE 21451 Standard”		
..... R. Morello		2497
Current Status of the IEEE 1451 Standard-Based Sensor Applications		
..... A. Kumar, V. Srivastava, M. K. Singh, and G. P. Hancke		2505
A Smart Sensor Network for Sea Water Quality Monitoring		
..... F. Adamo, F. Attivissimo, C. G. C. Carducci, and A. M. L. Lanzolla		2514
Using Algorithms on Smart Transducer: An IEEE Standard Perspective		
..... Z. Liu, F. Banakhr, G. Monte, and V. Huang		2523
A Reduced Reference Distortion Measure for Performance Improvement of Smart Cameras		
..... V. Bhateja, A. Kalsi, A. Srivastava, and A. Lay-Ekuakille		2531

(Contents Continued on Page 2442)



An ISO/IEC/IEEE 21451 Compliant Algorithm for Detecting Sensor Faults “An Approach Based on Repeatability and Accuracy”	R. Morello and C. De Capua	2541
ISO/IEC/IEEE 21451 Smart Sensor Network for the Evaluation of Motorcycle Suspension Systems	C. Liguori, V. Paciello, A. Paolillo, A. Pietrosanto, and P. Sommella	2549
Technical Advancements to Mobile Mammography Using Nonlinear Polynomial Filters and IEEE 21451-1 NCAP Information Model	V. Bhateja, S. Urooj, and M. Misra	2559
Dynamically Reconfigurable WSN Node Based on ISO/IEC/IEEE 21451 TEDS	J. A. Guevara, E. A. Vargas, A. F. Fatecha, and F. Barrero	2567
Proposed Security Mechanism for XMPP-Based Communications of ISO/IEC/IEEE 21451 Sensor Networks	L. Guo, J. Wu, Z. Xia, and J. Li	2577
TEDS Extensions Toward Energy Management of Wireless Transducers	H. Zangl, M. Zine-Zine, and S. Mühlbacher-Karrer	2587
Smart Lighting System ISO/IEC/IEEE 21451 Compatible	J. Higuera, W. Hertog, M. Perálvarez, J. Polo, and J. Carreras	2595
Implantable Neurorecording Sensing System: Wireless Transmission of Measurements	A. Lay-Ekuakille, G. Griffo, P. Vergallo, A. Massaro, F. Spano, and G. Gigli	2603
Smartness for Railway Transducers: Reliability Experimental Verifications and Accuracy	A. Lay-Ekuakille, N. I. Giannoccaro, P. Vergallo, E. Greco, and G. Griffo	2614
Low-Complexity Error Correction for ISO/IEC/IEEE 21451-5 Sensor and Actuator Networks	M. Zhan, J. Wu, Z. Zhang, H. Wen, and J. Wu	2622

SPECIAL ISSUE ON DISTRIBUTED SMART SENSING FOR MOBILE VISION

Guest Editorial	B. Bhanu, B. Lovell, A. Prati, and F. Qureshi	2631
-----------------------	---	------

SPECIAL ISSUE PAPERS

On Demand Retrieval of Crowdsourced Mobile Video	S. P. Venkatagiri, M. C. Chan, W. T. Ooi, and J. H. Chiam	2632
SIFT-Based Homographies for Efficient Multiview Distributed Visual Sensing	A. S. Dias, C. Brites, J. Ascenso, and F. Pereira	2643
Cost-Aware Coalitions for Collaborative Tracking in Resource-Constrained Camera Networks	J. C. SanMiguel and A. Cavallaro	2657
Hybrid Localization of Microrobotic Endoscopic Capsule Inside Small Intestine by Data Fusion of Vision and RF Sensors	G. Bao, K. Pahlavan, and L. Mi	2669
New Object Detection, Tracking, and Recognition Approaches for Video Surveillance Over Camera Network	S. Zhang, C. Wang, S.-C. Chan, X. Wei, and C.-H. Ho	2679
Multitarget Tracking in Nonoverlapping Cameras Using a Reference Set	X. Chen, L. An, and B. Bhanu	2692
Gesture Recognition Using Wearable Vision Sensors to Enhance Visitors’ Museum Experiences	L. Baraldi, F. Paci, G. Serra, L. Benini, and R. Cucchiara	2705

REGULAR ISSUE-SENSORS PAPERS

SENSORS LETTERS

Multielectrode Sensing for Extraction of Signal From Noise in Impedance Cytometry	S. Emaminejad, S. Talebi, R. W. Davis, and M. Javanmard	2715
Batch Fabrication of Transfer-Free Graphene-Coated Microcantilevers	H. J. Kim, J. Choi, S. Nam, and W. P. King	2717

TUTORIALS

A Survey on Theoretical and Practical Aspects of Imaging Aids for Artificial Vision in Professional Environments	J. M. Nadal-Serrano and M. Lopez-Vallejo	2719
--	--	------

REVIEW ARTICLES

SoI Monolithic Active Pixel Sensors for Radiation Detection Applications: A Review	H. Lan, Y. Wang, J. Chen, F. Cao, and H.-F. Hu	2732
Wearable Sensing for Solid Biomechanics: A Review	C. Wong, Z.-Q. Zhang, B. Lo, and G.-Z. Yang	2747

SENSORS PAPERS

Smart Diary: A Smartphone-Based Framework for Sensing, Inferring, and Logging Users' Daily Life	2761
..... <i>J. Liao, Z. Wang, L. Wan, Q. C. Cao, and H. Qi</i>	
Selective Detection of Hg(II) Over Cd(II) and Pb(II) Ions by DNA Functionalized CNT	2774
..... <i>A. Paul, B. Bhattacharya, and T. K. Bhattacharyya</i>	
Gold Nanoparticles-Modified Screen-Printed Electrode for Determination of Pb(II) Ion Using Linear Sweep Anodic Stripping Voltammetry	2780
..... <i>S. A. Tukur, N. A. Yusof, and R. Hajian</i>	
PMI-Based Nonlinear H_{∞} Estimation of Unknown Sensor Error for INS/GPS Integrated System	2785
..... <i>M. Zhong, D. Guo, and J. Guo</i>	
Fabrication of New Mid-Infrared Photodetectors Based on Graphene Modified by Organic Molecules	2795
..... <i>F. Jabbarzadeh, M. Siahsar, M. Dolatyari, G. Rostami, and A. Rostami</i>	
An Encryption Scheme Using Chaotic Map and Genetic Operations for Wireless Sensor Networks	2801
..... <i>K. Biswas, V. Muthukkumarasamy, and K. Singh</i>	
Temperature Sensor Based on Quantum Dots Solution Encapsulated in Photonic Crystal Fiber	2810
..... <i>X. Yin, W. Wang, Y. Yu, Y. Geng, and X. Li</i>	
Adaptive Interface for Personalized Center of Mass Self-Identification in Home Rehabilitation	2814
..... <i>A. González, P. Fraïsse, and M. Hayashibe</i>	
Multifocus Image Fusion Based on NSCT and Focused Area Detection	2824
..... <i>Y. Yang, S. Tong, S. Huang, and P. Lin</i>	
High Sensitivity Polyvinylidene Fluoride Microphone Based on Area Ratio Amplification and Minimal Capacitance	2839
..... <i>J. Xu, L. M. Headings, and M. J. Dapino</i>	
Theoretical and Experimental Investigation of an Intensity-Demodulated Fiber-Ring-Laser Ultrasonic Sensor System	2848
..... <i>G. Liu, E. Sandfort, L. Hu, T. Liu, and M. Han</i>	
Ultrasonic Sensor Triangulation for Accurate 3D Relative Positioning of Humanoid Robot Feet	2856
..... <i>L. Chassagne, O. Bruneau, A. Bialek, C. Falguière, E. Broussard, and O. Barrois</i>	
Abnormal Scene Change Detection From a Moving Camera Using Bags of Patches and Spider-Web Map	2866
..... <i>J.-W. Hsieh, C.-H. Chuang, S. Alghyaline, H.-F. Chiang, and C.-H. Chiang</i>	
CuO Nanoparticles Intermixed With Chemically Modified Multiwalled Carbon Nanotubes as a Novel Electrode for Cu^{2+} Ion Determination	2882
..... <i>M. Ghaedi, S. Y. S. Jaber, S. Hajati, M. Montazerzohori, A. Asfaram, B. Mirtamizdoust, and M. Zare</i>	
An Optical Fiber Fabry-Perot Interferometer Sensor for Simultaneous Measurement of Relative Humidity and Temperature	2891
..... <i>H. Sun, X. Zhang, L. Yuan, L. Zhou, X. Qiao, and M. Hu</i>	
Refractive Index Sensing Based on a Side-Polished Macrobending Plastic Optical Fiber	2898
..... <i>N. Jing, J. Zheng, X. Zhao, and C. Teng</i>	
Side-Hole Plastic Optical Fiber for Testing Liquid's Refractive Index	2902
..... <i>G. Liu, D. Feng, M. Zhang, S. Jiang, and Z. Ye</i>	
SmartPDR: Smartphone-Based Pedestrian Dead Reckoning for Indoor Localization	2906
..... <i>W. Kang and Y. Han</i>	
Tube Glass Waveguides Modified With Gold Nanoparticles for Application as a Simple Chemical and Biological Sensor	2917
..... <i>J.-Y. Li, D.-F. Lu, Z.-M. Qi, and Z. Tong</i>	
A Fully Integrated Analog Compensation for the Piezo-Hall Effect in a CMOS Single-Chip Hall Sensor Microsystem	2924
..... <i>S. Huber, W. Leten, M. Ackermann, C. Schott, and O. Paul</i>	
Improving the Performance of Wireless Sensor Networks Through Optimized Complex Field Network Coding	2934
..... <i>K. Eritmen and M. Keskinöz</i>	
Electric-Field Assisted Desorption of Water Molecules in DNA Functionalized CNT Network	2947
..... <i>A. Paul, B. Bhattacharya, and T. K. Bhattacharyya</i>	
EMFi-Based Ultrasonic Sensory Array for 3D Localization of Reflectors Using Positioning Algorithms	2951
..... <i>A. Jiménez Martín, Á. Hernández Alonso, D. Ruíz, I. Gude, C. De Marziani, M. C. Pérez, F. J. Álvarez, C. Gutiérrez, and J. Ureña</i>	
A Low Cost, Highly Scalable Wireless Sensor Network Solution to Achieve Smart LED Light Control for Green Buildings	2963
..... <i>M. Magno, T. Polonelli, L. Benini, and E. Popovici</i>	
Modified Carbon Paste Electrode for Pb^{2+} Ion Determination: Response Surface Methodology	2974
..... <i>M. Ghaedi, S. Y. S. Jaber, S. Hajati, M. Montazerzohori, A. Asfaram, and M. Zareh</i>	

Geographic Routing in Clustered Wireless Sensor Networks Among Obstacles	<i>H. P. Gupta, S. V. Rao, A. K. Yadav, and T. Dutta</i>	2984
Resonator- and Filter-Induced Slow Waves for High-Sensitivity RF Interferometer Operations	<i>Z. Chen, Y. Shao, and P. Wang</i>	2993
<i>In-Situ</i> Monitoring Method for Solution Volatilization Using Tilted Fiber Bragg Grating	<i>B. Jiang, X. Lu, D. Mao, W. Zhang, and J. Zhao</i>	3000
A Simple MOX Vapor Sensor on Polyimide Substrate for Measuring Humidity in ppm Level	<i>T. Islam, M. R. Mahboob, and S. A. Khan</i>	3004
Fabrication and Characterization of Long-Period Gratings in Hollow Core Fibers by Electric Arc Discharge	<i>A. Iadicicco, R. Ranjan, and S. Campopiano</i>	3014
VOCs Detection Based on Evanescent Wave Coupling of Dye-Coated Optical Fiber	<i>S.-H. Yeom, B.-H. Kang, C.-T. Seo, D.-I. Lee, H.-J. Shin, S.-C. Lim, M.-C. An, S.-W. Lee, J.-S. Lee, S.-H. Kim, and S.-W. Kang</i>	3021
Energy Efficient Distributed Filtering for a Class of Nonlinear Systems in Sensor Networks	<i>D. Zhang, L. Yu, and W.-A. Zhang</i>	3026
A Miniature Two-Plate Electrical Capacitance Tomography Sensor	<i>Z. Ren and W. Yang</i>	3037
Lightweight Self-Adapting Linear Prediction Algorithms for Wireless Sensor Networks	<i>H. Zhang, X. Zhang, and D. K. Sung</i>	3050
Quantitative Evaluation of Optical Fiber/Soil Interfacial Behavior and Its Implications for Sensing Fiber Selection	<i>C.-C. Zhang, H.-H. Zhu, J.-K. She, D. Zhang, and B. Shi</i>	3059
Urban Objects Classification With an Experimental Acoustic Sensor Network	<i>T. H. de Groot, E. Woudenberg, and A. G. Yarovoy</i>	3068
Multicast for 6LoWPAN Wireless Sensor Networks	<i>X. Wang</i>	3076

About the Cover: "Motion vectors, extracted by linking corresponding feature points, in image sequences from a wireless capsule endoscope as it travels through the small intestine." For more information see "Hybrid Localization of Microrobotic Endoscopic Capsule Inside Small Intestine by Data Fusion of Vision and RF Sensors," by Bao *et al.*, which begins on p. 2669.

IEEE

SENSORS JOURNAL

A PUBLICATION OF THE IEEE SENSORS COUNCIL

WWW.IEEE.ORG/SENSORS

MAY 2015

VOLUME 15

NUMBER 5

ISJEAZ

(ISSN 1530-437X)

SPECIAL ISSUE ON ADVANCING STANDARDS FOR SMART TRANSDUCER INTERFACES

Guest Editorial		
..... R. Morello, C. De Capua, A. Lay-Ekuakille, K. Lee, O. Postolache, W. J. Miller, S. Urooj, and J. Wu		2449
<hr/>		
SPECIAL ISSUE PAPERS		
<i>Sensors-Actuators</i>		
A Comparison Between Sensor Signal Preprocessing Techniques		
..... F. Abate, V. K. L. Huang, G. Monte, V. Paciello, and A. Pietrosanto		2479
ISO/IEC/IEEE 21451 Compliant Sensor Nodes for Energy-Aware Wireless Sensor Networks	G. Giorgi	2488
Technical Advancements to Mobile Mammography Using Nonlinear Polynomial Filters and IEEE 21451-1 NCAP Information Model	V. Bhateja, S. Urooj, and M. Misra	2559
TEDS Extensions Toward Energy Management of Wireless Transducers		
..... H. Zangl, M. Zine-Zine, and S. Mühlbacher-Karrer		2587
Smart Lighting System ISO/IEC/IEEE 21451 Compatible		
..... J. Higuera, W. Hertog, M. Perálvarez, J. Polo, and J. Carreras		2595
<i>Sensor Systems</i>		
A Low-Cost Configurable ISO/IEC/IEEE 21451-7-Compatible Sensor Tag		
..... J. Wang, L. Fu, H. Han, H. Min, and K. B. Lee		2451
Smart Transducer Interface—From Networked On-Site Optimization of Energy Balance in Research-Demonstrative Office Building to Smart City Conception	I. Jabłoński	2468
Using Algorithms on Smart Transducer: An IEEE Standard Perspective		
..... Z. Liu, F. Banakhr, G. Monte, and V. Huang		2523
Dynamically Reconfigurable WSN Node Based on ISO/IEC/IEEE 21451 TEDS		
..... J. A. Guevara, E. A. Vargas, A. F. Fatecha, and F. Barrero		2567
<i>Applications</i>		
Use of TEDS to Improve Performances of Smart Biomedical Sensors and Instrumentation “An Overview on Advances and Applications of ISO/IEC/IEEE 21451 Standard”	R. Morello	2497
Current Status of the IEEE 1451 Standard-Based Sensor Applications		
..... A. Kumar, V. Srivastava, M. K. Singh, and G. P. Hancke		2505

(Contents Continued on Page 2446)



A Smart Sensor Network for Sea Water Quality Monitoring	2514
..... F. Adamo, F. Attivissimo, C. G. C. Carducci, and A. M. L. Lanzolla	
A Reduced Reference Distortion Measure for Performance Improvement of Smart Cameras	2531
..... V. Bhateja, A. Kalsi, A. Srivastava, and A. Lay-Ekuakille	
An ISO/IEC/IEEE 21451 Compliant Algorithm for Detecting Sensor Faults “An Approach Based on Repeatability and Accuracy”	2541
..... R. Morello and C. De Capua	
ISO/IEC/IEEE 21451 Smart Sensor Network for the Evaluation of Motorcycle Suspension Systems	2549
..... C. Liguori, V. Paciello, A. Paolillo, A. Pietrosanto, and P. Sommella	
Implantable Neurorecording Sensing System: Wireless Transmission of Measurements	2603
..... A. Lay-Ekuakille, G. Griffò, P. Vergallo, A. Massaro, F. Spano, and G. Gigli	
Smartness for Railway Transducers: Reliability Experimental Verifications and Accuracy	2614
..... A. Lay-Ekuakille, N. I. Giannoccaro, P. Vergallo, E. Greco, and G. Griffò	
<i>Sensors System Networks</i>	
A Prototypal Architecture of a IEEE 21451 Network for Smart Grid Applications Based on Power Line Communications	2460
..... A. Cataliotti, G. Cipriani, V. Cosentino, D. Di Cara, V. Di Dio, S. Guaiana, N. Panzavecchia, and G. Tinè	
Proposed Security Mechanism for XMPP-Based Communications of ISO/IEC/IEEE 21451 Sensor Networks	2577
..... L. Guo, J. Wu, Z. Xia, and J. Li	
Low-Complexity Error Correction for ISO/IEC/IEEE 21451-5 Sensor and Actuator Networks	2622
..... M. Zhan, J. Wu, Z. Zhang, H. Wen, and J. Wu	

SPECIAL ISSUE ON DISTRIBUTED SMART SENSING FOR MOBILE VISION

Guest Editorial	2631
..... B. Bhanu, B. Lovell, A. Prati, and F. Qureshi	

SPECIAL ISSUE PAPERS

<i>Optoelectronic/Photonic Sensors</i>	
Gesture Recognition Using Wearable Vision Sensors to Enhance Visitors’ Museum Experiences	2705
..... L. Baraldi, F. Paci, G. Serra, L. Benini, and R. Cucchiara	
<i>Sensor Signal Processing and Array Sensor Fusion</i>	
SIFT-Based Homographies for Efficient Multiview Distributed Visual Sensing	2643
..... A. S. Dias, C. Brites, J. Ascenso, and F. Pereira	
<i>Applications</i>	
New Object Detection, Tracking, and Recognition Approaches for Video Surveillance Over Camera Network	2679
..... S. Zhang, C. Wang, S.-C. Chan, X. Wei, and C.-H. Ho	
<i>Sensors System Networks</i>	
Cost-Aware Coalitions for Collaborative Tracking in Resource-Constrained Camera Networks	2657
..... J. C. SanMiguel and A. Cavallaro	
<i>Sensors System Networks</i>	
On Demand Retrieval of Crowdsourced Mobile Video	2632
..... S. P. Venkatagiri, M. C. Chan, W. T. Ooi, and J. H. Chiam	
Hybrid Localization of Microrobotic Endoscopic Capsule Inside Small Intestine by Data Fusion of Vision and RF Sensors	2669
..... G. Bao, K. Pahlavan, and L. Mi	
Multitarget Tracking in Nonoverlapping Cameras Using a Reference Set	2692
..... X. Chen, L. An, and B. Bhanu	

REGULAR ISSUE–SENSORS PAPERS

REVIEW ARTICLES

<i>Ionizing Radiation Sensors</i>	
SoI Monolithic Active Pixel Sensors for Radiation Detection Applications: A Review	2732
..... H. Lan, Y. Wang, J. Chen, F. Cao, and H.-F. Hu	
<i>Sensor Systems</i>	
Wearable Sensing for Solid Biomechanics: A Review	2747
..... C. Wong, Z.-Q. Zhang, B. Lo, and G.-Z. Yang	

TUTORIALS

Applications

A Survey on Theoretical and Practical Aspects of Imaging Aids for Artificial Vision in Professional Environments	<i>J. M. Nadal-Serrano and M. Lopez-Vallejo</i>	2719
--	---	------

SENSORS LETTERS

Chemical and Biological Sensors

Multielectrode Sensing for Extraction of Signal From Noise in Impedance Cytometry	<i>S. Emaminejad, S. Talebi, R. W. Davis, and M. Javanmard</i>	2715
---	--	------

Sensor Materials and Solid-State Sensors

Batch Fabrication of Transfer-Free Graphene-Coated Microcantilevers	<i>H. J. Kim, J. Choi, S. Nam, and W. P. King</i>	2717
---	---	------

SENSORS PAPERS

Chemical and Biological Sensors

Gold Nanoparticles-Modified Screen-Printed Electrode for Determination of Pb(II) Ion Using Linear Sweep Anodic Stripping Voltammetry	<i>S. A. Tukur, N. A. Yusof, and R. Hajian</i>	2780
--	--	------

CuO Nanoparticles Intermixed With Chemically Modified Multiwalled Carbon Nanotubes as a Novel Electrode for Cu ²⁺ Ion Determination	<i>M. Ghaedi, S. Y. S. Jaber, S. Hajati, M. Montazerzohori, A. Asfaram, B. Mirtamizdoust, and M. Zareh</i>	2882
--	--	------

Modified Carbon Paste Electrode for Pb ²⁺ Ion Determination: Response Surface Methodology	<i>M. Ghaedi, S. Y. S. Jaber, S. Hajati, M. Montazerzohori, A. Asfaram, and M. Zareh</i>	2974
--	--	------

Sensor Materials and Solid-State Sensors

Selective Detection of Hg(II) Over Cd(II) and Pb(II) Ions by DNA Functionalized CNT	<i>A. Paul, B. Bhattacharya, and T. K. Bhattacharyya</i>	2774
---	--	------

Magnetic Sensors

A Fully Integrated Analog Compensation for the Piezo-Hall Effect in a CMOS Single-Chip Hall Sensor Microsystem	<i>S. Huber, W. Leten, M. Ackermann, C. Schott, and O. Paul</i>	2924
--	---	------

Microwave/Millimeter Wave Sensors

Resonator- and Filter-Induced Slow Waves for High-Sensitivity RF Interferometer Operations	<i>Z. Chen, Y. Shao, and P. Wang</i>	2993
--	--------------------------------------	------

Optoelectronic/Photonic Sensors

Fabrication of New Mid-Infrared Photodetectors Based on Graphene Modified by Organic Molecules	<i>F. Jabbarzadeh, M. Siahshar, M. Dolatyari, G. Rostami, and A. Rostami</i>	2795
--	--	------

Side-Hole Plastic Optical Fiber for Testing Liquid's Refractive Index	<i>G. Liu, D. Feng, M. Zhang, S. Jiang, and Z. Ye</i>	2902
---	---	------

VOCs Detection Based on Evanescent Wave Coupling of Dye-Coated Optical Fiber	<i>S.-H. Yeom, B.-H. Kang, C.-T. Seo, D.-I. Lee, H.-J. Shin, S.-C. Lim, M.-C. An, S.-W. Lee, J.-S. Lee, S.-H. Kim, and S.-W. Kang</i>	3021
--	---	------

Integrated Optics/Fiber Optical Devices

Temperature Sensor Based on Quantum Dots Solution Encapsulated in Photonic Crystal Fiber	<i>X. Yin, W. Wang, Y. Yu, Y. Geng, and X. Li</i>	2810
--	---	------

Theoretical and Experimental Investigation of an Intensity-Demodulated Fiber-Ring-Laser Ultrasonic Sensor System	<i>G. Liu, E. Sandfort, L. Hu, T. Liu, and M. Han</i>	2848
--	---	------

An Optical Fiber Fabry-Perot Interferometer Sensor for Simultaneous Measurement of Relative Humidity and Temperature	<i>H. Sun, X. Zhang, L. Yuan, L. Zhou, X. Qiao, and M. Hu</i>	2891
--	---	------

Refractive Index Sensing Based on a Side-Polished Macrobending Plastic Optical Fiber	<i>N. Jing, J. Zheng, X. Zhao, and C. Teng</i>	2898
--	--	------

Tube Glass Waveguides Modified With Gold Nanoparticles for Application as a Simple Chemical and Biological Sensor	<i>J.-Y. Li, D.-F. Lu, Z.-M. Qi, and Z. Tong</i>	2917
---	--	------

In-Situ Monitoring Method for Solution Volatilization Using Tilted Fiber Bragg Grating	<i>B. Jiang, X. Lu, D. Mao, W. Zhang, and J. Zhao</i>	3000
--	---	------

Fabrication and Characterization of Long-Period Gratings in Hollow Core Fibers by Electric Arc Discharge	3014
..... A. Iadicicco, R. Ranjan, and S. Campopiano	
<i>Sensor Phenomena and Characterization</i>	
High Sensitivity Polyvinylidene Fluoride Microphone Based on Area Ratio Amplification and Minimal Capacitance	2839
..... J. Xu, L. M. Headings, and M. J. Dapino	
Electric-Field Assisted Desorption of Water Molecules in DNA Functionalized CNT Network	2947
..... A. Paul, B. Bhattacharya, and T. K. Bhattacharyya	
A Simple MOX Vapor Sensor on Polyimide Substrate for Measuring Humidity in ppm Level	3004
..... T. Islam, M. R. Mahboob, and S. A. Khan	
A Miniature Two-Plate Electrical Capacitance Tomography Sensor	3037
..... Z. Ren and W. Yang	
Quantitative Evaluation of Optical Fiber/Soil Interfacial Behavior and Its Implications for Sensing Fiber Selection	3059
..... C.-C. Zhang, H.-H. Zhu, J.-K. She, D. Zhang, and B. Shi	
<i>Sensor Signal Processing and Array Sensor Fusion</i>	
Abnormal Scene Change Detection From a Moving Camera Using Bags of Patches and Spider-Web Map	2866
..... J.-W. Hsieh, C.-H. Chuang, S. Alghyaline, H.-F. Chiang, and C.-H. Chiang	
Improving the Performance of Wireless Sensor Networks Through Optimized Complex Field Network Coding	2934
..... K. Eritmen and M. Keskinöz	
Urban Objects Classification With an Experimental Acoustic Sensor Network	3068
..... T. H. de Groot, E. Woudenbergh, and A. G. Yarovoy	
<i>Sensor Systems</i>	
Smart Diary: A Smartphone-Based Framework for Sensing, Inferring, and Logging Users' Daily Life	2761
..... J. Liao, Z. Wang, L. Wan, Q. C. Cao, and H. Qi	
PMI-Based Nonlinear H_∞ Estimation of Unknown Sensor Error for INS/GPS Integrated System	2785
..... M. Zhong, D. Guo, and J. Guo	
EMFi-Based Ultrasonic Sensory Array for 3D Localization of Reflectors Using Positioning Algorithms	2951
..... A. Jiménez Martín, Á. Hernández Alonso, D. Ruíz, I. Gude, C. De Marziani, M. C. Pérez, F. J. Álvarez, C. Gutiérrez, and J. Ureña	
A Low Cost, Highly Scalable Wireless Sensor Network Solution to Achieve Smart LED Light Control for Green Buildings	2963
..... M. Magno, T. Polonelli, L. Benini, and E. Popovici	
<i>Applications</i>	
An Encryption Scheme Using Chaotic Map and Genetic Operations for Wireless Sensor Networks	2801
..... K. Biswas, V. Muthukkumarasamy, and K. Singh	
Adaptive Interface for Personalized Center of Mass Self-Identification in Home Rehabilitation	2814
..... A. González, P. Fraisse, and M. Hayashibe	
Ultrasonic Sensor Triangulation for Accurate 3D Relative Positioning of Humanoid Robot Feet	2856
..... L. Chassagne, O. Bruneau, A. Bialek, C. Falguière, E. Broussard, and O. Barrois	
SmartPDR: Smartphone-Based Pedestrian Dead Reckoning for Indoor Localization	2906
..... W. Kang and Y. Han	
Geographic Routing in Clustered Wireless Sensor Networks Among Obstacles	2984
..... H. P. Gupta, S. V. Rao, A. K. Yadav, and T. Dutta	
<i>Sensors System Networks</i>	
Multifocus Image Fusion Based on NSCT and Focused Area Detection	2824
..... Y. Yang, S. Tong, S. Huang, and P. Lin	
Energy Efficient Distributed Filtering for a Class of Nonlinear Systems in Sensor Networks	3026
..... D. Zhang, L. Yu, and W.-A. Zhang	
Lightweight Self-Adapting Linear Prediction Algorithms for Wireless Sensor Networks	3050
..... H. Zhang, X. Zhang, and D. K. Sung	
Multicast for 6LoWPAN Wireless Sensor Networks	3076
..... X. Wang	

About the Cover: "Motion vectors, extracted by linking corresponding feature points, in image sequences from a wireless capsule endoscope as it travels through the small intestine." For more information see "Hybrid Localization of Microbotic Endoscopic Capsule Inside Small Intestine by Data Fusion of Vision and RF Sensors," by Bao *et al.*, which begins on p. 2669.
